

Ocak- Şubat- Mart 2014 Seçilmiş Yayın Taraması

	Derleme	Prospektif Makaleler	Retrospektif Makaleler	Vaka sunumu
Tiroid	<u>16</u>	<u>5</u>	<u>51</u>	<u>5</u>
Paratiroid	<u>1</u>	<u>8</u>	<u>20</u>	<u>3</u>
Adrenal	<u>3</u>		<u>20</u>	<u>3</u>
NET	<u>1</u>		<u>2</u>	<u>1</u>

TIROID

DERLEME

1. Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia. [▶](#)
2. Unstimulated highly sensitive thyroglobulin in follow-up of differentiated thyroid cancer patients: a meta-analysis. [▶](#)
3. A systematic review and meta-analysis of total thyroidectomy versus bilateral subtotal thyroidectomy for Graves' disease. [▶](#)
4. 'Suspicious for papillary thyroid carcinoma' before and after The Bethesda System for Reporting Thyroid Cytopathology: impact of standardized terminology. [▶](#)
5. Thyroid metastasectomy. [▶](#)
6. Radiofrequency ablation for treatment of benign thyroid nodules: systematic review. [▶](#)
7. Distinguishing classical papillary thyroid microcancers from follicular-variant microcancers. [▶](#)
8. Thyroglobulin in lymph node fine-needle aspiration wash-out: a systematic review and meta-analysis of diagnostic accuracy. [▶](#)
9. DIAGNOSIS IN ENDOCRINOLOGY: Quantification of cancer risk of each clinical and ultrasonographic suspicious feature of thyroid nodules: a systematic review and meta-analysis. [▶](#)
10. Systematic Review and Meta-analysis of Robotic vs Conventional Thyroidectomy Approaches for Thyroid Disease. [▶](#)
11. Management of recurrent and persistent metastatic lymph nodes in well-differentiated thyroid cancer: A multifactorial decision-making guide for the thyroid cancer care collaborative. [▶](#)
12. Hürthle cells in fine-needle aspirates of the thyroid: A review of their diagnostic criteria and significance. [▶](#)
13. Prophylactic central neck dissection in papillary thyroid cancer: a consensus report of the European Society of Endocrine Surgeons (ESES). [▶](#)
14. Classification of locoregional lymph nodes in medullary and papillary thyroid cancer. [▶](#)

15. Classification of aerodigestive tract invasion from thyroid cancer. [▶](#)

16. Multifocal papillary thyroid carcinoma--a consensus report of the European Society of Endocrine Surgeons (ESES). [▶](#)

TIROID

PROSPEKTIF

1. Predictive factors of contralateral paratracheal lymph node metastasis in papillary thyroid cancer: prospective multicenter study. [▶](#)
2. The use of core needle biopsy as first-line in diagnosis of thyroid nodules reduces false negative and inconclusive data reported by fine-needle aspiration. [▶](#)
3. Accuracy of intraoperative determination of central node metastasis by the surgeon in papillary thyroid carcinoma. [▶](#)
4. Predictive factors of contralateral paratracheal lymph node metastasis in papillary thyroid cancer: prospective multicenter study. [▶](#)
5. Thyroid nodules (≥ 4 cm): can ultrasound and cytology reliably exclude cancer? [▶](#)

TİROİD

RETROSPEKTİF

1. Recombinant human thyroid-stimulating hormone in radioiodine thyroid remnant ablation. [▶](#)
2. Applying the Society of Radiologists in Ultrasound recommendations for fine-needle aspiration of thyroid nodules: effect on workup and malignancy detection. [▶](#)
3. Thyroid malignancies in survivors of Hodgkin lymphoma. [▶](#)
4. Recurrent laryngeal nerve palsy during surgery for benign thyroid diseases: risk factors and outcome analysis. [▶](#)
5. Incidence and predictive factors of inadequate fine-needle aspirates for BRAF(V600E) mutation analysis in thyroid nodules. [▶](#)
6. Markedly elevated thyroglobulin levels in the preoperative thyroidectomy patient correlates with metastatic burden. [▶](#)
7. Treatments for complications of tracheal sleeve resection for papillary thyroid carcinoma with tracheal invasion. [▶](#)
8. Well differentiated thyroid cancer: are we over treating our patients? [▶](#)
9. Ultrasonographic features associated with malignancy in cytologically indeterminate thyroid nodules. [▶](#)
10. Revisiting overdiagnosis and fatality in thyroid cancer. [▶](#)
11. Comparison of ¹⁸F-fluoride PET/CT, ¹⁸F-FDG PET/CT and bone scintigraphy (planar and SPECT) in detection of bone metastases of differentiated thyroid cancer: a pilot study. [▶](#)
12. Progression of medullary thyroid cancer in RET carriers of ATA class A and C mutations. [▶](#)

13. The effect of extent of surgery and number of lymph node metastases on overall survival in patients with medullary thyroid cancer. [▶](#)
14. Determination of the optimal time interval for repeat evaluation after a benign thyroid nodule aspiration. [▶](#)
15. Familial vs sporadic papillary thyroid carcinoma: a matched-case comparative study showing similar clinical/prognostic behaviour. [▶](#)
16. The increase in thyroid cancer incidence during the last four decades is accompanied by a high frequency of BRAF mutations and a sharp increase in RAS mutations. [▶](#)
17. Racial and socioeconomic disparities in presentation and outcomes of well-differentiated thyroid cancer. [▶](#)
18. Infarction of papillary thyroid carcinoma after fine-needle aspiration: case series and review of literature. [▶](#)
19. Familial history of non-medullary thyroid cancer is an independent prognostic factor for tumor recurrence in younger patients with conventional papillary thyroid carcinoma. [▶](#)
20. Modified dynamic risk stratification for predicting recurrence using the response to initial therapy in patients with differentiated thyroid carcinoma. [▶](#)
21. Value of immunohistochemistry in the detection of BRAF(V600E) mutations in fine-needle aspiration biopsies of papillary thyroid carcinoma. [▶](#)
22. Importance of Postoperative Stimulated Thyroglobulin Level at the Time of 131I Ablation Therapy for Differentiated Thyroid Cancer. [▶](#)
23. Papillary thyroid microcarcinoma: proposal of treatment based on histological prognostic factors evaluation. [▶](#)
24. Identifying predictors of a difficult thyroidectomy. [▶](#)
25. Diagnostic Whole-Body Scan May Not Be Necessary for Intermediate-Risk Patients with Differentiated Thyroid Cancer after Low-Dose (30 mCi) Radioactive Iodide Ablation. [▶](#)

26. Long-term results of radiotherapy in anaplastic thyroid cancer. [▶](#)
27. The role of BRAF V600E mutation as a potential marker for prognostic stratification of papillary thyroid carcinoma: a long-term follow-up study. [▶](#)
28. Post-operative neck ultrasound and risk stratification in differentiated thyroid cancer patients with initial lymph node involvement. [▶](#)
29. Surgical complications after robotic thyroidectomy for thyroid carcinoma: a single center experience with 3,000 patients. [▶](#)
30. Outcome of vocal cord function after partial layer resection of the recurrent laryngeal nerve in patients with invasive papillary thyroid cancer. [▶](#)
31. Thyroid "atypia of undetermined significance" with nuclear atypia has high rates of malignancy and BRAF mutation. [▶](#)
32. Follicular nodules (Thy3) of the thyroid: is total thyroidectomy the best option? [▶](#)
33. Thyroglobulin Antibodies Could be a Potential Predictive Marker for Papillary Thyroid Carcinoma. [▶](#)
34. Anaplastic Thyroid Carcinoma: A 25-year Single-Institution Experience. [▶](#)
35. Fine-needle aspiration cytology of thyroid nodules with Hürthle cells: cytomorphic predictors for neoplasms, improving diagnostic accuracy and overcoming pitfalls. [▶](#)
36. Total versus hemithyroidectomy for small unilateral papillary thyroid carcinoma. [▶](#)
37. Outcomes in patients with poorly differentiated thyroid carcinoma. [▶](#)
38. The rising trend of papillary carcinoma in thyroidectomies: 14-years of experience in a referral center of Turkey. [▶](#)
39. Prediction of central compartment lymph node metastasis in papillary thyroid microcarcinoma. [▶](#)
40. Sentinel node biopsy in papillary thyroid cancer--what is the potential? [▶](#)
41. Thyroid Papillary Microcarcinoma Might Progress During Pregnancy. [▶](#)

42. Malignancy Rate in Thyroid Nodules Classified as Bethesda Category III (AUS/FLUS). [▶](#)
43. Serum Thyroglobulin Improves the Sensitivity of the McGill Thyroid Nodule Score for Well-Differentiated Thyroid Cancer. [▶](#)
44. Effects of Low-Dose and High-Dose Postoperative Radioiodine Therapy on the Clinical Outcome in Patients with Small Differentiated Thyroid Cancer Having Microscopic Extrathyroidal Extension. [▶](#)
45. Reoperative experience with papillary thyroid cancer. [▶](#)
46. The effect of extent of surgery and number of lymph node metastases on overall survival in patients with medullary thyroid cancer. [▶](#)
47. Determination of the optimal time interval for repeat evaluation after a benign thyroid nodule aspiration. [▶](#)
48. Nodal recurrence in the lateral neck after total thyroidectomy with prophylactic central neck dissection for papillary thyroid cancer. [▶](#)
49. Risk of thyroid cancer in patients with thyroiditis: a population-based cohort study. [▶](#)
50. A preoperative nomogram for the prediction of ipsilateral central compartment lymph node metastases in papillary thyroid cancer. [▶](#)
51. The role of thyroidectomy in metastatic disease to the thyroid gland. [▶](#)

TİROİD

Vaka sunumu

1. Meningioma like tumour of thyroid: a rare variant of follicular adenoma. [▶](#)
2. Thyroid tuberculosis: presenting symptom of mediastinal tuberculous lymphadenitis--an unusual case. [▶](#)
3. Medullary thyroid carcinoma with ectopic adrenocorticotrophic hormone syndrome. [▶](#)
4. Partial laryngectomy with cricoid reconstruction: thyroid carcinoma invading the larynx. [▶](#)
5. Thyroid carcinoma metastases to axillary lymph nodes: report of two rare cases of papillary and medullarythyroid carcinoma and literature review. [▶](#)

PARATIROID

DERLEME

1. Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia. [▶](#)

PARATIROID

PROSPEKTİF

1. Randomized controlled trial of alfacalcidol supplementation for the reduction of hypocalcemia after total thyroidectomy. [▶](#)
2. Parathyroidectomy improves symptomatology and quality of life in patients with secondary hyperparathyroidism. [▶](#)
3. Elevated parathyroid hormone after parathyroidectomy delays symptom improvement. [▶](#)
4. Relationship of the recurrent laryngeal nerve to the superior parathyroid gland during thyroidectomy. [▶](#)
5. Hypocalcaemia following total thyroidectomy: early post-operative parathyroid hormone assay as a risk stratification and management tool. [▶](#)
6. The Small Abnormal Parathyroid Gland is Increasingly Common and Heralds Operative Complexity. [▶](#)
7. Diagnostic value of endoscopic ultrasonography for preoperative localization of parathyroid adenomas. [▶](#)
8. Parathyroidectomy improves symptomatology and quality of life in patients with secondary hyperparathyroidism. [▶](#)

PARATIROID

RETROSPEKTİF

1. Predictors of recurrence in primary hyperparathyroidism: an analysis of 1386 cases. [▶](#)
2. Incidence of multiglandular disease in sporadic primary hyperparathyroidism. [▶](#)
3. Role of cervical ultrasound in detecting thyroid pathology in primary hyperparathyroidism. [▶](#)
4. Effect of gender, biochemical parameters & parathyroid surgery on gastrointestinal manifestations of symptomatic primary hyperparathyroidism. [▶](#)
5. Four-dimensional computed tomography for parathyroid localization: a new imaging modality? [▶](#)
6. The Role of the Robotic-Assisted Transaxillary Gasless Approach for the Removal of Parathyroid Adenomas. [▶](#)
7. Co-existent thyroid disease in patients treated for primary hyperparathyroidism: implications for clinical management. [▶](#)
8. Localization of ectopic and supernumerary parathyroid glands in patients with secondary and tertiary hyperparathyroidism: surgical description and correlation with preoperative ultrasonography and Tc99m-Sestamibi scintigraphy. [▶](#)
9. Presence of small parathyroid glands in renal transplant patients supports less-than-total parathyroidectomy to treat hypercalcemic hyperparathyroidism. [▶](#)
10. Role of ultrasonography in the management of patients with primary hyperparathyroidism: retrospective comparison with technetium-99m sestamibi scintigraphy. [▶](#)
11. Oncologic Resection Achieving R0 Margins Improves Disease-Free Survival in Parathyroid Cancer. [▶](#)
12. Incidental Parathyroidectomy during Thyroid Surgery Using Capsular Dissection Technique. [▶](#)

13. Validation of 1-hour post-thyroidectomy parathyroid hormone level in predicting hypocalcemia. [▶](#)
14. A simplified approach to minimally invasive parathyroidectomy. [▶](#)
15. Operative Failure in Minimally Invasive Parathyroidectomy Utilizing an Intraoperative Parathyroid Hormone Assay. [▶](#)
16. Predictors of recurrence in primary hyperparathyroidism: an analysis of 1386 cases. [▶](#)
17. The final intraoperative parathyroid hormone level: how low should it go? [▶](#)
18. Cure predictability during parathyroidectomy. [▶](#)
19. Preservation of the inferior thyroïdal vein reduces post-thyroidectomy hypocalcemia. [▶](#)
20. Ultrasound-guided methylene blue dye injection for parathyroid localization in the reoperative neck. [▶](#)

PARATIROID

VAKA SUNUMU

1. Pseudohypoparathyroidism Type II in a Woman with a History of Thyroid Surgery. [▶](#)
2. Sestamibi scintigraphy for parathyroid localisation: a reminder of the dangers of false positives. [▶](#)
3. Recurrent Parathyroid Carcinoma Appearing as FDG Negative but MIBI Positive. [▶](#)

ADRENAL

DERLEME

1. Surgical management of adrenocortical tumours. [▶](#)
2. Management of adrenal cancer: a 2013 update. [▶](#)
3. Surgical management of adrenal metastases. [▶](#)

ADRENAL

PROSPEKTİF

ADRENAL

RETROSPEKTİF

1. Adrenal incidentalomas: management in British district general hospitals. [▶](#)
2. Borderline Resectable Adrenal Cortical Carcinoma: A Potential Role for Preoperative Chemotherapy. [▶](#)
3. The Role of Adrenal Scintigraphy in the Diagnosis of Subclinical Cushing's Syndrome and the Prediction of Post-surgical Hypoadrenalism. [▶](#)
4. Clipless laparoscopic adrenalectomy in children and young patients: a single center experience with 12 cases. [▶](#)

5. Radiology reporting of adrenal incidentalomas - who requires further testing? [▶](#)
6. Surgical Outcome of Laparoscopic Surgery, Including Laparoendoscopic Single-Site Surgery, for Retroperitoneal Paraganglioma Compared with Adrenal Pheochromocytoma. [▶](#)
7. Seasonal variation in plasma free normetanephrine concentrations: implications for biochemical diagnosis of pheochromocytoma. [▶](#)
8. A retrospective study of laparoscopic unilateral adrenalectomy for primary hyperaldosteronism caused by unilateral adrenal hyperplasia. [▶](#)
9. Is Adrenal Venous Sampling Mandatory before Surgical Decision in Case of Primary Hyperaldosteronism? [▶](#)
10. Adrenal Metastectomy is Safe in Selected Patients. [▶](#)
11. The value of adding (18)F-FDG PET/CT to adrenal protocol CT for characterizing adrenal metastasis (≥ 10 mm) in oncologic patients. [▶](#)
12. Long-term follow-up in adrenal incidentalomas: an Italian Multicenter Study. [▶](#)
13. Diagnosis and treatment of pheochromocytoma during pregnancy. [▶](#)
14. Laparoscopic adrenal metastasectomy: appropriate, safe, and feasible. [▶](#)
15. Adrenal myelolipoma: operative indications and outcomes. [▶](#)
16. Laparoscopic adrenalectomy for metastatic adrenal tumor. [▶](#)
17. Adrenal venous sampling for stratifying patients for surgery of adrenal nodules detected using dynamic contrast enhanced CT. [▶](#)
18. Long-term survival after adrenalectomy for stage I/II adrenocortical carcinoma (ACC): a retrospective comparative cohort study of laparoscopic versus open approach. [▶](#)
19. Retroperitoneal laparoendoscopic single-site adrenalectomy for pheochromocytoma: our single center experiences. [▶](#)

20. Perioperative, functional, and oncologic outcomes of partial adrenalectomy for multiple ipsilateral pheochromocytomas. [▶](#)

ADRENAL

VAKA SUNUMU

1. Case report: Large adrenal ganglioneuroma. [▶](#)
2. Preoperative FDG PET/CT in Adrenocortical Cancer Depicts Massive Venous Tumor Invasion. [▶](#)
3. Adrenocortical carcinoma presenting as bilateral pitting leg oedema. [▶](#)

NET

DERLEME

1. Gastroenteropancreatic neuroendocrine tumors: hormonal treatment updates. [▶](#)

NET

RETROSPEKTİF

1. Epidemiological trends of pancreatic and gastrointestinal neuroendocrine tumors in Japan: a nationwide survey analysis. [▶](#)
2. Role of Ki-67 Proliferation Index in the Assessment of Patients with Neuroendocrine Neoplasias Regarding the Stage of Disease. [▶](#)

NET

VAKA SUNUMU

1. Duodenal gangliocytic paraganglioma, a rare entity among GEP-NET: a case report with immunohistochemical and molecular study. [▶](#)

TİROİD

DERLEME / METAANALİZ

1. [Br J Surg.](#) 2014 Mar;101(4):307-20. doi: 10.1002/bjs.9384. Epub 2014 Jan 9. (IF: 5.09)

Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia.

[Edafe O¹](#), [Antakia R](#), [Laskar N](#), [Uttley L](#), [Balasubramanian SP](#).

- ¹Department of Oncology, University of Sheffield, Sheffield, UK.

Abstract

BACKGROUND:

Hypocalcaemia is common after thyroidectomy. Accurate prediction and appropriate management may help reduce morbidity and hospital stay. The aim of this study was to perform a systematic literature review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia.

METHODS:

A systematic search of PubMed, EMBASE and the Cochrane Library databases was undertaken, and the quality of manuscripts assessed using a modified Newcastle-Ottawa Scale.

RESULTS:

Some 115 observational studies were included. The median (i.q.r.) incidence of transient and permanent hypocalcaemia was 27 (19-38) and 1 (0-3) per cent respectively. Independent predictors of transient hypocalcaemia included levels of preoperative calcium, perioperative parathyroid hormone (PTH), preoperative 25-hydroxyvitamin D and postoperative magnesium. Clinical predictors included surgery for recurrent goitre and reoperation for bleeding. A calcium level lower than 1.88 mmol/l at 24 h after surgery, identification of fewer than two parathyroid glands (PTGs) at surgery, reoperation for bleeding, Graves' disease and heavier thyroid specimens were identified as independent predictors of permanent hypocalcaemia in multivariable analysis. Factors associated with transient hypocalcaemia in meta-analyses were inadvertent PTG excision (odds ratio (OR) 1.90, 95 per cent confidence interval 1.31 to 2.74), PTG autotransplantation (OR 2.03, 1.44 to 2.86), Graves' disease (OR 1.75, 1.34 to 2.28) and female sex (OR 2.28, 1.53 to 3.40).

CONCLUSION:

Perioperative PTH, preoperative vitamin D and postoperative changes in calcium are biochemical predictors of post-thyroidectomy hypocalcaemia. Clinical predictors include female sex, Graves' disease, need for parathyroid autotransplantation and inadvertent excision of PTGs.

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2. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):440-7. doi: 10.1210/jc.2013-3156. Epub 2013 Nov 27. (IF: 7.02)

Unstimulated highly sensitive thyroglobulin in follow-up of differentiated thyroid cancer patients: a meta-analysis.

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Abstract

CONTEXT:

Serum thyroglobulin (Tg) is an indicator of differentiated thyroid cancer (DTC) relapse.

OBJECTIVE:

Our objective was to conduct a meta-analysis of published data about the diagnostic performance of highly sensitive serum Tg (hsTg) during levothyroxine therapy in DTC follow-up.

DATA SOURCES:

We performed a comprehensive literature search of PubMed/MEDLINE and Scopus for studies published until July 2013.

STUDY SELECTION:

Studies investigating the diagnostic performance of basal hsTg in monitoring DTC were eligible. Exclusion criteria were 1) articles not within the field of interest; 2) reviews, letters, or conference proceedings; 3) articles evaluating serum Tg measurement with a functional sensitivity >0.1 ng/mL; 4) overlap in patient data; and 5) insufficient data to reassess diagnostic performance of basal serum hsTg. Data Extraction: Information was collected concerning basic study data, patient characteristics, and technical aspects. For each study, the number of true-positive, false-positive, true-negative, and false-negative findings for basal hsTg, considering stimulated Tg measurement as a reference standard, were recorded.

DATA SYNTHESIS:

Pooled data demonstrated that the negative predictive value of hsTg was 97% and 99% considering a stimulated Tg measurement >1 ng/mL and >2 ng/mL as cutoffs for positivity, respectively. Despite the high pooled sensitivity of basal hsTg, the pooled specificity, accuracy, and positive predictive value were insufficient to completely substitute for a stimulated Tg measurement.

CONCLUSIONS:

Basal hsTg measurement has a very high negative predictive value but an insufficient positive predictive value for monitoring DTC patients. Therefore, a Tg stimulation test can be avoided in patients with an

undetectable basal hsTg, whereas a stimulated Tg measurement should be considered when hsTg levels are detectable.

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3. [Surgery](#). 2014 Mar;155(3):529-40. doi: 10.1016/j.surg.2013.10.017. Epub 2013 Oct 16. (IF: 3.19)

A systematic review and meta-analysis of total thyroidectomy versus bilateral subtotal thyroidectomy for Graves' disease.

[Feroci F](#)¹, [Rettori M](#)², [Borrelli A](#)², [Coppola A](#)³, [Castagnoli A](#)³, [Perigli G](#)⁴, [Cianchi F](#)⁴, [Scatizzi M](#)².

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- ⁴Department of Medical and Surgical Critical Care, University of Florence, Florence, Italy.

Abstract

BACKGROUND:

Our aim was to perform a meta-analysis of high-quality published trials, randomized and observational, comparing total thyroidectomy (TT) and bilateral subtotal thyroidectomy (ST) for Graves' disease.

METHODS:

All studies published from 1970 to August 2012 were identified. All randomized controlled trials (RCTs) were included. Selection of high-quality, nonrandomized comparative studies (NRCTs) was based on a validated tool (Methodological Index for Nonrandomized Studies). Recurrent hyperthyroidism during follow-up, progression of ophthalmopathy, postoperative temporary and permanent hypoparathyroidism, and permanent recurrent laryngeal nerve (RLN) palsy were compared using odds ratios (ORs).

RESULTS:

Twenty-three studies were included (4 RCTs and 19 NRCTs) comprising 3,242 patients (1,665 TT, 1,577 ST). TT was associated with a decrease in recurrent hyperthyroidism ($P < .00001$; OR, 0.10; 95% confidence interval [CI], 0.06-0.18), but with an increase in both temporary ($P < .00001$; OR, 2.70; 95% CI, 2.04-3.56) and permanent hypoparathyroidism ($P = .005$; OR, 2.91; 95% CI, 1.59-5.32). Progression of ophthalmopathy ($P = .76$; OR, 0.90; 95% CI, 0.48-1.71) and permanent RLN palsy ($P = .82$; OR, 0.91; 95% CI, 0.41-2.02) were similar.

CONCLUSION:

TT offers a better chance of cure of hyperthyroidism than bilateral ST and can be accomplished safely with only a small increase in temporary and permanent hypoparathyroidism.

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'Suspicious for papillary thyroid carcinoma' before and after The Bethesda System for Reporting Thyroid Cytopathology: impact of standardized terminology.

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Author information

- ¹Department of Pathology, The Johns Hopkins Hospital, Baltimore, Md., USA.

Erratum in

- Acta Cytol. 2014;58(2):224. Altinboga, Aysegul Aksoy [corrected to Altinboga, Aysegul Aksoy].

Abstract

BACKGROUND:

The high-risk 'suspicious for papillary thyroid carcinoma' (SPTC) is a clinically relevant diagnosis in the cytological interpretation of thyroid aspirates. While The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC) has provided invaluable terminology standardization, a performance comparison for this diagnostic category has not been performed. Therefore, this study evaluates the SPTC diagnosis before and after the introduction of TBSRTC in a large meta-analysis and at a single institution.

MATERIALS AND METHODS:

The meta-analysis analyzed publications of SPTC or similar diagnoses before and after the introduction of TBSRTC. Similarly our own institutional experience was analyzed for the 8 years surrounding the introduction of TBSRTC. A correlation of the cytopathology and surgical pathology diagnoses was performed.

RESULTS:

The introduction of TBSRTC coincided with a significant decrease in the fraction of cases called SPTC in the meta-analysis (4.5-3.1%, $p < 0.00001$) and in the institutional review (1.7-0.9%, $p = 0.005$). Meanwhile, the malignancy risk for those cases increased significantly in the meta-analysis from 62.5 to 80.5% ($p < 0.00001$) and trended upwards in the institutional review from 69 to 79% ($p = 0.4$). The follow-up rate was similar in both time periods in the meta-analysis and the institutional review.

CONCLUSIONS:

The introduction of TBSRTC coincided with a decrease in the fraction of cases called SPTC and an increase in the malignancy risk associated with that diagnosis.

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<http://dx.doi.org/10.1159/000355696>

5. [J Surg Oncol](#). 2014 Jan;109(1):36-41. doi: 10.1002/jso.23452. Epub 2013 Oct 4. (IF: 2.97)

Thyroid metastasectomy.

[Montero PH](#)¹, [Ibrahimpasic T](#), [Nixon IJ](#), [Shaha AR](#).

Author information

- ¹Head and Neck Surgery Service, Department of Surgery, Memorial Sloan-Kettering Cancer, New York, New York.

Abstract

Metastases to the thyroid gland are uncommon. Renal, lung, breast, and colon cancer and melanoma are the most common primary diseases implicated. Few retrospective series have been reported. Treatment decisions must be individualized, and will depend on the state of systemic disease. Selected patients could benefit from surgical treatment. Although most patients selected for surgery will not be cured, the aim of surgery is to avoid the complications of uncontrolled central neck disease.

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KEYWORDS:

metastasectomy, metastasis, thyroid cancer, thyroid neoplasms/secondary, thyroid surgery

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6. [Laryngoscope](#). 2014 Jan;124(1):346-53. doi: 10.1002/lary.24406. Epub 2013 Oct 22. (IF: 1.32)

Radiofrequency ablation for treatment of benign thyroid nodules: systematic review.

[Fuller CW](#)¹, [Nguyen SA](#), [Lohia S](#), [Gillespie MB](#).

Author information

- ¹Department of Otolaryngology-Head and Neck Surgery, Medical University of South Carolina, Charleston, South Carolina, U.S.A.

Abstract

OBJECTIVE:

To summarize the literature published to date on the use of radiofrequency ablation (RFA) in the treatment of benign thyroid nodules, to evaluate the effectiveness of this treatment, and to attempt an evaluation of factors that may influence treatment outcome.

STUDY DESIGN:

Systematic review with meta-analysis.

METHODS:

Systematic literature search was performed by two separate authors in four commonly used literature databases. Trials included in meta-analysis included only those presenting prospective data. Meta-analysis compared pretreatment values to post-treatment outcomes.

RESULTS:

Of 46 full-text articles identified, nine articles satisfied inclusion criteria. Two of these articles were randomized controlled trials comparing RFA to placebo or to some other treatment. One article was a randomized controlled trial comparing one RFA treatment to two treatments. The remaining six articles were noncontrolled, prospective observational studies. All analyzed outcomes showed statistically significant improvements from baseline to final follow-up, including reduction in nodule size, improvement of symptom and cosmetic scores, and withdrawal from methimazole. Improvement in nodule size remained significant in both "hot" and "cold" nodule subgroups. Twelve adverse events were identified across all studies out of 306 total treatments. Two of these events qualified as significant adverse events. None of these events resulted in hospitalization or death.

CONCLUSIONS:

Radiofrequency ablation is a safe and effective treatment for symptomatic thyroid nodules that are confirmed benign. However, the paucity of level 1 evidence comparing RFA to surgical or to other nonsurgical treatment modalities is concerning.

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KEYWORDS:

Radiofrequency catheter ablation, meta-analysis, systematic review, thyroid nodule

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<http://dx.doi.org/10.1002/lary.24406>

7. [J Surg Res.](#) 2014 Mar 19. pii: S0022-4804(14)00262-5. doi: 10.1016/j.jss.2014.03.032. [Epub ahead of print] (IF: 2.08)

Distinguishing classical papillary thyroid microcancers from follicular-variant microcancers.

[Singhal S¹](#), [Sippel RS¹](#), [Chen H¹](#), [Schneider DF²](#).

[Author information](#)

Abstract

BACKGROUND:

Papillary thyroid microcarcinomas (mPTCs), tumors less than or equal to 1 cm, have been considered the same clinical entity as microfollicular-variant papillary thyroid microcarcinomas (mFVPTCs). The purpose of this study was to use population-level data to characterize differences between mFVPTC and mPTC.

MATERIALS AND METHODS:

We identified adult patients diagnosed with mFVPTC or mPTC between 1998 and 2010 in the Surveillance, Epidemiology, and End Results database. Binary comparisons were made with the Student t-test and chi-squared test. Multivariate logistic regression was used to further analyze lymph node metastases and multifocality.

RESULTS:

Of the 30,926 cases, 8697 (28.1%) were mFVPTC. Multifocal tumors occurred with greater frequency in the mFVPTC group compared with the mPTC group (35.4% versus 31.7%; $P < 0.01$). Multivariate logistic regression indicated that patients with mFVPTC had a 26% increased risk of multifocality (odds ratio, 1.26; 95% confidence

interval, 1.2-1.4; $P < 0.01$). In contrast, lymph node metastases were nearly twice as common in the mPTC group compared with the mFVPTC group (6.8% versus 3.6%; $P < 0.01$). Multivariate logistic regression confirmed that patients with mPTC had a 69% increased risk of lymph node metastases compared with patients with mFVPTC (odds ratio, 1.69; 95% confidence interval, 1.4-2.0; $P < 0.01$).

CONCLUSIONS:

Multifocality is not unique to classical mPTC and occurs more often in mFVPTC. The risk of lymph node metastases is greater for mPTC than mFVPTC. The surgeon should be aware of these features as they may influence the treatment for these microcarcinomas.

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KEYWORDS:

Follicular variant of papillary thyroid carcinoma, Lymph node metastases, Microcarcinoma, Multifocality, Papillary thyroid carcinoma, SEER, Thyroid cancer

PMID: [24735716](#)

<http://dx.doi.org/10.1016/j.jss.2014.03.032>

8. [J Clin Endocrinol Metab](#). 2014 Mar 11;jc20141098. [Epub ahead of print] (IF: 7.02)

Thyroglobulin in lymph node fine-needle aspiration wash-out: a systematic review and meta-analysis of diagnostic accuracy.

[Grani G](#)¹, [Fumarola A](#).

[Author information](#)

Abstract

Context. The thyroglobulin measurement in the needle washout after fine-needle aspiration (FNA) has been reported to increase the sensitivity of FNA in identifying lymph-node (LN) metastases from differentiated thyroid cancer (DTC). Objective. To estimate the diagnostic accuracy of this technique. Data Sources. To identify eligible studies, we searched electronic databases for original articles in English, from 1975 through 2013. Study Selection. Studies that enrolled participants with suspicious neck LN during thyroid nodule work-up or thyroid cancer follow-up were included. Data extraction. Authors, working independently, used a standard form to extract data. For quality assessment, QUADAS2 guidelines were applied. Data Synthesis. Including all the selected studies (24 studies, 2865 LNs) in the pooled analysis, overall sensitivity was 950% (95% CI 937-960%), specificity was 945 (95% CI 932-957%), and diagnostic odds ratio (DOR) was 33891 (95% CI 16482-69688) with significant heterogeneity (I^2 657 %; heterogeneity $p < 0.001$). Stratifying different populations and including only patients with thyroid gland (410 LNs), pooled sensitivity was 862% (95% CI 809-905%), specificity was 902% (851-940%), and DOR was 56621 (22535-14226; $I^2=373\%$, heterogeneity $p=0.121$). Including only patients after thyroidectomy (1007 LNs), pooled sensitivity was 969% (95% CI 949-982%), specificity was 941% (917-960%), and DOR 40765 (19867-83646; I^2 00%, heterogeneity $p=0.673$). Conclusions. Thyroglobulin measurement in washout from lymph-node FNA has high accuracy in early detection of nodal metastases from DTC. The technique is simple, but a better standardization of criteria for patient selection, analytical methods, and cut-off levels is required.

PMID: [24617715](#)

9. [Eur J Endocrinol](#). 2014 Apr 10;170(5):R203-11. doi: 10.1530/EJE-13-0995. Print 2014. (IF: 3.64)

DIAGNOSIS IN ENDOCRINOLOGY: Quantification of cancer risk of each clinical and ultrasonographic suspicious feature of thyroid nodules: a systematic review and meta-analysis.

[Campanella P¹](#), [Ianni F](#), [Rota CA](#), [Corsello SM](#), [Pontecorvi A](#).

[Author information](#)

Abstract

OBJECTIVE:

In order to quantify the risk of malignancy of clinical and ultrasonographic features of thyroid nodules (TNs), we did a systematic review and meta-analysis of published studies.

METHODS:

We did a literature search in MEDLINE for studies published from 1st January 1989 until 31st December 2012. Studies were considered eligible if they investigated the association between at least one clinical/ultrasonographic feature and the risk of malignancy, did not have exclusion criteria for the detected nodules, had histologically confirmed the diagnoses of malignancy, and had a univariable analysis available. Two reviewers independently extracted data on study characteristics and outcomes.

RESULTS:

THE META-ANALYSIS INCLUDED 41 STUDIES, FOR A TOTAL OF 29678 TN. A HIGHER RISK OF MALIGNANCY EXPRESSED IN ODDS RATIO (OR) WAS FOUND FOR THE FOLLOWING: nodule height greater than width (OR: 10.15), absent halo sign (OR: 7.14), microcalcifications (OR: 6.76), irregular margins (OR: 6.12), hypoechogenicity (OR: 5.07), solid nodule structure (OR: 4.69), intranodular vascularization (OR: 3.76), family history of thyroid carcinoma (OR: 2.29), nodule size ≥ 4 cm (OR: 1.63), single nodule (OR: 1.43), history of head/neck irradiation (OR: 1.29), and male gender (OR: 1.22). Interestingly, meta-regression analysis showed a higher risk of malignancy for hypoechoic nodules in iodine-sufficient than in iodine-deficient geographical areas.

CONCLUSIONS:

The current meta-analysis verified and weighed out each suspicious clinical and ultrasonographic TN feature. The highest risk was found for nodule height greater than width, absent halo sign, and microcalcifications for ultrasonographic features and family history of thyroid carcinoma for clinical features. A meta-analysis-derived grading system of TN malignancy risk, validated on a large prospective cohort, could be a useful tool in TN diagnostic work-up.

PMID: [24536085](#)

<http://dx.doi.org/10.1530/EJE-13-0995>

10. [Otolaryngol Head Neck Surg](#). 2014 Apr;150(4):520-32. doi: 10.1177/0194599814521779. Epub 2014 Feb 5. (IF: 1.68)

Systematic Review and Meta-analysis of Robotic vs Conventional Thyroidectomy Approaches for Thyroid Disease.

[Sun GH¹](#), [Peress L](#), [Pynnonen MA](#).

[Author information](#)

Abstract

OBJECTIVE:

This study compared postoperative technical, quality-of-life, and cost outcomes following either robotic or open thyroidectomy for thyroid nodules and cancer.

DATA SOURCES:

PubMed, Ovid MEDLINE, EMBASE, ISI Web of Science, and the Cochrane Central Register of Controlled Trials.

REVIEW METHODS:

We examined relevant controlled trials, comparative effectiveness studies, and cohort studies for eligible publications. We calculated the pooled relative risk for key postoperative complications, mean differences for operative time, and standardized mean differences for length of stay (LOS) using random effects models. Quality-of-life outcomes were summarized in narrative form.

RESULTS:

The meta-analysis comprised 11 studies with 726 patients undergoing robotic transaxillary or axillo-breast thyroidectomy and 1205 undergoing open thyroidectomy. There were no eligible cost-related studies. Mean operative time for robotic thyroidectomy exceeded open thyroidectomy by 76.7 minutes, while no significant difference in LOS was identified. There were no significant differences in hematoma, seroma, recurrent laryngeal nerve injury, hypocalcemia, or chyle leak rates. The systematic review included 12 studies. Voice, swallowing, pain, and paresthesia outcomes showed no significant differences between the 2 approaches. The robotic cohort reported higher cosmetic satisfaction scores, although follow-up periods did not exceed 3 months and no validated questionnaires were used.

CONCLUSIONS:

Transaxillary and axillo-breast robotic and open thyroidectomy demonstrate similar complication rates, but robotic approaches may introduce the risk of new complications and require longer operative times. Robotic thyroidectomy appears to improve cosmetic outcomes, although longer follow-up periods and use of validated instruments are needed to more rigorously examine this effect.

KEYWORDS:

brachial plexus injury, hemorrhage, hoarseness, hypocalcemia, hypoparathyroidism, length of stay, operative time, quality of life, recurrent laryngeal nerve injury, robotic surgery, thyroid cancer, thyroid nodule

PMID: [24500878](https://pubmed.ncbi.nlm.nih.gov/24500878/)

<http://dx.doi.org/10.1177/0194599814521779>

11. [Head Neck](#). 2014 Jan 17. doi: 10.1002/hed.23615. [Epub ahead of print] (IF: 2.85)

Management of recurrent and persistent metastatic lymph nodes in well-differentiated thyroid cancer: A multifactorial decision-making guide for the thyroid cancer care collaborative.

[Urken ML](#)¹, [Milas M](#), [Randolph GW](#), [Tufano R](#), [Bergman D](#), [Bernet V](#), [Brett EM](#), [Brierley JD](#), [Cobin R](#), [Doherty G](#), [Klopper J](#), [Lee S](#), [Machac J](#), [Mechanick JI](#), [Orloff LA](#), [Ross D](#), [Smallridge RC](#), [Terris DJ](#), [Clain JB](#), [Tuttle M](#).

Author information

Abstract

BACKGROUND:

Well-differentiated thyroid cancer (WDTC) recurs in up to 30% of patients. Guidelines from the American Thyroid Association (ATA) and the National Comprehensive Cancer Network (NCCN) provide valuable parameters for the management of recurrent disease, but fail to guide the clinician as to the multitude of factors that should be taken into account. The Thyroid Cancer Care Collaborative (TCCC) is a web-based repository of a patient's clinical information. Ten clinical decision-making modules (CDMMs) process this information and display individualized treatment recommendations.

METHODS:

We conducted a review of the literature and analysis of the management of patients with recurrent/persistent WDTC.

RESULTS:

Surgery remains the most common treatment in recurrent/persistent WDTC and can be performed with limited morbidity in experienced hands. However, careful observation may be the recommended course in select

patients. Reoperation yields biochemical remission rates between 21% and 66%. There is a reported 1.2% incidence of permanent unexpected nerve paralysis and a 3.5% incidence of permanent hypoparathyroidism. External beam radiotherapy and percutaneous ethanol ablation have been reported as therapeutic alternatives. Radioactive iodine as a primary therapy has been reported previously for metastatic lymph nodes, but is currently advocated by the ATA as an adjuvant to surgery.

CONCLUSION:

The management of recurrent lymph nodes is a multifactorial decision and is best determined by a multidisciplinary team. The CDMMs allow for easy adoption of contemporary knowledge, making this information accessible to both patient and clinician. © 2014 Wiley Periodicals, Inc. Head Neck, 2014.

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KEYWORDS:

clinical decision-making modules (CDMMs), persistent thyroid cancer, recurrent thyroid cancer, reoperation, thyroid cancer care collaborative (TCCC)

PMID: [24436291](https://pubmed.ncbi.nlm.nih.gov/24436291/)

<http://dx.doi.org/10.1002/hed.23615>

12. [Cancer Cytopathol.](#) 2014 Apr;122(4):241-9. doi: 10.1002/cncy.21391. Epub 2014 Jan 16. (IF: 4.01)

Hürthle cells in fine-needle aspirates of the thyroid: A review of their diagnostic criteria and significance.

[Auger M.](#)

Author information

Abstract

Although the cytological assessment of Hürthle cell lesions is challenging, the literature offers good, albeit imperfect, guidance to aid in the crucial distinction between nonneoplastic and neoplastic lesions. The significance of a cytologic diagnosis of follicular neoplasm, Hürthle cell type, lies in the rate of malignancy on follow-up surgical excision, ranging in the literature from 10% to 45%. A cytodiagnosis of atypia of undetermined significance (AUS), Hürthle cell type, appears to be associated with a lower risk of malignancy on follow-up than other subtypes of AUS; however, this area warrants further investigation. *Cancer (Cancer Cytopathol)* 2014;122:241-249. © 2014 American Cancer Society.

© 2014 American Cancer Society.

KEYWORDS:

Hürthle cells, cytology, fine-needle aspirate, oncocytes, thyroid

PMID: [24436122](https://pubmed.ncbi.nlm.nih.gov/24436122/)

<http://dx.doi.org/10.1002/cncy.21391>

13. [Langenbecks Arch Surg.](#) 2014 Feb;399(2):155-63. doi: 10.1007/s00423-013-1152-8. Epub 2013

Dec 19. (IF: 2.21)

Prophylactic central neck dissection in papillary thyroid cancer: a consensus report of the European Society of Endocrine Surgeons (ESES).

[Sancho JJ¹](#), [Lennard TW](#), [Paunovic I](#), [Triponez F](#), [Sitges-Serra A](#).

[Author information](#)

Abstract

BACKGROUND:

There remains still no clear answer as to whether or not prophylactic central compartment neck dissection (pCCND) is indicated for the treatment of patients with papillary thyroid cancer.

METHODS:

The published studies, including single cohort, comparative studies and meta-analysis, were critically appraised. Aspects beyond postoperative complications and loco-regional recurrence rates in the analysis, as the impact of pre- and post-ablation thyroglobuline levels, multifocality, bilaterality and additional risk factors for recurrence, were also considered.

RESULTS:

Thirty studies and five meta-analyses were assessed. The lack of randomized clinical trials on the subject and the heterogeneity of study populations are the main limiting factors to draw clear conclusions, and a comprehensive list of bias sources has been identified. Recent comparative studies and systematic reviews all associate the pCCND with higher proportions of temporary postoperative hypocalcemia but not with significantly higher permanent hypoparathyroidism, recurrent laryngeal nerve injury or permanent vocal cord paralysis. The risk of recurrence appears to be reduced after pCCND, and the number of patients needed to treat to avoid a recurrence is between 20 and 31.

CONCLUSIONS:

It is suggested that routine level 6 prophylactic dissections should be risk-stratified. Larger tumours (T3, T4), patients aged 45 years and older or 15 years and younger, male patients, patients with bilateral or multifocal tumours, and patients with known involved lateral lymph nodes could all be candidates for routine unilateral level 6 dissection. The operation should be limited to surgeons who have the available expertise and experience.

PMID: [24352594](#)

<http://dx.doi.org/10.1007/s00423-013-1152-8>

14. [Langenbecks Arch Surg.](#) 2014 Feb;399(2):217-23. doi: 10.1007/s00423-013-1146-6. Epub 2013

Dec 5. (IF: 2.21)

Classification of locoregional lymph nodes in medullary and papillary thyroid cancer.

[Musholt TJ](#).

[Author information](#)

Abstract

BACKGROUND:

Among the various thyroid malignancies, medullary and papillary thyroid carcinomas are characterized by predominant locoregional lymph node metastases that may cause morbidity and affect patient survival. Although lymph node metastases are frequently detected, the optimal strategy aiming at the removal of all tumor tissues while minimizing the associated surgical morbidity remains a matter of debate.

PURPOSE:

A uniform consented terminology and classification is a precondition in order to compare results of the surgical treatment of thyroid carcinomas. While the broad distinction between central and lateral lymph node groups is generally accepted, the exact boundaries of these neck regions vary significantly in the literature. Four different classification systems are currently used. The classification system of the American Head and Neck Society and the corresponding classification system of the Union for International Cancer Control (UICC) are based on observations of squamous cell carcinomas and appointed to needs of head and neck surgeons. The classification of the Japanese Society for Thyroid Diseases and the compartment classification acknowledge the distinctive pattern of metastasis in thyroid carcinomas.

CONCLUSIONS:

Comparison of four existing classification systems reveals underlying different treatment concepts. The compartment system meets the necessities of thyroid carcinomas and is used worldwide in studies describing the results of lymph node dissection. Therefore, the German Association of Endocrine Surgery has recommended using the latter system in their recently updated guidelines on thyroid carcinoma.

PMID: [24306103](#)

<http://dx.doi.org/10.1007/s00423-013-1146-6>

15. [Langenbecks Arch Surg.](#) 2014 Feb;399(2):209-16. doi: 10.1007/s00423-013-1142-x. Epub 2013 Nov 24. (IF: 2.21)

Classification of aerodigestive tract invasion from thyroid cancer.

[Brauckhoff M.](#)

[Author information](#)

Abstract

BACKGROUND:

Widely invasive extrathyroidal thyroid cancer invading the aerodigestive tract (ADT) including larynx, trachea, hypopharynx, and/or esophagus occurs in 1-8 % of patients with thyroid cancer and is classified as T4a (current UICC/AJCC system). The T4a stage is associated with impaired tumor-free survival and increased disease-specific mortality. Concerning prognosis and outcome, further subdivisions of the T4a stage, however, have not been made so far.

METHODS:

This study is based on a systematic review of the relevant literature in the PubMed database.

RESULTS:

Retrospective studies suggest a better outcome in patients with invasion of the trachea or the esophagus when compared to laryngeal invasion. Regarding surgical strategies, ADT invasion can be classified based on a three-dimensional assessment determining surgical resection options. Regardless of the invaded structure, tumor infiltration of the ADT can be subdivided into superficial, deep extraluminal, and intraluminal invasion. In contrast to superficial ADT invasion, allowing tangential incomplete wall resection (shaving/extramucosal esophagus resection), deeper wall and intraluminal invasions require complete wall resection (either window or sleeve). Based on the Dralle classification (types 1-6), particularly airway invasion, can be further classified according to the vertical and horizontal extents of tumor invasion.

CONCLUSIONS:

The Dralle classification can be considered as a reliable subdivision system evaluated regarding surgical options as well as oncological outcome. However, further studies determining the prognostic impact of this technically oriented classification system are required.

PMID: [24271275](#)

<http://dx.doi.org/10.1007/s00423-013-1142-x>

16. [Langenbecks Arch Surg](#). 2014 Feb;399(2):141-54. doi: 10.1007/s00423-013-1145-7. Epub 2013

Nov 22. (IF: 2.21)

Multifocal papillary thyroid carcinoma--a consensus report of the European Society of Endocrine Surgeons (ESES).

[Iacobone M¹](#), [Jansson S](#), [Barczyński M](#), [Goretzki P](#).

[Author information](#)

Abstract

BACKGROUND:

Multifocal papillary thyroid carcinoma (MPTC) has been reported in literature in 18-87 % of cases. This paper aims to review controversies in the molecular pathogenesis, prognosis, and management of MPTC.

METHODS:

A review of English-language literature focusing on MPTC was carried out, and analyzed in an evidence-based perspective. Results were discussed at the 2013 Workshop of the European Society of Endocrine Surgeons devoted to surgery of thyroid carcinoma.

RESULTS:

Literature reports no prospective randomized studies; thus, a relatively low level of evidence may be achieved.

CONCLUSIONS:

MPTC could be the result of either true multicentricity or intrathyroidal metastasis from a single malignant focus. Radiation and familial nonmedullary thyroid carcinoma are conditions at risk of MPTC development. The prognostic importance of multifocal tumor growth in PTC remains controversial. Prognosis might be impaired in clinical MPTC but less or none in MPTC <1 cm. MPTC can be diagnosed preoperatively by FNAB and US, with low sensitivity for MPTC <1 cm. Total or near-total thyroidectomy is indicated to reduce the risk of local recurrence. Prophylactic central node dissection should be considered in patients with total tumor diameter >1 cm, or in cases with high number of cancer foci. Completion thyroidectomy might be necessary when MPTC is diagnosed after less than near-total thyroidectomy. Radioactive iodine ablation should be considered in selected patients with MPTC at increased risk of recurrence or metastatic spread.

PMID: [24263684](#)

<http://dx.doi.org/10.1007/s00423-013-1145-7>

TİROİD

PROSPEKTİF

1. [Otolaryngol Head Neck Surg.](#) 2014 Feb;150(2):210-5. doi: 10.1177/0194599813514726. Epub 2013 Dec 23. (IF: 1.68)

Predictive factors of contralateral paratracheal lymph node metastasis in papillary thyroid cancer: prospective multicenter study.

[Eun YG](#)¹, [Lee YC](#), [Kwon KH](#).

Author information

- ¹Department of Otolaryngology-Head and Neck Surgery, Kyung Hee University School of Medicine, Seoul, Korea.

Abstract

OBJECTIVE:

To analyze patterns of central lymph node (LN) metastasis to specific compartments in the neck and predictive factors of contralateral paratracheal LN metastasis in patients who underwent prophylactic bilateral central LN dissection for papillary thyroid cancer (PTC).

STUDY DESIGN:

Prospective study.

SETTING:

Multitertiary centers.

SUBJECTS AND METHODS:

One hundred forty consecutive patients underwent total thyroidectomy and prophylactic bilateral central LN dissection for unilateral PTC without evidence of central LN metastatic disease based on preoperative ultrasound imaging. The central LN compartment was divided into prelaryngeal, ipsilateral/contralateral paratracheal, and pretracheal regions. The patterns of central LN metastasis and clinicopathologic variables for predicting contralateral metastasis were analyzed.

RESULTS:

Fifty-one (36.4%) of 140 patients had nodal involvement in the central compartment. Twelve (23.5%) patients had ipsilateral paratracheal LN metastasis, 17 (33.3%) had ipsilateral paratracheal and pretracheal LN metastasis, 14 (27.5%) had bilateral paratracheal LN metastasis, 9 (17.6%) had pretracheal-only LN metastasis, and 8 (15.7%) had prelaryngeal LN metastasis. Ipsilateral paratracheal LN metastasis was found to independently predict contralateral paratracheal LN metastasis in patients without central LN metastatic disease.

CONCLUSIONS:

Contralateral paratracheal LN metastasis is associated with ipsilateral paratracheal LN metastasis. This information may help to determine the optimal extent of prophylactic central LN dissection in patients with PTC.

KEYWORDS:

lymph node, metastasis, papillary thyroid cancer, pattern

PMID: [24367047](#)

<http://dx.doi.org/10.1177/0194599813514726>

2. [World J Surg Oncol](#). 2014 Mar 24;12:61. doi: 10.1186/1477-7819-12-61. (IF: 1.37)

The use of core needle biopsy as first-line in diagnosis of thyroid nodules reduces false negative and inconclusive data reported by fine-needle aspiration.

[Trimboli P](#), [Nasrollah N](#), [Guidobaldi L](#), [Taccogna S](#), [Cicciarella Modica DD](#), [Amendola S](#), [Romanelli F](#), [Lenzi A](#), [Nigri G¹](#), [Centanni M](#), [Giovannella L](#), [Valabrega S](#), [Crescenzi A](#).

Author information

Abstract

BACKGROUND:

The reported reliability of core needle biopsy (CNB) is high in assessing thyroid nodules after inconclusive fine-needle aspiration (FNA) attempts. However, first-line use of CNB for nodules considered at risk by ultrasonography (US) has yet to be studied. The aim of this study were: 1) to evaluate the potential merit of using CNB first-line instead of conventional FNA in thyroid nodules with suspicious ultrasonographic features; 2) to compare CNB and FNA as a first-line diagnostic procedure in thyroid lesions at higher risk of cancer.

METHODS:

Seventy-seven patients with a suspicious-appearing, recently discovered solid thyroid nodule were initially enrolled as study participants. No patients had undergone prior thyroid fine-needle aspiration/biopsy. Based on study design, all patients were proposed to undergo CNB as first-line diagnostic aspiration, while those patients refusing to do so underwent conventional FNA.

RESULTS:

Five patients refused the study, and a total of 31 and 41 thyroid nodules were subjected to CNB and FNA, respectively. At follow-up, the overall rate of malignancy was of 80% (CNB, 77%; FNA, 83%). However, the diagnostic accuracy of CNB (97%) was significantly ($P < 0.05$) higher than that of FNA (78%). In one benign lesion, CNB was inconclusive. Four (12%) of the 34 cancers of the FNA group were not initially diagnosed because of false negative ($N = 1$), indeterminate ($N = 2$) or not adequate ($N = 1$) samples.

CONCLUSIONS:

CNB can reduce the false negative and inconclusive results of conventional FNA and should be considered a first-line method in assessing solid thyroid nodules at high risk of malignancy.

PMID: [24661377](#)

<http://dx.doi.org/10.1186/1477-7819-12-61>

3. [Otolaryngol Head Neck Surg.](#) 2014 Apr;150(4):542-7. doi: 10.1177/0194599813519405. Epub 2014 Jan 15. (IF: 1.68)

Accuracy of intraoperative determination of central node metastasis by the surgeon in papillary thyroid carcinoma.

[Ji YB](#)¹, [Lee DW](#), [Song CM](#), [Kim KR](#), [Park CW](#), [Tae K](#).

[Author information](#)

Abstract

OBJECTIVE:

Prophylactic central neck dissection (CND) in papillary thyroid carcinoma (PTC) remains controversial. If the presence of central lymph node metastasis could be assessed preoperatively or intraoperatively, unnecessary CND could be avoided. The aim of this study was to evaluate the accuracy of intraoperative determination of central lymph node metastasis by the surgeon using palpation and inspection in clinically node-negative PTC.

STUDY DESIGN:

Prospective study.

SETTING:

University tertiary care facility.

SUBJECTS AND METHODS:

A total of 122 consecutive patients with clinically node-negative PTC were enrolled. Any suspicious lymph nodes on intraoperative palpation or inspection were sent for frozen biopsy, and then bilateral CND with total thyroidectomy was carried out in all patients. The criteria for a suspicious lymph node included palpable hardness, dark discoloration, or size exceeding 5 mm in diameter. We compared the surgeon's judgments with the final pathologic results.

RESULTS:

Suspicious lymph nodes were found in 37 (30.3%) patients, and 15 of them had metastasis on permanent biopsy. Of 85 patients with no suspicious lymph nodes, 27 (31.8%) had metastasis on permanent biopsy. The sensitivity and specificity as well as positive and negative predictive values of intraoperative determination of central lymph node metastasis were 35.7%, 72.5%, 40.5%, and 68.2%, respectively. The positive predictive values of enlarged lymph nodes, dark discoloration, and hardness were 30.4%, 50.0%, and 78.6%, respectively.

CONCLUSION:

Intraoperative determination of central lymph node metastasis by the surgeon is a limited guide for CND in clinically node-negative PTC because of its low sensitivity and specificity.

KEYWORDS:

central lymph node metastasis, central neck dissection, intraoperative assessment, papillary thyroid carcinoma, thyroid cancer

PMID:[24429357](#)

<http://dx.doi.org/10.1177/0194599813519405>

4. [Otolaryngol Head Neck Surg.](#) 2014 Feb;150(2):210-5. doi: 10.1177/0194599813514726. Epub 2013 Dec 23. (IF: 1.68)

Predictive factors of contralateral paratracheal lymph node metastasis in papillary thyroid cancer: prospective multicenter study.

[Eun YG](#)¹, [Lee YC](#), [Kwon KH](#).

[Author information](#)

Abstract

OBJECTIVE:

To analyze patterns of central lymph node (LN) metastasis to specific compartments in the neck and predictive factors of contralateral paratracheal LN metastasis in patients who underwent prophylactic bilateral central LN dissection for papillary thyroid cancer (PTC).

STUDY DESIGN:

Prospective study.

SETTING:

Multitertiary centers.

SUBJECTS AND METHODS:

One hundred forty consecutive patients underwent total thyroidectomy and prophylactic bilateral central LN dissection for unilateral PTC without evidence of central LN metastatic disease based on preoperative ultrasound imaging. The central LN compartment was divided into prelaryngeal, ipsilateral/contralateral paratracheal, and pretracheal regions. The patterns of central LN metastasis and clinicopathologic variables for predicting contralateral metastasis were analyzed.

RESULTS:

Fifty-one (36.4%) of 140 patients had nodal involvement in the central compartment. Twelve (23.5%) patients had ipsilateral paratracheal LN metastasis, 17 (33.3%) had ipsilateral paratracheal and pretracheal LN metastasis, 14 (27.5%) had bilateral paratracheal LN metastasis, 9 (17.6%) had pretracheal-only LN metastasis, and 8 (15.7%) had prelaryngeal LN metastasis. Ipsilateral paratracheal LN metastasis was found to independently predict contralateral paratracheal LN metastasis in patients without central LN metastatic disease.

CONCLUSIONS:

Contralateral paratracheal LN metastasis is associated with ipsilateral paratracheal LN metastasis. This information may help to determine the optimal extent of prophylactic central LN dissection in patients with PTC.

KEYWORDS:

lymph node, metastasis, papillary thyroid cancer, pattern

PMID: [24367047](https://pubmed.ncbi.nlm.nih.gov/24367047/)

<http://dx.doi.org/10.1177/0194599813514726>

5. [World J Surg.](#) 2014 Mar;38(3):614-21. doi: 10.1007/s00268-013-2261-9. (IF: 2.47)

Thyroid nodules (≥4 cm): can ultrasound and cytology reliably exclude cancer?

[Wharry LI¹](#), [McCoy KL](#), [Stang MT](#), [Armstrong MJ](#), [LeBeau SO](#), [Tublin ME](#), [Sholosh B](#), [Silbermann A](#), [Ohuri NP](#), [Nikiforov YE](#), [Hodak SP](#), [Carty SE](#), [Yip L](#).

Author information

Abstract

BACKGROUND:

Whether a threshold nodule size should prompt diagnostic thyroidectomy remains controversial. We examined a consecutive series of patients who all had thyroidectomy for a ≥4 cm nodule to determine (1) the incidence of thyroid cancer (TC) and (2) if malignant nodules could accurately be diagnosed preoperatively by ultrasound (US), fine needle aspiration biopsy (FNAB) cytology and molecular testing.

METHODS:

As a prospective management strategy, 361 patients with 382 nodules ≥4 cm by preoperative US had thyroidectomy from 1/07 to 3/12.

RESULTS:

The incidence of a clinically significant TC within the ≥4 cm nodule was 22 % (83/382 nodules). The presence of suspicious US features did not discriminate malignant from benign nodules. Moreover, in 86 nodules ≥4 cm with no suspicious US features, the risk of TC within the nodule was 20 %. US-guided FNAB was performed for 290 nodules, and the risk of malignancy increased stepwise from 10.4 % for cytologically benign nodules, 29.6 % for

cytologically indeterminate nodules and 100 % for malignant FNAB results. Molecular testing was positive in 9.3 % (10/107) of tested FNAB specimens, and all ten were histologic TC.

CONCLUSIONS:

In a large consecutive series in which all ≥ 4 cm nodules had histology and were systematically evaluated by preoperative US and US-guided FNAB, the incidence of TC within the nodule was 22 %. The false negative rate of benign cytology was 10.4 %, and the absence of suspicious US features did not reliably exclude malignancy. At minimum, thyroid lobectomy should be strongly considered for all nodules ≥ 4 cm.

PMID: [24081539](https://pubmed.ncbi.nlm.nih.gov/24081539/)

<http://dx.doi.org/10.1007/s00268-013-2261-9>

TİROİD

RETROSPEKTİF

1. [Isr Med Assoc J.](#) 2014 Feb;16(2):106-9. (IF: 1.03)

Recombinant human thyroid-stimulating hormone in radioiodine thyroid remnant ablation.

[Mylonas C](#), [Zwas ST](#), [Rotenberg G](#), [Omry G](#), [Cohen O](#).

Abstract

BACKGROUND:

To prevent the unwarranted effects of post-thyroidectomy hypothyroidism prior to radioiodine (RAI) ablation, patients with well-differentiated thyroid cancer can currently undergo this treatment while in a euthyroid state. This is achieved with the use of recombinant human thyroid-stimulating hormone (rhTSH) injections prior to the ablation.

OBJECTIVES:

To demonstrate the efficacy of rhTSH in radioiodine thyroid ablation in patients with differentiated thyroid cancer.

METHODS:

We conducted a retrospective study of patients who underwent total thyroidectomy for well-differentiated thyroid cancer with different levels of risk, treated with rhTSH prior to remnant ablation with radioiodine.

RESULTS:

Seventeen patients with thyroid cancer were studied and followed for a median of 25 months (range 8-49 months). Ablation (defined as stimulated thyroglobulin < 1 mg/ml and negative neck ultrasonography) was successful in 15 patients (88.2%). One of the patients was lost to follow-up.

CONCLUSIONS:

The use of rhTSH with postoperative radioiodine ablation may be an efficient tool for sufficient thyroid remnant ablation, avoiding hypothyroidal state in the management of thyroid cancer patients.

PMID: [24645230](#)

Applying the Society of Radiologists in Ultrasound recommendations for fine-needle aspiration of thyroid nodules: effect on workup and malignancy detection.

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Abstract

OBJECTIVE:

The Society of Radiologists in Ultrasound (SRU) recommendations on thyroid nodules are intended to "diagnose thyroid cancers that have reached clinical significance, while avoiding unnecessary tests and surgery in patients with benign nodules." The aim of our study was to determine the proportion of thyroid nodules undergoing ultrasound-guided fine-needle aspiration (FNA) that do not meet SRU recommendations.

MATERIALS AND METHODS:

This study is a retrospective study of 400 consecutive ultrasound-guided thyroid FNA encounters from July 2010 through June 2011. An encounter was defined as presentation to the department of radiology on a given date for FNA of one or more thyroid nodules. The criteria for performing biopsy of a nodule were determined by the referring clinicians. Nodules were categorized on the basis of sonographic findings as meeting SRU recommendations for biopsy, which we refer to as "SRU-positive," or not, which we refer to as "SRU-negative." Patients without a definitive pathology diagnosis of Bethesda class benign or malignant nodules were excluded. The characteristics of malignancies were compared for SRU-positive and SRU-negative encounters.

RESULTS:

The final study group consisted of 360 biopsy encounters for 350 patients and 29 malignancies (8%). Of the 360 biopsy encounters, 86 (24%) were SRU-negative encounters. Malignancy rates in SRU-positive and SRU-negative encounters were 9% (24/274) and 6% (5/86), respectively, and were not significantly different ($p=0.5$). Eighteen malignancies (75%) in the SRU-positive group were localized, whereas the others had nodal metastases (4/24) or distant metastases (2/24). SRU-positive encounters included medullary carcinoma, anaplastic carcinoma, and melanoma metastasis in addition to papillary carcinoma. All SRU-negative malignancies were localized papillary carcinomas.

CONCLUSION:

One in four thyroid biopsy encounters at our institution did not meet SRU recommendations for biopsy. The application of SRU recommendations reduces the number of benign nodules that undergo workup. Potentially missed malignancies in SRU-negative nodules are less aggressive by histologic type and stage compared with SRU-positive malignancies.

3. [Int J Radiat Oncol Biol Phys](#). 2014 Mar 1;88(3):636-41. doi: 10.1016/j.ijrobp.2013.11.237. (IF: 4.48)

Thyroid malignancies in survivors of Hodgkin lymphoma.

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Abstract

PURPOSE:

To quantify the incidence of thyroid cancer after Hodgkin lymphoma (HL) and determine disease characteristics, risk factors, and treatment outcomes.

METHODS AND MATERIALS:

Thyroid cancer cases were retrospectively identified from a multi-institutional database of 1981 HL patients treated between 1969 and 2008. Thyroid cancer risk factors were evaluated by a Poisson regression model.

RESULTS:

With a median follow-up duration of 14.3 years (range, 0-41.2 years), 28 patients (1.4%) developed a thyroid malignancy. The overall incidence rate (expressed as the number of cases per 10,000 person-years) and 10-year cumulative incidence of thyroid cancer were 9.6 and 0.26%, respectively. There were no observed cases of thyroid malignancy in patients who received neck irradiation for HL after age 35 years. Age <20 years at HL diagnosis and female sex were significantly associated with thyroid cancer. The incidence rates of females aged <20 at HL diagnosis in the first 10 years, ≥10 years, ≥15 years, and ≥20 years after treatment were 5, 31, 61, and 75 cases per 10,000 person-years of follow-up, respectively. At a median follow-up of 3.5 years after the thyroid cancer diagnosis, 26 patients (93%) were alive without disease, 1 (4%) was alive with metastatic disease, and 1 (4%) died of metastatic disease, at 6 and 3.6 years after the thyroid cancer diagnosis, respectively.

CONCLUSIONS:

Although HL survivors have an increased risk for thyroid cancer, the overall incidence is low. Routine thyroid cancer screening may benefit females treated at a young age and ≥10 years from HL treatment owing to their higher risk, which increases over time.

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<http://dx.doi.org/10.1016/j.ijrobp.2013.11.237>

Recurrent laryngeal nerve palsy during surgery for benign thyroid diseases: risk factors and outcome analysis.

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Abstract

BACKGROUND:

We investigated the risk factors for postoperative recurrent laryngeal nerve (RLN) palsy and related outcomes in patients with benign thyroid diseases.

MATERIAL AND METHODS:

From 2008 to 2010, 844 thyroidectomies for benign thyroid diseases (benign nodules in 447; Graves' disease in 377; huge goiter attributable to Hashimoto thyroiditis in 20) were performed at Noguchi Thyroid Clinic and Hospital Foundation. The otolaryngologists screened all patients for the presence or absence of RLN palsy by laryngoscope, both pre- and postoperatively. When RLN palsy was present, the patients were checked periodically by laryngoscopy without additional drug therapy until the recovery of vocal cord palsy or loss of contact.

RESULTS:

A total of 1,374 nerves were at risk during the thyroid surgery (bilateral risk in 530, unilateral risk in 314). No patient exhibited a bilateral RLN palsy. Unilateral postoperative RLN palsies were found in 45 patients (benign nodules in 25, Graves' disease in 19, and Hashimoto thyroiditis in 1). The RLN was involuntarily amputated in five patients during the operation. The incidence of RLN palsy was 5.3% per patient and 3.3% per nerve. The incidence of RLN palsy was greater in patients who underwent complete unilateral thyroid lobe resection compared with partial resection of the lobe ($P = .04$). The occurrence of RLN palsy was associated with the need for reoperation caused by postoperative bleeding and the reduced weight of the thyroid remnant in Graves' disease ($P = .04$ and $P = .03$, respectively). Among 40 patients with RLN palsy and excluding 5 amputated patients, the RLN palsy resolved in 34 patients (85%) within 12 months after the procedure. The remaining 6 patients (15%) were considered to have permanent RLN palsies.

CONCLUSION:

Complete resection of the thyroid lobe and reoperation for postoperative bleeding are the risk factors for postoperative RLN palsy in patients with benign thyroid nodules. In Graves' disease, smaller weight of the residual thyroid tissue contributes to the occurrence of RLN palsy. Most RLN palsies that do not require amputation of the nerve resolve spontaneously within 12 months after surgery. In this study, the palsy remained in 1.3% (11/844) of patients.

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PMID: [24468039](#)

<http://dx.doi.org/10.1016/j.surg.2013.11.005>

Incidence and predictive factors of inadequate fine-needle aspirates for BRAF(V600E) mutation analysis in thyroid nodules.

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Abstract

OBJECTIVE:

BRAF(V600E) mutation (valine-to-glutamate substitution at residue 600 of the B-type Raf kinase gene) analysis from thyroid aspirates is increasingly used as a prognostic or diagnostic marker. However, it is limited under some conditions. The purpose of this study was to assess the incidence and predictive factors of thyroid nodules with specimens inadequate for BRAF(V600E) mutation analysis.

MATERIALS AND METHODS:

We performed a retrospective cohort study of consecutive patients who underwent ultrasound-guided fine-needle aspiration (FNA) and molecular testing of aspiration specimens. Patients who had inadequate specimens in both allele-specific polymerase chain reaction and direct DNA-sequencing methods were selected. Univariate and multivariate logistic regression analyses were performed to identify predictive factors of specimens inadequate for molecular tests.

RESULTS:

Specimens inadequate for BRAF(V600E) mutation analysis were seen in 168 of 7001 (2.4%) patients. Factors, including patient age and sex, nodule size, ultrasound diagnosis, the presence of calcification, and cystic changes within thyroid nodules, were not significant predictors of inadequate mutation analysis. Oval-to-round or irregular shapes (e.g., not taller-than-wide) and final benign results were significant factors in univariate analysis ($p = 0.0002$ and $p = 0.0013$, respectively). However, nodules aspirated by operators with less than 1 year of experience (odds ratio [OR], 3.005; $p = 0.0070$), and those that had spiculated margins (OR, 6.139; $p = 0.0142$), isoechogenicity (OR, 10.374; $p = 0.0442$), or nondiagnostic cytologic findings (OR, 73.637; $p = 0.0055$) remained significant risk factors after adjustment in multivariable analysis.

CONCLUSION:

Thyroid nodule specimens inadequate for BRAF(V600E) mutation analysis were frequently associated with FNA aspiration performed by inexperienced operators, nondiagnostic cytologic findings, benign nodules on final diagnosis, and probably benign ultrasound findings, such as isoechogenicity and not-taller-than-wide shape.

PMID: [24450682](#)

<http://dx.doi.org/10.2214/AJR.12.10291>

Markedly elevated thyroglobulin levels in the preoperative thyroidectomy patient correlates with metastatic burden.

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Abstract

BACKGROUND:

Thyroglobulin (Tg) is a marker of tumor recurrence during thyroid cancer follow-up. While helpful in the postoperative setting, the clinical significance of preoperative Tg measurements remains unclear. The aim of the study was to determine if preoperative Tg levels are indicative of underlying malignancy or burden of metastatic disease.

METHODS:

A retrospective review of a prospectively collected database at an academic medical center of all thyroidectomy patients with a measured preoperative Tg level was conducted. Patients were grouped by Tg level into quartiles for initial univariate analysis, followed by multivariable analysis of variance.

RESULTS:

Between 2007 and 2012, 611 patients met criteria. Quartile breakdown was as follows: ≤ 19 ng/mL, 19.1-54 ng/mL, 54.1-151 ng/mL, and > 151 ng/mL. Patients' age and gender were equivalent. Hashimoto's thyroiditis was most common in the lowest Tg group (24% versus 11%-12%, $P < 0.01$). While cancer was more common in the low Tg, metastatic disease was most common in the high Tg group. Specimen weight increased with increasing Tg levels ($P < 0.01$). Body mass index, gland weight, cancer, and Hashimoto's and metastatic disease were entered into a multivariable analysis. Only gland weight and metastatic disease correlated with Tg levels (both $P < 0.001$). All patients with Tg > 5000 ng/mL had metastatic disease ($n = 6$).

CONCLUSIONS:

Although preoperative Tg levels are not associated with a diagnosis of cancer, they are associated with the presence of metastatic disease. All patients with a Tg > 5000 ng/mL had significant disease burden. In patients with concern for metastatic disease, preoperative serum Tg may be a useful marker to aid decision making.

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KEYWORDS:

Hashimoto's thyroiditis, Metastatic burden, Metastatic disease, Multi-nodular goiter, Thyroglobulin, Thyroid cancer, Thyroidectomy, Thyroiditis

7. [Eur J Surg Oncol](#). 2014 Feb;40(2):176-81. doi: 10.1016/j.ejso.2013.12.008. Epub 2013 Dec 25. (IF:3.07)

Treatments for complications of tracheal sleeve resection for papillary thyroid carcinoma with tracheal invasion.

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Abstract

OBJECTIVE:

To evaluate the treatment, prognosis, and complications of differentiated thyroid carcinoma with tracheal invasion. We report our outcomes from a single center using a tracheal sleeve resection.

PATIENTS AND METHODS:

Retrospective analysis of clinicopathological data on tracheal sleeve resection in patients with thyroid cancer and accompanying tracheal invasion from January 2009 to July 2012. The postoperative complications were analyzed and the literature was reviewed.

RESULTS:

Nineteen patients with thyroid carcinoma and accompanying tracheal invasion underwent tracheal sleeve resection followed by end-to-end anastomosis. The median survival time was 22 months. Five patients (5/19) developed postoperative complications. The major complications included bilateral recurrent laryngeal nerve paralysis (2 cases), tracheal anastomotic stenosis (1 case), esophageal fistula (2 cases), and anastomotic dehiscence (2 cases). The treatment for these complications included partial posterior cordectomy by CO₂ laser for bilateral recurrent laryngeal nerve paralysis; CO₂ laser treatment followed by postoperative external beam radiotherapy (EBRT) (20 Gy/10 times) for tracheal anastomotic stenosis, femoral anterior dissociative flap to repair esophageal fistula, and a T-tube positioned in the wound in cases of anastomotic dehiscence.

CONCLUSIONS:

Tracheal sleeve resection remain a safe option with less morbidity and perioperative complications for the management of patients with differentiated thyroid carcinoma accompanied by intratracheal invasion.

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KEYWORDS:

CO(2) laser, Complication, Sleeve resection, Thyroid carcinoma, Tracheal invasion

PMID: [24388407](#)

<http://dx.doi.org/10.1016/j.ejso.2013.12.008>

8. [Eur J Surg Oncol](#). 2014 Feb;40(2):129-32. doi: 10.1016/j.ejso.2013.12.003. Epub 2013 Dec 12. (IF: 3.07)

Well differentiated thyroid cancer: are we over treating our patients?

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KEYWORDS:

Papillary thyroid cancer, Radioactive iodine, Thyroid cancer, Thyroidectomy

PMID: [24373300](#)

<http://dx.doi.org/10.1016/j.ejso.2013.12.003>

9. [Eur J Surg Oncol](#). 2014 Feb;40(2):182-6. doi: 10.1016/j.ejso.2013.11.015. Epub 2013 Dec 14. (IF: 3.07)

Ultrasonographic features associated with malignancy in cytologically indeterminate thyroid nodules.

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Abstract

CONTEXT:

Thyroid nodules with indeterminate cytology usually are treated with surgery, but most are benign. Neck ultrasonography has varied results in predicting malignancy.

OBJECTIVE:

To evaluate the predictive value of ultrasonography and the frequency of malignancy in patients who had indeterminate thyroid nodules.

DESIGN:

Retrospective study.

SETTING:

University hospital.

PATIENTS:

There were 78 patients who had thyroid nodules that were diagnosed on cytology (fine needle aspiration) as a follicular lesion (atypia of undetermined significance) or follicular neoplasm. Ultrasonography was available in 69 patients (88%).

INTERVENTION AND MAIN OUTCOME MEASURES:

Diagnostic fine needle aspiration (cytology), ultrasonography, and surgical pathology of thyroid nodules.

RESULTS:

Fine needle aspiration was indeterminate in all patients, with follicular lesions in 60 patients (77%) and follicular neoplasm in 18 patients (23%). Ultrasonography showed micro calcification in 6 patients (9%), irregular border in 15 patients (22%), size \geq 3 cm in 31 patients (45%), and hypoechogenicity in 43 patients (62%). Surgical pathology showed that the nodules were benign in 50 patients (64%) and malignant in 28 patients (36%). Malignancy was significantly associated with male sex (relative risk, 2.3), solid nodule structure (relative risk, 2.6), and irregular border (relative risk, 3.6). Compared with other ultrasonographic

characteristics, irregular borders had the highest specificity (93%), positive predictive value (80%), and accuracy (78%) for malignancy.

CONCLUSIONS:

The frequency of malignancy is high in indeterminate thyroid nodules. Based on the limited accuracy or predictive value of ultrasonographic risk factors, surgery is the treatment of choice for indeterminate thyroid nodules.

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KEYWORDS:

Carcinoma, Cytology, Fine needle aspiration, Imaging

PMID: [24373298](https://pubmed.ncbi.nlm.nih.gov/24373298/)

<http://dx.doi.org/10.1016/j.ejso.2013.11.015>

10. [Am J Clin Pathol](#). 2014 Jan;141(1):128-32. doi: 10.1309/AJCP9TBSMWZVYPRR. (IF: 3.22)

Revisiting overdiagnosis and fatality in thyroid cancer.

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Abstract

OBJECTIVES:

To examine the rates of incidence and fatality in cohorts of patients diagnosed with thyroid cancer from 1975 to 1999.

METHODS:

This study uses National Cancer Institute's Surveillance, Epidemiology and End Results data and derives hazard functions in order to examine the fatality in thyroid cancer.

RESULTS:

The study documents forms of rapidly evolving and fatal tumors as well as forms of tumor that evolve more slowly to cause death. It demonstrates that the incidences of nonfatal forms of thyroid cancer have risen dramatically in the years from 1975 to 1999-mostly due to papillary carcinomas-but that the incidences of fatal forms of thyroid cancer have remained nearly constant.

CONCLUSIONS:

The results of this study support the notion that many thyroid cancers are part of a reservoir of nonfatal tumors that are increasingly being overdetected and overdiagnosed.

KEYWORDS:

Fatality of thyroid cancer, Hazard, Overdiagnosis, Survival

PMID: [24343746](#)

<http://dx.doi.org/10.1309/AJCP9TBSMWZVYPRR>

11. [Br J Radiol](#). 2014 Feb;87(1034):20130444. (IF: 1.25)

Comparison of ¹⁸F-fluoride PET/CT, ¹⁸F-FDG PET/CT and bone scintigraphy (planar and SPECT) in detection of bone metastases of differentiated thyroid cancer: a pilot study.

[Ota N](#), [Kato K](#), [Iwano S](#), [Ito S](#), [Abe S](#), [Fujita N](#), [Yamashiro K](#), [Yamamoto S](#), [Naganawa S](#).

Abstract**OBJECTIVE:**

We compared the efficacies of ¹⁸F-fluoride positron emission tomography (¹⁸F-fluoride PET)/CT, ¹⁸F-fluorodeoxyglucose PET (¹⁸F-FDG PET)/CT, and ^{99m}Tc bone scintigraphy [planar and single photon emission CT (SPECT)] for the detection of bone metastases in patients with differentiated thyroid carcinoma (DTC).

METHODS:

We examined 11 patients (8 females and 3 males; mean age 6 standard deviation, 61.968.7 years) with DTC who had been suspected of having bone metastases after total thyroidectomy and were hospitalized to be given ¹³¹I therapy. Bone metastases were verified either when positive findings were obtained on both ¹³¹I scintigraphy and CT or when MRI findings were positive if MRI was performed.

RESULTS:

Metastases were confirmed in 24 (13.6%) of 176 bone segments in 9 (81.8%) of the 11 patients. The sensitivities of ¹⁸F-fluoride PET/CT and ^{99m}Tc bone scintigraphy (SPECT) were significantly higher than those of ¹⁸F-FDG PET/CT and ^{99m}Tc bone scintigraphy (planar) (p,0.05). The accuracies of ¹⁸F-fluoride PET/CT and ^{99m}Tc bone scintigraphy (SPECT) were significantly higher than that of ^{99m}Tc bone scintigraphy (planar) (p,0.05).

CONCLUSION:

The sensitivity and accuracy of ¹⁸F-fluoride PET/CT for the detection of bone metastases of DTC are significantly higher than those of ^{99m}Tc bone scintigraphy (planar). However, the sensitivity and accuracy of ^{99m}Tc bone scintigraphy (planar) are improved near to those of ¹⁸F-fluoride PET/CT when SPECT is added to a planar scan. The sensitivity of ¹⁸F-FDG PET/CT is significantly lower than that of ¹⁸F-fluoride PET/CT or ^{99m}Tc bone scintigraphy (SPECT).

PMID: [24297809](#)

Progression of medullary thyroid cancer in RET carriers of ATA class A and C mutations.

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Abstract

CONTEXT:

There is no histopathological or radiological information on the natural course of tumor growth and lymph node metastasis in medullary thyroid cancer (MTC).

OBJECTIVE:

This investigation aimed at determining annual rates of tumor growth and lymph node metastasis in hereditary MTC at the surgical pathology level.

DESIGN:

This was a retrospective analysis.

SETTING:

The setting was a tertiary referral center.

PATIENTS:

Included were 172 carriers of American Thyroid Association (ATA) class C (95 patients) and class A rearranged during transfection (RET) mutations (77 patients) with MTC.

INTERVENTION:

The intervention was compartment-oriented surgery.

MAIN OUTCOME MEASURES:

Comparisons of means between index and nonindex patients yielded incremental primary tumor diameter and incremental number of lymph node metastases, which were divided by incremental patient age at tissue diagnosis.

RESULTS:

Annual primary tumor growth was 0.4-0.5 mm in node-negative carriers of ATA class A and C mutations. In node-positive carriers, annual primary tumor growth was 2.6 mm (ATA class C mutations) and 1.2 mm (ATA class A mutations), more than 6-fold (2.6 vs 0.4 mm) and more than 2-fold greater (1.2 vs 0.5 mm)

than in their node-negative peers. Node-positive carriers revealed an annual rate of lymph node metastasis of 0.6-0.7 nodes independent of ATA class.

CONCLUSIONS:

Small MTCs may take longer than 10 years to become big enough to visualize on imaging. These slow growth rates highlight the importance of following up on patients for very long time periods to uncover at least some tumoral sources of persistent calcitonin production.

PMID: [24297798](https://pubmed.ncbi.nlm.nih.gov/24297798/)

<http://dx.doi.org/10.1210/jc.2013-3343>

13. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):448-54. doi: 10.1210/jc.2013-2942. Epub 2013 Nov 25. (IF: 7.02)

The effect of extent of surgery and number of lymph node metastases on overall survival in patients with medullary thyroid cancer.

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Abstract

CONTEXT:

Total thyroidectomy with central lymph node dissection is recommended in patients with medullary thyroid cancer (MTC). However, the relationship between disease severity and extent of resection on overall survival remains unknown.

OBJECTIVE:

The aim of the study was to identify the effect of surgery on overall survival in MTC patients.

METHODS:

Using data from 2968 patients with MTC diagnosed between 1998 and 2005 from the National Cancer Database, we determined the relationship between the number of cervical lymph node metastases, tumor size, distant metastases, and extent of surgery on overall survival in patients with MTC.

RESULTS:

Older patient age (5.69 [95% CI, 3.34-9.72]), larger tumor size (2.89 [95% CI, 2.14-3.90]), presence of distant metastases (5.68 [95% CI, 4.61-6.99]), and number of positive regional lymph nodes (for ≥ 16 lymph nodes, 3.40 [95% CI, 2.41-4.79]) were independently associated with decreased survival. Overall survival rate for patients with cervical lymph nodes resected and negative, cervical lymph nodes not resected, and

1-5, 6-10, 11-16, and ≥ 16 cervical lymph node metastases was 90, 76, 74, 61, 69, and 55%, respectively. There was no difference in survival based on surgical intervention in patients with tumor size ≤ 2 cm without distant metastases. In patients with tumor size > 2.0 cm and no distant metastases, all surgical treatments resulted in a significant improvement in survival compared to no surgery ($P < .001$). In patients with distant metastases, only total thyroidectomy with regional lymph node resection resulted in a significant improvement in survival ($P < .001$).

CONCLUSIONS:

The number of lymph node metastases should be incorporated into MTC staging. The extent of surgery in patients with MTC should be tailored to tumor size and distant metastases.

PMID: [24276457](https://pubmed.ncbi.nlm.nih.gov/24276457/)

<http://dx.doi.org/10.1210/jc.2013-2942>

14. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):510-6. doi: 10.1210/jc.2013-3160. Epub 2013 Nov 25. (IF: 7.02)

Determination of the optimal time interval for repeat evaluation after a benign thyroid nodule aspiration.

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Abstract

INTRODUCTION:

The optimal timing for repeat evaluation of a cytologically benign thyroid nodule greater than 1 cm is uncertain. Arguably, the most important determinant is the disease-specific mortality resulting from an undetected thyroid cancer. Presently there exist no data that evaluate this important end point.

METHODS:

We studied the long-term status of all patients evaluated in our thyroid nodule clinic between 1995 and 2003 with initially benign fine-needle aspiration (FNA) cytology. The follow-up interval was defined from the time of the initial benign FNA to any one of the following factors: thyroidectomy, death, or the most recent clinic visit documented anywhere in our health care system. We sought to determine the optimal timing for repeat assessment based on the identification of falsely benign malignancy and, most important, disease-related mortality due to a missed diagnosis.

RESULTS:

One thousand three hundred sixty-nine patients with 2010 cytologically benign nodules were followed up for an average of 8.5 years (range 0.25-18 y). Thirty deaths were documented, although zero were attributed to thyroid cancer. Eighteen false-negative thyroid malignancies were identified and removed at a mean 4.5 years (range 0.3-10 y) after the initial benign aspiration. None had distant metastasis, and all are alive presently at an average of 11 years after the initial falsely benign FNA. Separate analysis

demonstrates that patients with initially benign nodules who subsequently sought thyroidectomy for compressive symptoms did so an average of 4.5 years later.

CONCLUSIONS:

An initially benign FNA confers negligible mortality risk during long-term follow-up despite a low risk of identifying several such nodules as thyroid cancer. Because such malignancies appear adequately treated despite detection at a mean 4.5 years after falsely benign cytology, these data support a recommendation for repeat thyroid nodule evaluation 2-4 years after the initial benign FNA.

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<http://dx.doi.org/10.1210/jc.2013-3160>

15. [Eur J Endocrinol](#). 2013 Dec 21;170(2):321-7. doi: 10.1530/EJE-13-0865. Print 2014 Feb. (IF: 3.64)

Familial vs sporadic papillary thyroid carcinoma: a matched-case comparative study showing similar clinical/prognostic behaviour.

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Author information

- ¹Serviço de Anatomia Patológica.

Abstract

OBJECTIVE:

Familial non-medullary thyroid cancer has been proposed as an aggressive clinical entity. Our aim in this study is to investigate potential distinguishing features as well as the biological and clinical aggressiveness of familial vs sporadic papillary thyroid carcinoma (PTC). We assessed clinicopathological characteristics, outcome measures and DNA ploidy.

DESIGN:

A matched-case comparative study.

METHODS:

A series of patients with familial PTC (n=107) and two subgroups, one with three or more affected elements (n=32) and another including index cases only (n=61), were compared with patients with sporadic PTC (n=107), matched by age, gender, pTNM disease extension and approximate follow-up duration. Histological variant, extrathyroidal extension, vascular invasion, tumour multifocality and bilateral growth were evaluated. Ploidy pattern was analysed in available samples by DNA flow cytometry. The probabilities of disease-free survival (DFS) and overall survival (OS) were estimated according to the Kaplan-Meier (K-M) method.

RESULTS:

No patient with familial PTC died of disease during follow-up (median, 72 months), contrarily to five patients (4.7%) (P=0.06) with sporadic PTC (median, 90 months). There was a significantly higher tumour multifocality in familial PTC (index cases subgroup) vs sporadic PTC (P=0.035), and a trend, in the familial PTC cohort with three or more affected elements, to show extrathyroidal extension (P=0.054) more

frequently. No difference was observed in DNA ploidy status. The K-M analyses showed no significant differences between both entities in relation to DFS or OS.

CONCLUSION:

Apart from multifocality, familial PTC appears to have similar clinical/prognostic behaviour when compared with sporadic forms of the disease.

PMID: [24272198](#)

<http://dx.doi.org/10.1530/EJE-13-0865>

16. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):E276-85. doi: 10.1210/jc.2013-2503. Epub 2013 Nov 18. (IF: 7.02)

The increase in thyroid cancer incidence during the last four decades is accompanied by a high frequency of BRAF mutations and a sharp increase in RAS mutations.

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Author information

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Abstract

CONTEXT:

Thyroid cancer incidence rates in the United States and globally have increased steadily over the last 40 years, primarily due to a tripling of the incidence of papillary thyroid carcinoma (PTC).

OBJECTIVE:

The purpose of this study was to analyze trends in demographic, clinical, pathologic, and molecular characteristics of PTC from 1974 to 2009.

DESIGN AND SETTING:

We identified and histologically reviewed 469 consecutive cases of PTC from one US institution from 4 preselected periods (1974 to 1985, 1990 to 1992, 2000, and 2009) and assessed BRAF and RAS point mutations and RET/PTC rearrangements among 341 tumors ≥ 0.3 cm in size. Changes over time were analyzed using polytomous and binary logistic regression; all analyses were adjusted for age and sex.

RESULTS:

During this period, the median age of patients at diagnosis increased from 37 to 53 years ($P < .001$) and the percentage of microcarcinomas (≤ 1.0 cm) increased from 33% to 51% ($P < .001$), whereas extrathyroidal extension and advanced tumor stage decreased from 40% to 21% ($P = .005$) and from 43%

to 28% (P = .036), respectively. Changes in tumor histopathology showed a decrease in classic PTC and an increase in the follicular variant (P < .001). The proportion of tumors with a BRAF mutation was stable (~46%) but increased from 50% to 77% (P = .008) within classic papillary PTCs. The proportion of tumors with RAS mutations increased from 3% to 25% and within follicular pattern tumors from 18% to 44% (P < .001). The proportion of RET/PTC rearrangements decreased from 11% to 2% (P = .038).

CONCLUSIONS:

Similar to US national trends, we found an increasing age at diagnosis and greater detection of smaller-sized intrathyroidal PTCs. However, the overall proportion of BRAF mutations remained stable. Sharply rising percentages of the follicular variant histology and RAS mutations after 2000 suggest new and more recent etiologic factors. The increased incidence is not likely to be due to environmental or therapeutic radiation because the percentage of RET/PTC rearrangements decreased.

Comment in

- [Molecular profiles of papillary thyroid tumors have been changing in the last decades: how could we explain it?](#) [J Clin Endocrinol Metab. 2014]

PMID: [24248188](#)

<http://dx.doi.org/10.1210/jc.2013-2503>

17. [J Clin Endocrinol Metab.](#) 2014 Jan;99(1):133-41. doi: 10.1210/jc.2013-2781. Epub 2013 Dec 20. (IF: 7.02)

Racial and socioeconomic disparities in presentation and outcomes of well-differentiated thyroid cancer.

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Author information

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Abstract

CONTEXT:

Racial/ethnic minorities suffer disproportionate morbidity and mortality from chronic diseases.

OBJECTIVE:

Our objective was to assess racial and socioeconomic status (SES) disparities in well-differentiated thyroid cancer (WDTC) patients.

DESIGN AND PARTICIPANTS:

We conducted a retrospective cohort study on 25 945 patients with WDTC (1999-2008) from the California Cancer Registry (57% white, 4% black, 24% Hispanic, and 15% Asian-Pacific Islander [API]).

MAIN OUTCOMES:

We evaluated effect of race and SES variables on stage of cancer presentation and overall/disease-specific survival.

RESULTS:

Significant differences in stage of presentation between all racial groups were found ($P < .001$), with minority groups presenting with a higher percentage of metastatic disease as compared with white patients (black, odds ratio [OR]=1.36 with confidence interval [CI] 1.01-1.84; Hispanic, OR=1.89 [CI, 1.62-2.21], API, OR=1.82 [CI, 1.54-2.15]). Hispanic (OR=1.59, [CI, 1.48-1.72]) and API (OR=1.32 [1.22-1.44]) patients also presented with higher odds of regional disease. Patients with the lowest SES presented with metastatic disease more often than those with the highest SES (OR=1.45 [CI, 1.16-1.82]). Those that were poor/uninsured and/or with Medicaid insurance had higher odds of presenting with metastatic disease as compared with those with private insurance (OR=2.41, [CI, 2.10-2.77]). Unadjusted overall survival rates were higher among API and Hispanic patients and lower among black patients ($P < .001$ vs white patients). Adjusted overall survival also showed a survival disadvantage for black patients (hazard ratio=1.4, [CI, 1.10-1.73]) and survival advantage for API patients (hazard ratio=0.83, [CI, 0.71-0.97]). In disease-specific survival analyses, when only those patients with metastatic disease were analyzed separately, black patients again had the lowest survival rates, and Hispanic/API patients had the highest survival rates ($P < .04$).

CONCLUSION:

Black patients and those with low SES have worse outcomes for thyroid cancer. API and Hispanic patients may have a protective effect on survival despite presenting with more advanced disease.

PMID: [24243631](https://pubmed.ncbi.nlm.nih.gov/24243631/)

<http://dx.doi.org/10.1210/jc.2013-2781>

18. [JAMA Otolaryngol Head Neck Surg.](#) 2014 Jan;140(1):52-7. doi: 10.1001/jamaoto.2013.5650. (IF: 1.68)

Infarction of papillary thyroid carcinoma after fine-needle aspiration: case series and review of literature.

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- ³Department of Pathology, University of California, Los Angeles.

Abstract

IMPORTANCE:

Although infarction after fine-needle aspiration (FNA) is a rare occurrence, it is a known phenomenon that may lead to difficulties in interpretation for pathologists and in decision-making for head and neck surgeons.

OBJECTIVE:

To characterize our experience with infarction in papillary thyroid carcinomas (PTCs) after FNA and review existing cases of infarcted PTCs in the literature to better understand this phenomenon.

DESIGN, SETTING, AND PARTICIPANTS:

This was a retrospective case series and review of literature at a tertiary medical center (University of California, Los Angeles [UCLA], Medical Center). All patients who had a surgical pathologic diagnosis of infarcted PTC and who underwent FNA prior to surgery at UCLA from June 2006 to June 2012 were identified. There were 620 cases of PTC and 12 cases of infarcted PTC. MAIN OUTCOMES AND MEASURE: Demographic data, FNA cytologic findings, and surgical pathologic data were gathered for each patient. A comprehensive literature search for infarcted PTC was performed.

RESULTS:

Twelve cases of infarcted PTC were found in a total of 620 cases of PTC (1.9%). The mean (SD) time interval between the last FNA and surgery was 52 (35) days (range, 13-133 days). All patients received a diagnosis of infarcted PTC after thyroidectomy was performed. Focal infarction was found in 4 patients (33%), and near-total infarction was found in 8 patients (67%). Five patients (47%) had the follicular variant of PTC, making it the most common subtype in our series. A thorough literature search yielded 11 articles reporting a total of 26 cases of infarcted PTC after FNA. To our knowledge, our case series on infarcted PTC is the largest reported series in the literature.

CONCLUSIONS AND RELEVANCE:

Although infarction of PTC after FNA occurs infrequently, it may lead to difficulties in histologic diagnosis. Awareness of this phenomenon and its histologic associations, along with careful reevaluation of the FNA and surgical specimens, is important for appropriate diagnosis and subsequent treatment. At this point, infarction in PTC should not alarm a head and neck surgeon to change management, but future prospective studies with a large population of patients with infarcted PTCs are needed to establish the impact of infarction on differences in treatment outcomes for therapies that may be used in PTCs.

PMID: [24232180](#)

<http://dx.doi.org/10.1001/jamaoto.2013.5650>

19. [J Surg Oncol](#). 2014 Feb;109(2):168-73. doi: 10.1002/jso.23447. Epub 2013 Oct 16. (IF: 2.97)

Familial history of non-medullary thyroid cancer is an independent prognostic factor for tumor recurrence in younger patients with conventional papillary thyroid carcinoma.

[Lee YM](#)¹, [Yoon JH](#), [Yi O](#), [Sung TY](#), [Chung KW](#), [Kim WB](#), [Hong SJ](#).

Author information

- ¹Department of Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea.

Abstract

BACKGROUND:

It is not clear whether familial non-medullary thyroid cancer (FNMTTC) is more aggressive and has a poorer prognosis, than sporadic carcinoma. Therefore, the optimal clinical approach for FNMTTC is yet to be established. In this study, we investigated the biological behavior and prognosis of FNMTTC compared with its sporadic counterpart.

METHODS:

Between 1996 and 2004, 1,262 patients underwent a total thyroidectomy for conventional PTC at Asan Medical Center and 113 (9.0%) were diagnosed with FNMTTC. We compared the clinico-pathologic characteristics, treatment modalities, and prognosis between familial and sporadic NMTC.

RESULTS:

FNMTTC was significantly more multi-centric than sporadic. We also found that family history itself was an independent risk factor for recurrence. Moreover, disease-free survival in the familial group was significantly shorter than in the sporadic group in the subgroups in which age was <45 years, and in which the tumors were multi-centric, bilateral, and of N1b node status.

CONCLUSION:

FNMTTC may be considered as a separate clinical entity with a higher rate of recurrence and worse DFS than its sporadic counterpart. Furthermore, familial history of NMTC is an independent risk factor for recurrence, especially in younger patients with conventional PTC.

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KEYWORDS:

bilaterality, familial non-medullary thyroid cancer, multi-centricity, prognosis, recurrence

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<http://dx.doi.org/10.1002/jso.23447>

20. [Eur J Endocrinol](#). 2013 Nov 22;170(1):23-30. doi: 10.1530/EJE-13-0524. Print 2014 Jan. (IF: 3.64)

Modified dynamic risk stratification for predicting recurrence using the response to initial therapy in patients with differentiated thyroid carcinoma.

[Jeon MJ](#)¹, [Kim WG](#), [Park WR](#), [Han JM](#), [Kim TY](#), [Song DE](#), [Chung KW](#), [Ryu JS](#), [Hong SJ](#), [Shong YK](#), [Kim WB](#).

Author information

- ¹Departments of Internal Medicine.

Abstract

OBJECTIVE:

A new risk stratification system was proposed to estimate the risk of recurrence in patients with differentiated thyroid carcinoma (DTC) using the response to initial therapy. Here, we describe the modified

dynamic risk stratification system, which takes into consideration the status of serum anti-Tg antibody (TgAb), and validate this system for assessing the risk of recurrence in patients with DTC.

PATIENTS AND METHODS:

Patients who underwent total thyroidectomy with radioiodine remnant ablation due to DTC between 2000 and 2005 were included. We classified patients into four groups based on the response to the initial therapy ('excellent', 'acceptable', 'biochemical incomplete', and 'structural incomplete' response).

RESULTS:

The median follow-up period of 715 patients with DTC was 8 years. The response to initial therapy was an important risk predictor for recurrent/persistent DTC. The relative risks (95% CI) of recurrence were 16.5 (6.3-43.0) in the 'acceptable response' group, 41.3 (15.4-110.8) in the 'biochemical incomplete response' group, and 281.2 (112.9-700.5) in the 'structural incomplete response' group compared with the 'excellent response' group ($P < 0.001$, $P < 0.001$, and $P < 0.001$ respectively). The disease-free survival rate of the 'excellent response' group to initial therapy was 98.3% whereas that of the 'structural incomplete response' group was only 6.8%.

CONCLUSIONS:

Our study validates the usefulness of the modified dynamic risk stratification system including the status of serum TgAb for predicting recurrent/persistent disease in patients with DTC. Personalized risk assessment using the response to initial therapy could be useful for the follow-up and management of patients with DTC.

PMID: [24088549](https://pubmed.ncbi.nlm.nih.gov/24088549/)

<http://dx.doi.org/10.1530/EJE-13-0524>

21. [Cancer Cytopathol.](#) 2014 Jan;122(1):48-58. doi: 10.1002/cncy.21352. Epub 2013 Sep 4. (IF: 4.01)

Value of immunohistochemistry in the detection of BRAF(V600E) mutations in fine-needle aspiration biopsies of papillary thyroid carcinoma.

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Author information

- ¹Institute of Surgical Pathology, University Hospital, Zurich, Switzerland.

Abstract

BACKGROUND:

Fine-needle aspiration biopsy (FNAB) is important in the diagnostic establishment of suspicious thyroid nodules. In thyroid neoplasms, mutation of the BRAF gene occurs rather exclusively in papillary thyroid carcinoma (PTC) and results in >98% of the cases in V600E amino acid substitution. In the current study, the authors investigated the diagnostic value of a recently described monoclonal antibody that detects this specific mutation on FNAB specimens from patients with PTC.

METHODS:

BRAF(V600E) status of FNAB cell blocks from 55 patients with PTC was analyzed by immunohistochemistry (IHC) with the new BRAF(V600E) antibody (clone VE1) and by Sanger sequencing (SaS). In discrepant cases, ultra-deep sequencing was also performed. Available corresponding histological specimens were investigated by IHC and, in selected cases, with SaS as well.

RESULTS:

All cases yielded evaluable IHC staining results of the cell block sections with good interobserver agreement (kappa value, 0.650). Ten tumors (18.2%) demonstrated no staining, 10 tumors (18.2%) demonstrated equivocal staining, 25 tumors (45.4%) demonstrated moderate staining, and 10 tumors (18.2%) demonstrated strong staining. SaS was able to be performed in 48 cases. Nineteen cases demonstrated wild-type BRAF and 29 cases were found to have the BRAF(V600E) mutation. After performing ultra-deep sequencing 1 false-positive and 2 false-negative VE1 IHC cases remained, resulting in a sensitivity of 93.8% and a specificity of 93.8%.

CONCLUSIONS:

BRAF(V600E) mutations in FNAB specimens from patients with PTC can be reliably detected in most cases by IHC with a new mutation-specific antibody. Interpretation of VE1 IHC staining results on cell block slides of PTC can be difficult in some cases.

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KEYWORDS:

BRAF mutation, Sanger sequencing, fine-needle aspiration biopsy, immunohistochemistry, papillary thyroid carcinoma, ultra-deep sequencing

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<http://dx.doi.org/10.1002/ncyc.21352>

22. [Asian Pac J Cancer Prev](#). 2014;15(6):2523-7. (IF: 1.43)

Importance of Postoperative Stimulated Thyroglobulin Level at the Time of 131I Ablation Therapy for Differentiated Thyroid Cancer.

[Hasbek Z¹](#), [Turgut B](#), [Kilicli F](#), [Altuntas EE](#), [Yucel B](#).

Author information

Abstract

Background: Serum thyroglobulin detection plays an essential role during the follow-up of thyroid cancer patients treated with total/near total thyroidectomy and radioiodine ablation. The aim of this retrospective study was to evaluate the relationship between stimulated serum thyroglobulin (Tg) level at the time of high dose 131I ablation and risk of recurrence, using a three-level classification in patients with differentiated thyroid cancer(DTC) according to the ATA guidelines. Also we investigated the relationship between postoperative stimulated Tg at the time of ablation and DxWBS results at 8-10 months thereafter. **Materials and Methods:** Patients with radioiodine accumulation were regarded as scan positive (scanandplus;). If there was no relevant pathological radioiodine accumulation or minimal local accumulation in the thyroid bed region, this were regarded as scan negative (scan-) at the time of DxWBS. We classified patients in 3 groups as low, intermediate and high risk group for assessment of risk of recurrence according to the revised ATA guidelines. Also, we divided patients into 3 groups based on the stimulated serum Tg levels at the time of 131I ablation therapy. Groups 1-3 consisted of patients who had Tg levels of ≤ 2 ng/ml, 2-10 ng/ml, and ≥ 10 ng/ml, respectively. **Results:** A total of 221 consecutive patients were included. In the high risk group according to the ATA guideline, while 45.5% of demonstrated Scan(+) Tg(+), 27.3% of patients demonstrated Scan(-) Tg(-); in the intermediate group, the figures were 2.3% and

90.0% while in the low risk group, they were 0.6% and 96.4%. In 9 of 11 patients with metastases (81.8%), stimulated serum Tg level at the time of radioiodine ablation therapy was over 10, however in 1 patient (9.1%) it was <2ng/mL and in one patient it was 2-10ng/mL (p=0.005). Aggressive subtypes of DTC were found in 8 of 221 patients and serum Tg levels were ≤2ng/ml in 4 of these 8. Conclusions: We conclude that TSH-stimulated serum thyroglobulin level at the time of ablation may not determine risk of recurrence. Therefore, DxWBS should be performed at 8-12 months after ablation therapy.

PMID: [24761858](#)

23. [Ann Ital Chir.](#) 2014;85:1-5. (IF: 0.33)

Papillary thyroid microcarcinoma: proposal of treatment based on histological prognostic factors evaluation.

[Ardito G](#), [Avenia N](#), [Giustozzi E](#), [Salvatori M](#), [Fadda G](#), [Ardito F](#), [Revelli L](#).

Abstract

BACKGROUND:

Papillary thyroid cancer accounts for approximately 80% of thyroid tumors and its incidence has increased over the past decades. Papillary thyroid microcarcinomas (PMCs), defined by the World Health Organization as less than 1.0 cm in size, are identified with greater frequency. The majority of patients with PMCs follows a benign clinical course, however a subgroup of these carcinomas is as aggressive as bigger tumors. Risk factors related with poor outcome have not been defined and the optimal treatment has not been proved. The authors investigated histologic prognostic factors predicting high risk patients considered for more aggressive treatment and propose reviewed therapeutic guidelines based on analysis of histopathologic features which determined the recurrence rate.

STUDY DESIGN:

One hundred forty nine patients with PMC who underwent surgery were retrospectively analyzed. Clinical and histopathologic parameters potentially predicting patient outcome and recurrent disease were statistically investigated, after a minimum follow-up of 5 years.

RESULTS:

After a median follow-up of 5.4 years 28 of 149 patients experienced recurrent disease. All of them were reoperated on and newly treated with radioiodine administration. The multivariate statistical analysis identified extrathyroidal invasion (Odds Ratio, OR, 58.54; P=0.013), the solid pattern (OR,25.77; P>0.001), the tumor multifocality (OR, 15.80; P= 0.005), and the absence of tumor capsule (OR, 9.74; P=0.015) as significant and independent risk factors for the appearance of PMCs recurrences. Of note, none of the PMC "incidentally" discovered at histopathological examination alone experienced recurrent disease during follow-up.

CONCLUSIONS:

Although most PMC have favourable long-term prognosis, some patients (19% in our series) presented aggressive clinical course strongly correlated with some histopathologic features (extrathyroidal invasion, tumor multifocality, solid pattern and absence of capsule) who need to be investigated and for whom a radical therapeutic approach is recommended based on total thyroidectomy and regional lymphadenectomy followed by radioiodine administration.

KEY WORDS:

Neck dissection, Multifocality, Personalized Surgery, Prognostic factors, Tailored medicine, Thyroid surgery, Tumor invasion.

PMID: [24755735](#)

24. [J Surg Res](#). 2014 Mar 19. pii: S0022-4804(14)00264-9. doi: 10.1016/j.jss.2014.03.034. [Epub ahead of print] (IF: 2.08)

Identifying predictors of a difficult thyroidectomy.

[Mok VM](#)¹, [Oltmann SC](#)¹, [Chen H](#)¹, [Sippel RS](#)¹, [Schneider DF](#)².

[Author information](#)

Abstract

BACKGROUND:

A Thyroidectomy Difficulty Scale (TDS) was previously developed that identified more difficult operations, which correlated with longer operative times and higher complication rates. The purpose of this study was to identify preoperative variables predictive of a more difficult thyroidectomy using the TDS.

METHODS:

A four item, 20-point TDS, was used to score the difficulty of thyroid operations. Patient and disease factors were recorded for each patient. Difficult thyroidectomy and non-difficult thyroidectomy (NDT) patients were compared. A final multivariate logistic regression model was constructed with significant ($P < 0.05$) variables from a univariate analysis.

RESULTS:

A total of 189 patients were scored using TDS. Of them, 69 (36.5%) suffered from hyperthyroidism, 42 (22.2%) from Hashimotos, 34 (18.0%) from thyroid cancer, and 36 (19.0%) from multinodular goiter. Among hyperthyroid patients, the DT group had a greater number preoperatively treated with Lugols potassium iodide (81.6% DT versus 58.1% NDT, $P = 0.032$), presence of ophthalmopathy (31.6% DT versus 9.7% NDT, $P = 0.028$), and presence of (>4 IU/mL) antithyroglobulin antibodies (34.2% DT versus 12.9% NDT, $P = 0.05$). Using multivariate analysis, hyperthyroidism (odds ratio [OR], 4.35, 95% confidence interval [CI], 1.23-15.36, $P = 0.02$), presence of antithyroglobulin antibody (OR, 3.51, 95% CI, 1.28-9.66, $P = 0.015$), and high (>150 ng/mL) thyroglobulin (OR, 2.61, 95% CI, 1.06-6.42, $P = 0.037$) were independently associated with DT.

CONCLUSIONS:

Using TDS, we demonstrated that a diagnosis of hyperthyroidism, preoperative elevation of serum thyroglobulin, and antithyroglobulin antibodies are associated with DT. This tool can assist surgeons in counseling patients regarding personalized operative risk and improve OR scheduling.

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KEYWORDS:

Difficult thyroidectomy, Difficulty scale, Graves disease, Hashimotos thyroiditis, Risk adjustment, Thyroid

PMID: [24750986](#)

<http://dx.doi.org/10.1016/j.jss.2014.03.034>

25. [Endocrinol Metab \(Seoul\)](#). 2014 Mar;29(1):33-9. doi: 10.3803/EnM.2014.29.1.33. Epub 2014 Mar 14.

Diagnostic Whole-Body Scan May Not Be Necessary for Intermediate-Risk Patients with Differentiated Thyroid Cancer after Low-Dose (30 mCi) Radioactive Iodide Ablation.

[Jeon EJ](#), [Jung ED](#).

[Author information](#)

Abstract

BACKGROUND:

A diagnostic whole-body scan (WBS) is recommended 6 to 12 months after total thyroidectomy and radioactive iodide ablation in intermediate- or high-risk patients with differentiated thyroid cancer (DTC).

The aim of this study was to evaluate the necessity of a diagnostic WBS after radioactive iodide ablation in intermediate-risk patients with DTC.

METHODS:

A total of 438 subjects were included in the study: 183 low-risk subjects and 255 intermediate-risk subjects according to the American Thyroid Association guideline. All subjects diagnosed with DTC received 1,100 MBq (30 mCi) activity of radioiodine (I-131) following total thyroidectomy. On follow-up, all subjects underwent a diagnostic I-131 WBS after thyroid hormone withdrawal.

RESULTS:

After initial radioactive iodide ablation, 95.1% of low-risk patients and 91.4% of intermediate-risk patients showed no uptake on diagnostic WBS (P=0.135). Intermediate-risk patients with stimulated thyroglobulin (Tg) levels higher than 2.0 ng/mL showed a greater rate of radioactive iodine uptake on diagnostic WBS. Four intermediate-risk patients showed recurrence during the 16 to 80 months follow-up period. Three of the four patients with recurrence showed no uptake on diagnostic WBS and had a stimulated Tg level less than 2.0 ng/mL.

CONCLUSION:

A diagnostic I-131 WBS after radioactive iodide ablation in intermediate-risk patients with DTC may not be necessary. A large prospective study is necessary to determine the necessity of diagnostic WBS in intermediate-risk patients with DTC.

KEYWORDS:

Ablation, Iodides, Radioactivity, Thyroid neoplasms

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<http://dx.doi.org/10.3803/EnM.2014.29.1.33>

26. [Radiat Oncol.](#) 2014 Mar 31;9(1):90. doi: 10.1186/1748-717X-9-90. (IF: 2.39)

Long-term results of radiotherapy in anaplastic thyroid cancer.

[Dumke AK](#), [Pelz T](#), [Vordermark D](#)¹.

[Author information](#)

Abstract

BACKGROUND:

Anaplastic thyroid cancer (ATC) is an aggressive malignant tumour with a poor prognosis. The median overall survival is described in the literature to be just 6 months, however, in series of selected patients treated by multimodal therapy cases of long-time-survival have been reported. We analyzed the role of radiotherapy and the impact of other therapies and clinical features on survival in patients with ATC.

METHODS:

In a retrospective analysis of all patients (n = 40), who presented with histologically proven ATC at a single centre between 1989 and 2008, patient and treatment characteristics with a focus on details of radiotherapy were registered and the survival status determined.

RESULTS:

39 of 40 patients received radiotherapy, 80% underwent surgery and 15% had chemotherapy. The median dose of radiation was 50 Gy (6-60.4 Gy), in 87.5% fractionation was once daily. In 49.4% opposing-field techniques were applied, in 14% 3D-conformal-techniques and 32.5% combinations of both. The median overall survival (OS) was 5 months, 1-year survival 35.2% and 5-year-survival 21.6%. Interestingly, 24.3% survived 2 years or longer. Three factors could be identified as predictors of improved overall survival: absence of lymph node metastasis (N0) (median OS 18.3 months), median dose of radiation of 50 Gy or more (median OS 10.5 months) and the use of any surgery (median OS 10.5 months).

CONCLUSIONS:

Despite the generally poor outcome, the combination of surgery and intensive radiotherapy can result in long-term survival in selected patients with ATC.

PMID: [24685141](https://pubmed.ncbi.nlm.nih.gov/24685141/)

<http://dx.doi.org/10.1186/1748-717X-9-90>

27. [Endocr Res.](#) 2014 Mar 28. [Epub ahead of print] (IF: 1.04)

The role of BRAF V600E mutation as a potential marker for prognostic stratification of papillary thyroid carcinoma: a long-term follow-up study.

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[Author information](#)

Abstract

Abstract Papillary carcinoma is the most prevalent malignancy of thyroid gland, and its incidence has been recently increased. The BRAF^{V600E} mutation is the most frequent genetic alteration in papillary thyroid carcinoma (PTC). The role of BRAF^{V600E} mutation as a potential prognostic factor has been controversially reported in different studies, with short-term follow-up. In this study, we evaluated the role of BRAF^{V600E} mutation as a potential marker for prognostic stratification of patients with PTC in long-term follow-up. We studied 69 PTC patients with a mean follow-up period of 63.9 months (median: 60 m). The BRAF^{V600E} mutation was analyzed by PCR-single-strand conformational polymorphism and sequencing. The correlation between the presence or absence of the BRAF^{V600E} mutation, clinicopathological features and prognosis of PTC patients were studied. The BRAF^{V600E} mutation was found in 28 of 69 (40.6%) PTC patients, and it was significantly more frequent in older patients ($p < 0.001$), in advanced tumor stages ($p = 0.006$) and in patients with history of radiation exposure ($p = 0.037$). Incomplete response to treatment in PTC patients was significantly correlated with certain clinicopathological characteristics (follow-up time, distant metastases, advanced stage, first thyroglobulin (fTg) level, history of reoperation and external radiotherapy and delay in iodine therapy) but it was not related to the presence of BRAF^{V600E} mutation. Prevalence of BRAF^{V600E} mutation was 40.6% in patients with papillary thyroid cancer in northeast of Iran. The BRAF^{V600E} mutation was associated with older age and advanced tumor stage but was not correlated with incomplete response during follow-up.

PMID: [24679337](#)

28. [Eur J Endocrinol.](#) 2014 Mar 21. [Epub ahead of print] (IF: 3.64)

Post-operative neck ultrasound and risk stratification in differentiated thyroid cancer patients with initial lymph node involvement.

[Lepoutre-Lussey C¹](#), [Maddah D](#), [Golmard JL](#), [Russ G](#), [Tissier F](#), [Trésallet C](#), [Menegaux F](#), [Aurengo A](#), [Leenhardt L](#).

[Author information](#)

Abstract

Objective Cervical ultrasound (US) scan is a key tool for detecting metastatic lymph nodes (N1) in patients with papillary thyroid cancer (PTC). N1-PTC patients are stratified as intermediate and high risk patients, according to the American (ATA) and European (ETA) Thyroid Association respectively. The aim of this study is to assess the value of post-operative cervical US (POCUS) in local persistent disease (PD) diagnosis and in the reassessment of risk stratification in N1-PTC. Design Retrospective cohort study Methods Between 1997 and 2010, 638 N1-PTC consecutive patients underwent a systematic POCUS. Sensitivity, specificity, negative (NPV) and positive predictive values (PPV) of POCUS for the detection of PD were evaluated and a risk reassessment using cumulative incidence functions was established. Results After a median follow up of 41.6 months, local recurrence occurred in 138 patients (21.6%), of which 121 were considered persistent disease (PD). Sensitivity, specificity, NPV and PPV of POCUS for the detection of the 121 PD were 82.6%, 87.4%, 95.6% and 60.6%, respectively. Cumulative incidence of recurrence at five years was estimated at 26% in ETA high risk, 17% in ATA intermediate and 35% in ATA high risk patients respectively. This risk fell to 9%, 8% and 11% in the above three groups

when the POCUS result was normal and to less than 6% when combined with thyroglobulin results at ablation. Conclusion POCUS is useful for detecting PD in N1-PTC patients and for stratifying individual recurrence risk. Its high NPV could allow clinicians to tailor follow-up recommendations to individual needs.

PMID: [24659355](#)

29. [Surg Endosc](#). 2014 Mar 20. [Epub ahead of print] (IF:3.66)

Surgical complications after robotic thyroidectomy for thyroid carcinoma: a single center experience with 3,000 patients.

[Ban EJ](#)¹, [Yoo JY](#), [Kim WW](#), [Son HY](#), [Park S](#), [Lee SH](#), [Lee CR](#), [Kang SW](#), [Jeong JJ](#), [Nam KH](#), [Chung WY](#), [Park CS](#).

Author information

Abstract

BACKGROUND:

Robotic thyroidectomy (RT), a new gasless, transaxillary approach developed by the Yonsei University group in Seoul, Korea, eliminates the need for a cervical incision. Since RT is technically complex and has a steep learning curve, the surgical complication rate may initially be higher than with conventional surgery. This study evaluated the complication rates of transaxillary RT and assessed ways to prevent surgical complications.

METHODS:

Between October 2007 and March 2013, 3,000 patients underwent RT for thyroid cancer in the Department of Surgery, Yonsei University College of Medicine at Severance Hospital, Seoul. The medical records of these patients were reviewed retrospectively, and surgical complications were assessed on the basis of clinical findings.

RESULTS:

The most common surgical complication was symptomatic hypocalcemia, of which 37.43 % cases were transient and 1.10 % permanent. Other surgical complications included recurrent laryngeal nerve injury (1.23 % transient, 0.27 % permanent), seroma (1.73 %), hematoma (0.37 %), chyle leakage (0.37 %), trachea injury (0.2 %), Horner's syndrome (0.03 %), carotid artery injury (0.03 %), and brachiocephalic vein injury (0.03 %). The technique-related complications, which were never seen in conventional open thyroidectomy, were axillary skin flap perforation (0.1 %), and traction injury of the arm on the side the lesion was located (0.13 %).

CONCLUSIONS:

Surgeons who have mastered standardized robotic surgical procedures and who understand potential complications and how to prevent them can perform RT safely.

PMID: [24648108](#)

30. [Surgery](#). 2014 Jan;155(1):184-9. doi: 10.1016/j.surg.2013.06.052. (IF: 3.19)

Outcome of vocal cord function after partial layer resection of the recurrent laryngeal nerve in patients with invasive papillary thyroid cancer.

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Author information

Abstract

BACKGROUND:

The recurrent laryngeal nerve (RLN) may be involved by thyroid cancer even in patients with functioning vocal cords preoperatively. In such cases, we try to preserve the nerve with sharp dissection. As a result of the dissection, the nerve may become thinner than its original thickness. Here we call this operative procedure "partial layer resection of the RLN," if the thickness of the preserved nerve is less than half of its original size. However, there is no report on postoperative vocal cord function after this procedure.

METHODS:

We report on 4,585 patients with papillary thyroid cancer who underwent their initial surgery in Kuma Hospital. Among them, 18 patients underwent "partial layer resection of the RLN." We also performed histologic examinations on the RLNs resected because of cancer invasion in 3 other patients.

RESULTS:

Postoperatively, 2 patients had functioning vocal cords, 13 had transient vocal cord paralysis, and the remaining 3 had permanent paralysis. Thus, 83% (15/18) of the present patients who underwent partial layer resection of the RLN had functioning vocal cords 1 year after surgery. In patients with transient paralysis, the phonation efficiency index (PEI) 1 year after operation recovered to normal range from the low PEI immediately after operation. Histologic examinations of resected RLN revealed that 78-82% of the cross-section of the nerve is composed of perineural connective tissue surrounding the nerve fibers.

CONCLUSION:

An unexpectedly high proportion (83%) of the patients who underwent partial layer resection of the RLN achieved functioning vocal cords and nearly normal phonation postoperatively.

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PMID: [24646959](#)

<http://dx.doi.org/10.1016/j.surg.2013.06.052>

31. [Cancer Cytopathol](#). 2014 Mar 11. doi: 10.1002/cncy.21411. [Epub ahead of print] (IF: 4.01)

Thyroid "atypia of undetermined significance" with nuclear atypia has high rates of malignancy and BRAF mutation.

[Park HJ](#)¹, [Moon JH](#), [Yom CK](#), [Kim KH](#), [Choi JY](#), [Choi SI](#), [Ahn SH](#), [Jeong WJ](#), [Lee WW](#), [Park SY](#).

Author information

Abstract

BACKGROUND:

"Atypia of undetermined significance" (AUS) in the Bethesda System for Reporting Thyroid Cytopathology is a heterogeneous category for cases that cannot be easily classified into benign, suspicious, or malignant. This study evaluated whether cytomorphology-based subcategorization could better predict the malignancy risk in cases designated as AUS, and how the subcategories correlated with BRAF mutation status in thyroid fine-needle aspirates (FNA).

METHODS:

Of 3589 cases of thyroid FNA diagnosed at the authors' institution in Seongnam, Korea, from January 2010 to December 2011, 331 cases of AUS were reviewed and subcategorized based on cytomorphological features, including nuclear atypia (NA), microfollicle formation (MF), Hürthle cell change (HC), and others

(O). The malignancy rate of each subcategory was calculated using cases with histologic follow-up. Pyrosequencing was conducted to detect BRAF mutations.

RESULTS:

Malignancy was histologically proven in 23.3% (77 of 331) of cases diagnosed as AUS. In cytomorphology-based subcategories, the rate of malignancy was 30.8% (66 of 214) for AUS-NA, 14.5% (8 of 55) for AUS-O, 4.8% (2 of 42) for AUS-MF, and 5% (1 of 20) for AUS-HC. The BRAF-V600E mutation was found in 40% (48 of 120) of AUS-NA, 30.8% (4 of 13) of AUS-HC, 6.7% (1 of 15) of AUS-O, and 2.8% (1 of 35) of AUS-MF.

CONCLUSIONS:

The AUS-NA subcategory was associated with the highest risk of malignancy and the greatest frequency of BRAF-V600E (substitution of valine to glutamic acid at position 600) mutation. These findings suggest that subcategorization of AUS by cytomorphology and BRAF-V600E mutation status is important for predicting the risk of malignancy. Cancer (Cancer Cytopathol) 2014;000:000-000. © 2014 American Cancer Society.

© 2014 American Cancer Society.

KEYWORDS:

BRAF mutation, atypia of undetermined significance, fine-needle aspiration, risk of malignancy, thyroid cancer

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<http://dx.doi.org/10.1002/cncy.21411>

32. [BMC Surg.](#) 2014 Mar 6;14:12. doi: 10.1186/1471-2482-14-12. (IF:2.86)

Follicular nodules (Thy3) of the thyroid: is total thyroidectomy the best option?

[Calò PG¹](#), [Medas F](#), [Santa Cruz R](#), [Podda F](#), [Erdas E](#), [Pisano G](#), [Nicolosi A](#).

Author information

Abstract

BACKGROUND:

Identification of the best management strategy for nodules with Thy3 cytology presents particular problems for clinicians. This study investigates the ability of clinical, cytological and sonographic data to predict malignancy in indeterminate nodules with the scope of determining the need for total thyroidectomy in these patients.

METHODS:

The study population consisted of 249 cases presenting indeterminate nodules (Thy3): 198 females (79.5%) and 51 males (20.5%) with a mean age of 52.43 ± 13.68 years. All patients underwent total thyroidectomy.

RESULTS:

Malignancy was diagnosed in 87/249 patients (34.9%); thyroiditis co-existed in 119/249 cases (47.79%) and was associated with cancer in 40 cases (40/87; 45.98%). Of the sonographic characteristics, only echogenicity and the presence of irregular margins were identified as being statistically significant predictors of malignancy. 52/162 benign lesions (32.1%) and 54/87 malignant were hypoechoic (62.07%); irregular margins were present in 13/162 benign lesions (8.02%), and in 60/87 malignant lesions (68.97%). None of the clinical or cytological features, on the other hand, including age, gender, nodule size, the presence of microcalcifications or type 3 vascularization, were significantly associated with malignancy.

CONCLUSIONS:

The rate of malignancy in cytologically indeterminate lesions was high in the present study sample compared to other reported rates, and in a significant number of cases Hashimoto's thyroiditis was also

detected. Thus, considering the fact that clinical and cytological features were found to be inaccurate predictors of malignancy, it is our opinion that surgery should always be recommended. Moreover, total thyroidectomy is advisable, being the most suitable procedure in cases of multiple lesions, hyperplastic nodular goiter, or thyroiditis; the high incidence of malignancy and the unreliability of intraoperative frozen section examination also support this preference for total over hemi-thyroidectomy.

PMID: [24597765](#)

<http://dx.doi.org/10.1186/1471-2482-14-12>

33. [Ann Surg Oncol](#). 2014 Mar 5. [Epub ahead of print] (IF: 4.33)

Thyroglobulin Antibodies Could be a Potential Predictive Marker for Papillary Thyroid Carcinoma.

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Author information

Abstract

BACKGROUND:

Hashimoto thyroiditis (HT) is associated with an increased risk of developing papillary thyroid carcinoma (PTC). The relationship between thyroid autoimmunity and cancer remains controversial. The purpose of this study was to investigate whether the preoperative TgAb could be a potential predictor of PTC in patients with thyroid nodules and to assess whether there is an association of preoperative TgAb with lymph node metastases.

METHODS:

This retrospective, nonrandomised study included 854 patients who underwent standard total thyroidectomy. Benign thyroid nodules were diagnosed in 447 patients, and 407 presented with malignant nodules. The examined parameters included the clinical characteristics, preoperative TSH and TgAb levels, and the histopathological characteristics of the tumour.

RESULTS:

Tumour size >10 mm ($p = 0.01$), the presence of PTC ($p < 0.001$), elevated TSH levels ($2.64 \pm 1.28 \mu\text{U/ml}$ vs. $2.09 \pm 0.98 \mu\text{U/ml}$, $p = 0.001$), HT ($p < 0.001$), and lymph node metastasis ($p = 0.005$) were significantly associated with positive TgAb. Additionally, tumour size >10 mm ($p < 0.001$), preoperative TgAb positivity ($p = 0.003$), and elevated TSH levels ($\text{TSH} > 3.4 \mu\text{U/ml}$, $p = 0.038$) were independent risk factors for PTC based on the multivariate logistic regression analysis.

CONCLUSIONS:

This study showed that TgAb positivity was an independent risk factor for PTC. A positive correlation between TgAb and PTC in patients with indeterminate nodules was existed. Additionally, a positive correlation existed between TgAb and lymph node metastases in patients with PTC. Prospective studies with a larger number of patients and long-term follow-up are needed clarify the potential role of positive serum TgAb in the prediction of PTC.

PMID: [24595799](#)

34. [Ann Surg Oncol](#). 2014 May;21(5):1665-70. doi: 10.1245/s10434-014-3545-5. Epub 2014 Feb 20.

(IF: 4.33)

Anaplastic Thyroid Carcinoma: A 25-year Single-Institution Experience.

[Mohebati A¹](#), [Dilorenzo M](#), [Palmer F](#), [Patel SG](#), [Pfister D](#), [Lee N](#), [Tuttle RM](#), [Shaha AR](#), [Shah JP](#), [Ganly I](#).

[Author information](#)

Abstract

BACKGROUND:

Anaplastic thyroid carcinoma (ATC) is among the most aggressive solid tumors accounting for 1-5 % of primary thyroid malignancies. In this retrospective review, we aim to evaluate the prognostic factors, treatment approaches, and outcomes of patients with ATC treated at a single institution.

MATERIALS AND METHODS:

We retrospectively identified 95 patients with ATC from an institutional database between 1985 and 2010. A total of 83 patients with sufficient records were included in this study. Patient, tumor, and treatment characteristics were recorded. Disease-specific survival (DSS) was determined by the Kaplan-Meier method, and factors predictive of outcome were determined by univariate and multivariate analysis.

RESULTS:

Of the 83 patients, 41 were male and 42 were female. The median age at presentation was 60 years (range 28-89 years) with a median survival of 8 months. The 1- and 2-year DSS were 33 and 23 %, respectively. On univariate analysis, age less than 60 years, clinically N0 neck, absence of clinical extrathyroidal extension (cETE), gross total resection, and multimodality treatment were statistically significant predictors of improved survival. On multivariate analysis, absence of cETE, multimodality therapy, and gross total resection were predictors of improved outcome.

CONCLUSIONS:

In patients with locoregional limited disease, multimodality treatment with gross total surgical resection and postoperative radiotherapy with or without chemotherapy offers the best local control and DSS.

PMID: [24554064](#)

<http://dx.doi.org/10.1245/s10434-014-3545-5>

35. [Acta Cytol](#). 2014;58(2):145-52. doi: 10.1159/000358264. Epub 2014 Feb 13. (IF: 0.93)

Fine-needle aspiration cytology of thyroid nodules with Hürthle cells: cytomorphologic predictors for neoplasms, improving diagnostic accuracy and overcoming pitfalls.

[Kasper KA¹](#), [Stewart J 3rd](#), [Das K](#).

[Author information](#)

Abstract

OBJECTIVES:

Hürthle cells (HCs) are follicular-derived oncocytic cells seen in a variety of neoplastic and nonneoplastic pathologic entities of the thyroid gland. This study was to report our experience of the surgical outcome on the finding of HCs on fine-needle aspiration biopsies (FNABs) of thyroid nodules, to identify cytologic predictors of HC neoplasms and an attempt to overcome diagnostic pitfalls.

STUDY DESIGN:

This was a retrospective study of all FNAB of thyroid nodules with findings of HCs with subsequent surgical resection. The FNAB slides of 70 thyroid nodules were blindly reviewed for specific cytomorphologic

characteristics. The cytologic findings were correlated with the corresponding final surgical pathology diagnosis.

RESULTS:

The patients ranged in age from 25 to 78 years with a male:female ratio of 1:2. There were 19 false-negative and 4 false-positive cases. Overall high cellularity, scant colloid and >90% HCs on FNAB are consistently seen in a neoplastic HC process. All cases of Hashimoto's thyroiditis were associated with prominent nucleoli and 92% of cases demonstrating transgressing vessels were neoplastic.

CONCLUSION:

Diagnostic accuracy can be improved by following the current Bethesda classification system. A constellation of cytomorphologic features in conjunction with clinical findings can be considered a strong predictor of a neoplastic process.

PMID: [2452535](#)

<http://dx.doi.org/10.1159/000358264>

36. [Oncol Lett](#). 2014 Mar;7(3):849-853. Epub 2013 Dec 18. (IF: 0.27)

Total versus hemithyroidectomy for small unilateral papillary thyroid carcinoma.

[Hirsch D¹](#), [Levy S²](#), [Tsvetov G¹](#), [Shimon I¹](#), [Benbassat C¹](#).

Author information

Abstract

The correct approach to treat low-risk intrathyroidal papillary thyroid carcinoma (PTC) is controversial. Specific authors advocate unilateral thyroidectomy to minimize perioperative morbidity. The purpose of the present study was to determine an effective treatment strategy for patients with small unilateral papillary thyroid. This was a retrospective comparative analysis of 161 patients with PTC treated between 2001-2010; 60 consecutive patients following hemithyroidectomy and 101 patients following total thyroidectomy. Only patients with preoperatively-predicted localized unilateral disease were included. No between-group difference was identified in the rate of permanent surgical complications. In total, 36 hemithyroidectomy patients (60%) exhibited benign thyroid nodules in the contralateral lobe on preoperative ultrasound; this factor was found to positively correlate with the performance of ≥ 1 fine needle aspirations (FNAs) during follow-up. In addition, 47 hemithyroidectomy patients (78.3%) were prescribed thyroxine postoperatively. The hemithyroidectomy patients visited the endocrine clinic significantly less frequently than the total thyroidectomy patients ($P=0.01$), but were referred more often for neck ultrasound ($P=0.03$) and FNA ($P<0.001$). In addition, an increased number of patients in the hemithyroidectomy group were reoperated for suspected recurrent/persistent disease ($P=0.06$). Results of this retrospective study indicate that hemithyroidectomy for small unilateral PTC is associated with a significant follow-up burden and provides no clear patient benefit.

KEYWORDS:

outcome, thyroid, thyroid cancer, thyroid surgery, thyroidectomy

PMID: [24520302](#)

37. [J Clin Endocrinol Metab](#). 2014 Apr;99(4):1245-52. doi: 10.1210/jc.2013-3842. Epub 2014 Feb 10. (IF: 7.02)

Outcomes in patients with poorly differentiated thyroid carcinoma.

[Ibrahimasic T¹](#), [Ghossein R](#), [Carlson DL](#), [Nixon J](#), [Palmer FL](#), [Shaha AR](#), [Patel SG](#), [Tuttle RM](#), [Shah JP](#), [Ganly I](#).

[Author information](#)

Abstract

Background: Poorly differentiated thyroid cancer (PDTC) accounts for only 1-15% of all thyroid cancers. Our objective is to report outcomes in a large series of patients with PDTC treated at a single tertiary care cancer center. Methods: A total of 91 patients with primary PDTC were treated by initial surgery with or without adjuvant therapy at Memorial Sloan-Kettering Cancer Center from 1986 to 2009. Outcomes were calculated by the Kaplan-Meier method. Clinicopathological characteristics were compared for PDTC patients who died of disease to those who did not by the χ^2 test. Factors predictive of disease-specific survival (DSS) were calculated by univariate and multivariate analysis using the log rank and Cox proportional hazards method, respectively. Results: With a median follow-up of 50 months, the 5-year overall survival and DSS were 62 and 66%, respectively. The 5-year locoregional and distant control were 81 and 59%, respectively. Of 27 disease-specific deaths, 23 (85%) were due to distant disease. Age \geq 45 years, pathological tumor size $>$ 4 cm, extrathyroidal extension, higher pathological T stage, positive margins, and distant metastases (M1) were predictive of worse DSS on univariate analysis. Multivariate analysis showed that only pT4a stage and M1 were independent predictors of worse DSS. Conclusions: With appropriate surgery and adjuvant therapy, excellent locoregional control can be achieved in PDTC. Disease-specific deaths occurred due to distant metastases and rarely due to uncontrolled locoregional recurrence in this series.

PMID: [24512493](#)

<http://dx.doi.org/10.1210/jc.2013-3842>

38. [World J Surg Oncol](#). 2014 Feb 10;12:34. doi: 10.1186/1477-7819-12-34. (IF: 1.37)

The rising trend of papillary carcinoma in thyroidectomies: 14-years of experience in a referral center of Turkey.

[Yildiz SY¹](#), [Berkem H](#), [Yuksel BC](#), [Ozel H](#), [Kendirici M](#), [Hengirmen S](#).

[Author information](#)

Abstract

BACKGROUND:

During the past 25 years, the incidence of thyroid papillary carcinoma (TPC), especially the micropapillary subtype, has been increasing in different countries worldwide. The rise in the rate of thyroid malignancies were also determined in Turkey in the last two decades. This fact was attributed to the Chernobyl accident because Turkey is one of the affected countries by the radioactive fallout. The aim of this study was to assess the changes in the parameters of the thyroid and put forth the reasons in a 14-year period.

METHODS:

The patient records, demographic and malignancy characteristics, and operations of 1,585 patients who had a thyroidectomy from 1996 to 2009 were reviewed retrospectively. The study was divided in two equal time periods for comparison of data.

RESULTS:

A total of 216 thyroid carcinomas (13.6%) were diagnosed in the study period. There was a significant increase in the frequency of papillary ($P < 0.023$) and micropapillary ($P < 0.001$) carcinomas when the two different time periods were compared. The rate of follicular, medullary and other types of malignancies did not change. In the second period (2003 to 2009) of analysis, the rate of micropapillary carcinoma ($P = 0.001$) and within male ($P = 0.031$) and female ($P < 0.001$) genders, application of total thyroidectomy ($p =$

0.029), and multicentric disease ($P = 0.015$) increased significantly. A slight decrease in the mean age of the whole number of patients and patients with papillary and micropapillary carcinomas ($P > 0.05$) was observed. The increased number of TPC > 10 mm was insignificant. Geographic region and age specific malignancy increase was not determined.

CONCLUSIONS:

Micropapillary carcinoma has become a dominant type of thyroid malignancy in Turkey. The main reasons of this transition were mandatory iodization and much higher application of total thyroidectomy in surgery. Improvement in healthcare and diagnostic techniques are the complementary factors. Due to its lack of molecular and genetic basis from the perspective of thyroid cancer, the Chernobyl disaster has lost its importance in Turkey.

PMID: [24512315](https://pubmed.ncbi.nlm.nih.gov/24512315/)

<http://dx.doi.org/10.1186/1477-7819-12-34>

39. [Clin Endocrinol \(Oxf\)](#). 2014 Jan 31. doi: 10.1111/cen.12417. [Epub ahead of print] (IF: 3.75)

Prediction of central compartment lymph node metastasis in papillary thyroid microcarcinoma.

[Yang Y¹](#), [Chen C](#), [Chen Z](#), [Jiang J](#), [Chen Y](#), [Jin L](#), [Guo G](#), [Zhang X](#), [Ye T](#).

Author information

Abstract

OBJECTIVES:

We aimed to determine the predictive factors for central compartment lymph node metastasis (LNM) in papillary thyroid microcarcinoma (PTMC).

DESIGN AND PATIENTS:

We undertook a retrospective study of 291 patients treated for PTMC. The following criteria were assessed to predict the presence of central compartment LNM: sex, age, tumour multifocality, tumour size, tumour bilaterality, extracapsular spread (ECS), lateral neck LNM, coexistence of chronic lymphocytic thyroiditis, BRAF^{V600E} mutation and ultrasonography (US) features. Univariate and multivariate analyses were performed to identify clinicopathological characteristics and US findings in predicting central compartment LNM from PTMC.

RESULTS:

The central compartment LNM affected 133 (45.7%) of 291 patients. With use of univariate and multivariate analyses, male gender (OR 2.020; $P = 0.039$), tumour size (> 5 mm) (OR 3.687; $P = 0.015$), ECS (OR 2.330; $P = 0.044$), lateral LNM (OR 15.075; $P = 0.000$) and BRAF^{V600E} mutation (OR 2.464; $P = 0.000$) were independently correlated with central compartment LNM. Age, tumour multifocality, tumour bilaterality, coexistence of chronic lymphocytic thyroiditis and US characteristics were not significantly related to the presence of central compartment LNM. We have also developed a nomogram to predict the probability of central compartment LNM for an individual patient. The sensitivity was 71.9% and specificity was 70.3%, with an under the receiver operating characteristic (ROC) curve of 0.772.

CONCLUSIONS:

A prophylactic neck dissection of the central compartment should be considered particularly in PTMC patients with male gender, a > 5 mm tumour size, ECS of the tumours, lateral LNM and positive BRAF^{V600E} mutation.

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<http://dx.doi.org/10.1111/cen.12417>

40. [Langenbecks Arch Surg](#). 2014 Feb;399(2):245-51. doi: 10.1007/s00423-014-1168-8. Epub 2014

Jan 21. (IF: 2.21)

Sentinel node biopsy in papillary thyroid cancer--what is the potential?

[Balasubramanian SP](#)¹, [Brignall J](#), [Lin HY](#), [Stephenson TJ](#), [Wadsley J](#), [Harrison BJ](#), [Craig WL](#), [Smart L](#), [Krukowski Z](#).

[Author information](#)

Abstract

PURPOSE:

Sentinel node biopsy (SNB) may identify lymph node metastases in patients with papillary thyroid cancer (PTC), enabling selective application of central node dissection (CND). The aim of this study was to assess the feasibility of implementing SNB in patients undergoing thyroidectomy for a cytologically indeterminate/suspicious/malignant thyroid nodule and to determine the potential improvement in clinical outcomes and the costs associated with the SNB technique.

METHODS:

The treatment strategies and clinical and pathological outcomes of two retrospective cohorts of patients who underwent preoperative thyroid FNA over a 5-year period in two different centres were studied. The potential for implementing the SNB technique and the benefits and costs associated with implementation were estimated.

RESULTS:

In centre 1, in 819 adult patients who had thyroid fine-needle aspiration cytology, the final cytology was indeterminate, suspicious and diagnostic of malignancy in 113, 29 and 28 patients, respectively. One hundred eight patients were 'suitable' for SNB. Twenty-three of these patients had PTC, six of whom underwent CND. Of these six patients, node metastasis was absent in five--the cohort in whom prophylactic CND may have been avoided consequent to a negative 'sentinel node' biopsy. Morbidity attributable to CND may have been avoided in up to four patients over a 5-year period. Costs associated with implementation of SNB outweighed any potential savings. Analysis of 491 patients in centre 2 confirmed that the benefit of SNB in PTC was similarly limited; morbidity attributable to CND may have been avoided in up to seven patients over a 5-year period.

CONCLUSIONS:

Even under ideal conditions (assuming 100 % node identification rate and 0 % false negative rate), the potential short- to medium-term benefit of sentinel node biopsy in patients with thyroid cancer in centres implementing a policy of selective or routine prophylactic CND is low.

PMID: [24446015](#)

<http://dx.doi.org/10.1007/s00423-014-1168-8>

41. [Thyroid](#). 2014 Mar 6. [Epub ahead of print] (IF:3.84)

Thyroid Papillary Microcarcinoma Might Progress During Pregnancy.

[Shindo H](#)¹, [Amino N](#), [Ito Y](#), [Kihara M](#), [Kobayashi K](#), [Miya A](#), [Hirokawa M](#), [Miyuchi A](#).

[Author information](#)

Abstract

Background: Papillary thyroid cancer occasionally occurs in women of childbearing age. As papillary microcarcinoma (PMC) rarely grows or becomes clinically apparent, observation without surgery is an appropriate strategy for patients with low-risk PMC. Human chorionic gonadotropin possesses weak thyroid-stimulating activity. The aim of this study was to assess the effect of pregnancy on PMC. Methods: We studied 9 patients with PMC who became pregnant between 2005 and 2011. Twenty-seven age-matched nonpregnant female PMC patients from a database we used in our previous report served as

controls. Tumor enlargement was defined as an increase in the diameter of the tumor of 3 mm or more. Results: PMC enlargement occurred in 44.4% (4/9 patients) of the pregnant subjects, whereas it occurred only in 11.1% (3/27 patients) of the controls ($p=0.0497$). Three of the pregnant patients who exhibited tumor enlargement underwent surgery after delivery. No relationship was detected between the changes in the serum thyroglobulin level, the serum thyrotropin level, and tumor size during pregnancy. Immunohistochemical examinations did not detect the estrogen receptor in the tumors of the three patients who underwent surgery. Conclusions: This study is an initial report indicating that the risk of PMC enlargement might increase during pregnancy. PMC should be carefully followed-up for possible disease aggravation during pregnancy. Even if a PMC enlarges during pregnancy, the patient's prognosis will probably not worsen.

PMID: [24397849](#)

42. [Thyroid](#). 2014 Mar 10. [Epub ahead of print] (IF:3.84)

Malignancy Rate in Thyroid Nodules Classified as Bethesda Category III (AUS/FLUS).

[Ho AS](#)¹, [Sarti EE](#), [Jain KS](#), [Wang H](#), [Nixon IJ](#), [Shaha AR](#), [Shah JP](#), [Kraus DH](#), [Ghossein R](#), [Fish SA](#), [Wong RJ](#), [Lin O](#), [Morris LG](#).

Author information

Abstract

Background: The Bethesda System for Reporting Thyroid Cytopathology is the standard for interpreting fine needle aspiration (FNA) specimens. The Atypia of Undetermined Significance/Follicular Lesion of Undetermined Significance (AUS/FLUS) category, known as Bethesda Category III, has been ascribed a malignancy risk of 5-15%, but the probability of malignancy in AUS/FLUS specimens remains unclear. Our objective was to determine the risk of malignancy in thyroid FNAs categorized as AUS/FLUS at a comprehensive cancer center. Methods: The management of 541 AUS/FLUS thyroid nodule patients treated at Memorial Sloan-Kettering Cancer Center between 2008 and 2011 was analyzed. Clinical and radiologic features were examined as predictors for surgery. Target AUS/FLUS nodules were correlated with surgical pathology. Results: Of patients with an FNA initially categorized as AUS/FLUS, 64.7% (350/541) underwent immediate surgery, 17.7% (96/541) had repeat FNA, and 17.6% (95/541) were observed. Repeat FNA cytology was unsatisfactory in 5.2% (5/96), benign in 42.7% (41/96), AUS/FLUS in 38.5% (37/96), suspicious for follicular neoplasm in 5.2% (5/96), suspicious for malignancy in 4.2% (4/96), and malignant in 4.2% (4/96). Of nodules with two consecutive AUS/FLUS diagnoses that were resected, 26.3% (5/19) were malignant. Among all index AUS/FLUS nodules (triaged to surgery, repeat FNA, or observation), malignancy was confirmed on surgical pathology in 26.6% [CI 22.4-31.3]. Among AUS/FLUS nodules triaged to surgery, the malignancy rate was 37.8% [CI 33.1-42.8]. Incidental cancers were found in 22.3% of patients. On univariate logistic regression analysis, factors associated with triage to surgery were younger patient age ($p<0.0001$), increasing nodule size ($p<0.0001$), and nodule hypervascularity ($p=0.032$). Conclusions: In patients presenting to a comprehensive cancer center, malignancy rates in nodules with AUS/FLUS cytology are higher than previously estimated, with 26.6-37.8% of AUS/FLUS nodules harboring cancer. These data imply that Bethesda Category III nodules in some practice settings may have a higher risk of malignancy than traditionally believed, and that guidelines recommending repeat FNA or observation merit reconsideration.

PMID: [24341462](#)

43. [Thyroid](#). 2014 Feb 14. [Epub ahead of print] (IF:3.84)

Serum Thyroglobulin Improves the Sensitivity of the McGill Thyroid Nodule Score for Well-Differentiated Thyroid Cancer.

[Scheffler P¹](#), [Forest VI](#), [Leboeuf R](#), [Florea AV](#), [Tamilia M](#), [Sands NB](#), [Hier MP](#), [Mlynarek AM](#), [Payne RJ](#).

[Author information](#)

Abstract

Background: The McGill Thyroid Nodule Score (MTNS) is a scoring system devised to help physicians to assess the preoperative risk that a thyroid nodule is malignant. It uses 22 different known risk factors for thyroid cancer (radiation exposure, microcalcifications on ultrasound, positive HBME-1 stain on biopsy, etc.) and attributes a percentage risk that the nodule is malignant. Recently, preoperative thyroglobulin (Tg) levels have been shown to correlate with the risk of malignancy. The aim of this study was to incorporate Tg levels into the already established MTNS. Methods: This is a retrospective analysis of 184 thyroidectomy patients at the McGill University Thyroid Cancer Center. Patients with preoperative Tg levels were included in the study, and patients with incidental papillary microcarcinoma without extrathyroidal extent on final pathology were excluded. MTNS scores were calculated for all patients. Preoperative Tg levels of 75 ng/mL added one point to the MTNS, and levels of 187.5 ng/mL added two points. The new system is named MTNS+. Results: Malignancy rates were calculated for each MTNS+ score. Patients with a score of 0-1 were <5% at risk of malignancy. The malignancy rate for scores of 2-3 was 14.29%, followed by 28.95% for scores of 4-6, 32.65% for scores of 7-8, 64.86% for scores of 9-11, 71.43% for scores of 12-14, 78.57% for scores of 15-18, and 92.31% for scores of 19-22. All patients (five of five) with an MTNS+ score of 23 or more had a malignant final pathology result. Patients with scores greater than eight had a relative risk of 2.5 [CI 1.79-3.49] of malignancy compared to patients with lower scores. MTNS+ showed good specificity at higher scores, with 89%, 96%, and 100% at scores above 11, 14, and 20 respectively. Compared to MTNS, adding Tg levels did not improve positive predictive values (PPV) or specificity, but improved sensitivity by 7.89% for scores greater than eight, and by up to 10.48% for scores greater than seven. Conclusion: This study shows that adding Tg to the MTNS increases the sensitivity of this scoring system. Moreover, it suggests that a combined scoring system such as the MTNS+ can accurately stratify the risk of well-differentiated malignancy in patients with thyroid nodules.

PMID: [24341425](#)

44. [Thyroid](#). 2014 Jan 29. [Epub ahead of print] (IF:3.84)

Effects of Low-Dose and High-Dose Postoperative Radioiodine Therapy on the Clinical Outcome in Patients with Small Differentiated Thyroid Cancer Having Microscopic Extrathyroidal Extension.

[Han JM¹](#), [Kim WG](#), [Kim TY](#), [Jeon MJ](#), [Ryu JS](#), [Song DE](#), [Hong SJ](#), [Shong YK](#), [Kim WB](#).

[Author information](#)

Abstract

Background: It is unclear whether differentiated thyroid cancer (DTC) patients classified as intermediate risk based on the presence of microscopic extrathyroidal extension (ETE) should be treated with low or high doses of radioiodine (RAI) after surgery. We evaluated success rates and long-term clinical outcomes of patients with DTC of small tumor size, microscopic ETE, and no cervical lymph node (LN) metastasis treated either with a low (1.1 GBq) or high RAI dose (5.5 GBq). Methods: This is a retrospective analysis of a historical cohort from 2000 to 2010 in a tertiary referral hospital. A total of 176 patients with small (≤ 2 cm) DTC, microscopic ETE, and no cervical LN metastasis were included. Ninety-six patients were treated with 1.1 GBq (LO group) and 80 patients with 5.5 GBq (HI group). Successful RAI therapy was defined as (i)

negative stimulated thyroglobulin (Tg) in the absence of Tg antibodies, and (ii) absence of remnant thyroid tissue and of abnormal cervical LNs on ultrasonography. Clinical recurrence was defined as the reappearance of disease after ablation, which was confirmed by cytologically or pathologically proven malignant tissue or of distant metastatic lesions. Results: There was no significant difference in the rate of successful RAI therapy between the LO and HI group ($p=0.75$). In a subgroup analysis based on tumor size, success rates were not different between the LO group (34/35, 97%) and the HI group (50/56, 89%) in patients with a tumor size of 1-2 cm ($p=0.24$). In patients with smaller tumor size (≤ 1 cm), there was no significant difference in success rates between the LO (59/61, 97%) and HI group (22/24, 92%; $p=0.30$). No patient had clinical recurrences in either group during the median 7.2 years of follow-up. Conclusions: Low-dose RAI therapy is sufficient to treat DTC patients classified as intermediate risk just by the presence of microscopic ETE.

PMID: [24328997](#)

45. [World J Surg.](#) 2014 Mar;38(3):645-52. doi: 10.1007/s00268-013-2379-9. (IF: 2.47)

Reoperative experience with papillary thyroid cancer.

[Onkendi EO](#)¹, [McKenzie TJ](#), [Richards ML](#), [Farley DR](#), [Thompson GB](#), [Kasperbauer JL](#), [Hay ID](#), [Grant CS](#).

[Author information](#)

Abstract

BACKGROUND:

Intense postoperative monitoring has resulted in increasing detection of patients with recurrent papillary thyroid cancer (PTC). Our goals included quantifying successful reoperation, and analyzing surgical complications and reasons for relapse.

METHODS:

From 1999 to 2008, a total of 410 patients underwent reoperation for PTC relapse. We analyzed post-reoperative disease outcomes, reasons for relapse, and complications.

RESULTS:

Bilateral reoperative thyroidectomy was performed in 13 (3 %) patients; lobectomy, 34 (8 %); central neck (VI) soft tissue local recurrence excision, 47 (11.5 %); bilateral VI node dissection, 107 (26 %); unilateral VI dissection, 112 (27 %); levels II-V dissection, 93 (23 %); levels III-V, 86 (21 %); lateral single- or two-compartment dissection, 51 (12 %); and node picking, 20 (5 %) of level VI and 53 (13 %) lateral neck. Complications occurred in 6 %; including hypoparathyroidism, 3 %; unintentional recurrent laryngeal nerve (RLN) paralysis, 3 %; phrenic nerve injury, 0.5 %; spinal accessory nerve injury, 0.5 %; and chyle leak in 1.6 %. Of 380 (93 %) patients with follow-up (mean 5.2 years); 274 (72 %) patients are alive with no structural evidence of disease, 38 % developed disease relapse (mean 2.1 years), 42 (11 %) died from PTC, and 55 (14 %) are alive with disease. The reason for relapse was a false negative pre-reoperative ultrasound (US) in 18 (5 %), nodal recurrence in the operative field in 37 (10 %), a combination of these two reasons in 10 (3 %), and disease virulence (local or systemic recurrence) in 81 (21 %).

CONCLUSIONS:

Although 72 % of patients were rendered structurally disease free after reoperation, nearly 40 % suffered additional relapse. Improved surgical technique or preoperative localization might positively affect 15-20 %; at least 20 % reflect the biologic aggressiveness of the disease.

PMID: [24305931](#)

<http://dx.doi.org/10.1007/s00268-013-2379-9>

46. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):448-54. doi: 10.1210/jc.2013-2942. Epub 2013 Nov 25. (IF: 7.02)

The effect of extent of surgery and number of lymph node metastases on overall survival in patients with medullary thyroid cancer.

[Esfandiari NH¹](#), [Hughes DT](#), [Yin H](#), [Banerjee M](#), [Haymart MR](#).

[Author information](#)

Abstract

CONTEXT:

Total thyroidectomy with central lymph node dissection is recommended in patients with medullary thyroid cancer (MTC). However, the relationship between disease severity and extent of resection on overall survival remains unknown.

OBJECTIVE:

The aim of the study was to identify the effect of surgery on overall survival in MTC patients.

METHODS:

Using data from 2968 patients with MTC diagnosed between 1998 and 2005 from the National Cancer Database, we determined the relationship between the number of cervical lymph node metastases, tumor size, distant metastases, and extent of surgery on overall survival in patients with MTC.

RESULTS:

Older patient age (5.69 [95% CI, 3.34-9.72]), larger tumor size (2.89 [95% CI, 2.14-3.90]), presence of distant metastases (5.68 [95% CI, 4.61-6.99]), and number of positive regional lymph nodes (for ≥ 16 lymph nodes, 3.40 [95% CI, 2.41-4.79]) were independently associated with decreased survival. Overall survival rate for patients with cervical lymph nodes resected and negative, cervical lymph nodes not resected, and 1-5, 6-10, 11-16, and ≥ 16 cervical lymph node metastases was 90, 76, 74, 61, 69, and 55%, respectively. There was no difference in survival based on surgical intervention in patients with tumor size ≤ 2 cm without distant metastases. In patients with tumor size > 2.0 cm and no distant metastases, all surgical treatments resulted in a significant improvement in survival compared to no surgery ($P < .001$). In patients with distant metastases, only total thyroidectomy with regional lymph node resection resulted in a significant improvement in survival ($P < .001$).

CONCLUSIONS:

The number of lymph node metastases should be incorporated into MTC staging. The extent of surgery in patients with MTC should be tailored to tumor size and distant metastases.

PMID: [24276457](#)

<http://dx.doi.org/10.1210/jc.2013-2942>

47. [J Clin Endocrinol Metab.](#) 2014 Feb;99(2):510-6. doi: 10.1210/jc.2013-3160. Epub 2013 Nov 25. (IF: 7.02)

Determination of the optimal time interval for repeat evaluation after a benign thyroid nodule aspiration.

[Nou E¹](#), [Kwong N](#), [Alexander LK](#), [Cibas ES](#), [Marqusee E](#), [Alexander EK](#).

[Author information](#)

Abstract

INTRODUCTION:

The optimal timing for repeat evaluation of a cytologically benign thyroid nodule greater than 1 cm is uncertain. Arguably, the most important determinant is the disease-specific mortality resulting from an undetected thyroid cancer. Presently there exist no data that evaluate this important end point.

METHODS:

We studied the long-term status of all patients evaluated in our thyroid nodule clinic between 1995 and 2003 with initially benign fine-needle aspiration (FNA) cytology. The follow-up interval was defined from the time of the initial benign FNA to any one of the following factors: thyroidectomy, death, or the most recent clinic visit documented anywhere in our health care system. We sought to determine the optimal timing for repeat assessment based on the identification of falsely benign malignancy and, most important, disease-related mortality due to a missed diagnosis.

RESULTS:

One thousand three hundred sixty-nine patients with 2010 cytologically benign nodules were followed up for an average of 8.5 years (range 0.25-18 y). Thirty deaths were documented, although zero were attributed to thyroid cancer. Eighteen false-negative thyroid malignancies were identified and removed at a mean 4.5 years (range 0.3-10 y) after the initial benign aspiration. None had distant metastasis, and all are alive presently at an average of 11 years after the initial falsely benign FNA. Separate analysis demonstrates that patients with initially benign nodules who subsequently sought thyroidectomy for compressive symptoms did so an average of 4.5 years later.

CONCLUSIONS:

An initially benign FNA confers negligible mortality risk during long-term follow-up despite a low risk of identifying several such nodules as thyroid cancer. Because such malignancies appear adequately treated despite detection at a mean 4.5 years after falsely benign cytology, these data support a recommendation for repeat thyroid nodule evaluation 2-4 years after the initial benign FNA.

PMID: [24276452](https://pubmed.ncbi.nlm.nih.gov/24276452/)

<http://dx.doi.org/10.1210/jc.2013-3160>

48. [Langenbecks Arch Surg](#). 2014 Feb;399(2):237-44. doi: 10.1007/s00423-013-1135-9. Epub 2013 Nov 9. (IF: 2.21)

Nodal recurrence in the lateral neck after total thyroidectomy with prophylactic central neck dissection for papillary thyroid cancer.

[Barczyński M](#)¹, [Konturek A](#), [Stopa M](#), [Nowak W](#).

Author information**Abstract****PURPOSE:**

The aim of this study was to examine risk factors for nodal recurrence in the lateral neck (NRLN) in patients with papillary thyroid cancer (PTC) who underwent total thyroidectomy with prophylactic central neck dissection (TT + pCND).

METHODS:

This was a retrospective cohort study of patients with PTC who underwent TT + pCND. Data of all patients treated over a 10-year period (between 1998 and 2007) were analysed. The primary outcome was prevalence of NRLN within the 5-year follow-up after initial surgery. Predictors of NRLN were determined in the univariable and multivariable analysis.

RESULTS:

Of 760 patients with PTC included in this study, 44 (6.0 %) developed NRLN. In the univariable analysis, the following factors were identified to be associated with an increased risk of NRLN: positive/negative lymph node ratio ≥ 0.3 (odds ratio (OR) 14.50, 95 % confidence interval (CI) 7.21 to 29.13; $p < 0.001$), central lymph node metastases (OR 7.47, 95 % CI 3.63 to 15.38; $p < 0.001$), number of level VI lymph nodes < 6 in the specimen (OR 2.88, 95 % CI 1.21 to 6.83; $p = 0.016$), extension through the thyroid capsule (OR 2.55, 95 % CI 1.21 to 5.37; $p = 0.013$), localization of the tumour within the upper third of the thyroid lobe (OR 2.35, 95 % CI 1.27 to 4.34; $p = 0.006$) and multifocal lesions (OR 1.85, 95 % CI 1.01 to 3.41; $p = 0.048$).

CONCLUSIONS:

Central lymph node metastases together with positive to negative lymph node ratio ≥ 0.3 represent the strongest independent prognostic factors for the PTC recurrence in the lateral neck.

PMID: [2421396](#)

<http://dx.doi.org/10.1007/s00423-013-1135-9>

49. [Ann Surg Oncol](#). 2014 Mar;21(3):843-9. doi: 10.1245/s10434-013-3363-1. Epub 2013 Nov 8. (IF: 4.33)

Risk of thyroid cancer in patients with thyroiditis: a population-based cohort study.

[Liu CL](#)¹, [Cheng SP](#), [Lin HW](#), [Lai YL](#).

[Author information](#)

Abstract

BACKGROUND:

The causative relationship between autoimmune thyroiditis and thyroid cancer remains a controversial issue. The aim of this population-based study was to investigate the risk of thyroid cancer in patients with thyroiditis.

METHODS:

From the Longitudinal Health Insurance Database 2005 (LHID2005) of Taiwan, we identified adult patients newly diagnosed with thyroiditis between 2004 and 2009 ($n = 1,654$). The comparison cohort ($n = 8,270$) included five randomly selected age- and sex-matched controls for each patient in the study cohort. All patients were followed up from the date of cohort entry until they developed thyroid cancer or to the end of 2010. Multivariate Cox regression was used to assess the risk of developing thyroid cancer. A total of 1,000 bootstrap replicates were created for internal validation.

RESULTS:

A total of 35 patients developed thyroid cancer during the study period, of whom 24 were from the thyroiditis cohort and 11 were from the comparison cohort (incidence 353 and 22 per 100,000 person-years, respectively). After adjusting for potential confounding factors, the hazard ratio (HR) for thyroid cancer in patients with thyroiditis was 13.24 (95 % CI 6.40-27.39). Excluding cancers occurring within 1 year of follow-up, the HR remained significantly increased (6.64; 95 % CI 2.35-18.75). Hypothyroidism was not an independent factor associated with the occurrence of thyroid cancer.

CONCLUSIONS:

We found an increased risk for the development of thyroid cancer after a diagnosis of thyroiditis, independent of comorbidities.

PMID: [24201747](#)

<http://dx.doi.org/10.1245/s10434-013-3363-1>

50. [Thyroid](#). 2014 Apr;24(4):675-82. doi: 10.1089/thy.2013.0224. Epub 2014 Jan 24. (IF:3.84)

A preoperative nomogram for the prediction of ipsilateral central compartment lymph node metastases in papillary thyroid cancer.

[Thompson AM](#)¹, [Turner RM](#), [Hayen A](#), [Aniss A](#), [Jalaty S](#), [Learoyd DL](#), [Sidhu S](#), [Delbridge L](#), [Yeh MW](#), [Clifton-Bligh R](#), [Sywak M](#).

[Author information](#)

Abstract

Background: Central compartment lymph node metastases in papillary thyroid carcinoma (PTC) are difficult to detect preoperatively, and the role of routine or prophylactic central compartment lymph node dissection

(CLND) in managing PTC remains controversial. The aim of this project was to create a nomogram able to predict the occurrence of central compartment lymph node metastasis using readily available preoperative clinical characteristics. Methods: Records from patients undergoing total thyroidectomy and lymph node dissection for PTC in the period 1968-2012 were analyzed. Nodal status was based on results of serial hematoxylin and eosin (H&E) examination. Age, sex, tumor size, tumor site, and multifocality were included in a multivariable logistic regression model to predict lymph node metastasis. A coefficient-based nomogram was developed and validated using an external patient cohort. Results: The study population included 914 patients (80% females) with an average central compartment nodal yield of eight per patient. Central compartment lymph node metastases were present in 390 patients (42.7%). The variables with the strongest predictive value were age ($p < 0.001$), male sex ($p < 0.001$), increasing tumor size ($p < 0.001$), and tumor multifocality ($p < 0.05$). The nomogram had good discrimination with a concordance index of 76.4% [95% confidence interval 73.3-79.4], supported by an external validation point estimate of 61.5% [95% confidence interval 49.5-73.6]. An online calculator and smartphone application were developed for point of care use. Conclusions: A validated nomogram utilizing readily available preoperative variables has been developed to give a predicted probability of central lymph node metastases in patients presenting with PTC. This nomogram may help guide surgical decision making in PTC.

PMID: [24083952](https://pubmed.ncbi.nlm.nih.gov/24083952/)

<http://dx.doi.org/10.1089/thy.2013.0224>

51. *Ann Surg Oncol*. 2014 Feb;21(2):434-9. doi: 10.1245/s10434-013-3282-1. Epub 2013 Oct 1. (IF: 4.33)

The role of thyroidectomy in metastatic disease to the thyroid gland.

[Romero Arenas MA](#)¹, [Ryu H](#), [Lee S](#), [Morris LF](#), [Grubbs EG](#), [Lee JE](#), [Perrier ND](#).

Author information

Abstract

BACKGROUND:

Whether thyroidectomy for metastases to the thyroid is associated with a survival benefit remains debatable; in general, palliation and disease control are accepted goals in this setting. We evaluated the clinical features and overall survival of patients with thyroid metastasis treated by thyroid resection or nonoperatively.

METHODS:

This retrospective analysis included 90 patients identified with metastasis to the thyroid confirmed pathologically via thyroidectomy ($n = 31$) or fine-needle aspiration biopsy ($n = 59$). Overall survival was calculated by the Kaplan-Meier method, and differences between groups were calculated by Pearson's χ^2 coefficient.

RESULTS:

The most common primary malignancies were renal cell (20%), head and neck (19%), and lung (18%). The median time from primary tumor diagnosis to thyroid metastasis diagnosis was 37.4 months (range 0-210 months). Most metastases (69%) were metachronous, and 12% were isolated. The median follow-up after diagnosis of thyroid metastasis was 11.5 months (range 0-112 months). Median overall survival was longer in thyroidectomy patients compared to the fine-needle aspiration group (34 vs. 11 months, $P < 0.0001$). Patients with renal cell primary tumors were more likely to undergo thyroidectomy than patients with other primary tumors (78 vs. 24%, $P < 0.0001$). Nearly all patients with lung primary tumors died within 24 months of thyroid metastasis diagnosis, and thyroidectomy was only offered to three patients.

CONCLUSIONS:

Thyroidectomy was safe for selected patients with metastatic disease to the thyroid. Patients with metachronous or renal cell metastasis to the thyroid and whose primary tumor is/was treatable may be appropriate candidates for resection. Lung cancer metastasis to the thyroid is generally an ominous sign.

PMID: [24081800](https://pubmed.ncbi.nlm.nih.gov/24081800/)

<http://dx.doi.org/10.1245/s10434-013-3282-1>

TİROİD

Vaka sunumu

1. [J Pak Med Assoc.](#) 2014 Feb;64(2):210-1. (IF:0.49)

Meningioma like tumour of thyroid: a rare variant of follicular adenoma.

[Tanvir I](#), [Riaz S](#), [Khan HA](#), [Shehzadi I](#).

Abstract

Spindle cell lesions of thyroid are uncommon. Meningioma like tumour of thyroid is a rare variant of follicular adenoma, which can easily be misdiagnosed. One such case is being reported here with detailed histological, histochemical and immunohistochemical findings.

PMID: [24640816](#)

2. [Indian J Tuberc.](#) 2014 Jan;61(1):84-7. (IF: 0.78)

Thyroid tuberculosis: presenting symptom of mediastinal tuberculous lymphadenitis--an unusual case.

[Chandanwale SS](#), [Buch AC](#), [Vimal SS](#), [Sachdeva P](#).

Abstract

Tuberculosis of thyroid gland is extremely rare. It spreads to thyroid by lymphogenous or heamatogenous route or from adjacent focus, either from larynx or cervical and mediastinal adenitis. We report an unusual case of a 33-year-old male with thyroid swelling. Fine needle aspiration (FNA) smears showed epithelioid cells without necrosis and acid fast bacilli (AFB). Subsequent investigation revealed mediastinal tuberculous lymphadenitis on Computerized Tomography (CT) scan. FNA confirmed the diagnosis of mediastinal tuberculous lymphadenitis. We conclude, when epithelioid cells are seen on FNA thyroid, tuberculosis must be ruled out especially in regions where there is high prevalence of tuberculosis.

PMID: [24640351](#)

3. [Endocrinol Metab \(Seoul\)](#). 2014 Mar;29(1):96-100. doi: 10.3803/EnM.2014.29.1.96. Epub 2014 Mar 14.

Medullary thyroid carcinoma with ectopic adrenocorticotrophic hormone syndrome.

[Choi HS¹](#), [Kim MJ¹](#), [Moon CH¹](#), [Yoon JH¹](#), [Ku HR¹](#), [Kang GW¹](#), [Na II¹](#), [Lee SS²](#), [Lee BC³](#), [Park YJ⁴](#), [Kim HI¹](#), [Ku YH¹](#).

[Author information](#)

Abstract

Ectopic adrenocorticotrophic hormone (ACTH) syndrome is caused most frequently by a bronchial carcinoid tumor or by small cell lung cancer. Medullary thyroid carcinoma (MTC) is a rare etiology of ectopic ACTH syndrome. We describe a case of Cushing syndrome due to ectopic ACTH production from MTC in a 48-year-old male. He was diagnosed with MTC 14 years ago and underwent total thyroidectomy, cervical lymph node dissection and a series of metastasectomies. MTC was confirmed by the pathological examination of the thyroid and metastatic mediastinal lymph node tissues. Two years after his last surgery, he developed Cushingoid features, such as moon face and central obesity, accompanied by uncontrolled hypertension and new-onset diabetes. The laboratory results were compatible with ectopic ACTH syndrome. A bilateral adrenalectomy improved the clinical and laboratory findings that were associated with Cushing syndrome. This is the first confirmed case of ectopic ACTH syndrome caused by MTC in Korea.

KEYWORDS:

ACTH syndrome, ectopic, Cushing syndrome, Medullary thyroid carcinoma

PMID: [24741461](#)

<http://dx.doi.org/10.3803/EnM.2014.29.1.96>

4. [Case Rep Otolaryngol](#). 2014;2014:671902. doi: 10.1155/2014/671902. Epub 2014 Feb 10. (IF: 0.84)

Partial laryngectomy with cricoid reconstruction: thyroid carcinoma invading the larynx.

[Ozturk K¹](#), [Akyildiz S¹](#), [Makay O²](#).

[Author information](#)

Abstract

Laryngotracheal invasion worsens the prognosis of thyroid cancer and the surgical approach for laryngotracheal invasion is controversial. In this paper, partial full-thickness excision of the cricoid cartilage with suprericoid laryngectomy and reconstruction of existing defect with thyroid cartilage are explained in a patient with papillary thyroid carcinoma invading the thyroid cartilage and cricoid cartilage without intraluminal invasion. Surgical indication should not be established by the site of involvement in thyroid carcinomas invading the larynx, as in primary cancers of the larynx. We think that partial laryngectomy according to the involvement site and the appropriate reconstruction techniques should be used for thyroid cancer invading the larynx.

PMID: [24660082](#)

<http://dx.doi.org/10.1155/2014/671902>

Thyroid carcinoma metastases to axillary lymph nodes: report of two rare cases of papillary and medullary thyroid carcinoma and literature review.

[Cummings AL](#), [Goldfarb M](#).

[Author information](#)

Abstract

OBJECTIVE:

Axillary lymph nodes (ALNs) are a rare manifestation of thyroid carcinoma; only 16 cases are in the published literature. This study adds two additional patients, one involving differentiated papillary thyroid carcinoma (PTC) and one case involving medullary thyroid carcinoma (MTC). The limited information on this topic in the literature is also reviewed.

METHODS:

In case 1, a 56-year-old female diagnosed in 2004 with stage IV PTC (lung and rib metastases) underwent total thyroidectomy (TTx) and received radioiodine and antineoplastics for progression in the lung, liver, and chest wall (2008-2011). In 2012, screening mammography detected multiple axillary masses corresponding to ALNs on magnetic resonance imaging. After fine-needle aspiration biopsy demonstrated metastatic PTC, the patient underwent right ALN dissection and is currently with stable disease. In case 2, a 59-year-old male diagnosed in 2011 with stage III MTC underwent TTx and bilateral modified lymph node (LN) dissection for cervical LN metastases. Three months later, a positron emission tomography scan revealed hypermetabolic ALNs confirmed by excisional biopsy as metastatic MTC. A completion left ALN dissection and supraclavicular LN excision was performed and the patient is currently with stable disease.

RESULTS:

Sixteen reports of ALN metastases from thyroid cancer exist in the literature: 11 PTC, 2 mucoepidermoid carcinoma variants, and 1 each of follicular thyroid carcinoma, MTC, and poorly differentiated mucin-producing adenocarcinoma. This study reports the second case of MTC metastatic to ALNs.

CONCLUSION:

Thyroid cancer ALN metastases are rare representations of distant metastatic disease. Complete surgical resection remains the standard of care for all MTC metastases and for DTC patients with local symptoms or otherwise stable disease that can tolerate the operation.

PMID: [24246352](#)

<http://dx.doi.org/10.4158/EP13339.CR>

PARATHYROID

DERLEME

1. [Br J Surg.](#) 2014 Mar;101(4):307-20. doi: 10.1002/bjs.9384. Epub 2014 Jan 9. (IF: 5.09)

Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia.

[Edafe O¹](#), [Antakia R](#), [Laskar N](#), [Uttley L](#), [Balasubramanian SP](#).

Author information

Abstract

BACKGROUND:

Hypocalcaemia is common after thyroidectomy. Accurate prediction and appropriate management may help reduce morbidity and hospital stay. The aim of this study was to perform a systematic literature review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia.

METHODS:

A systematic search of PubMed, EMBASE and the Cochrane Library databases was undertaken, and the quality of manuscripts assessed using a modified Newcastle-Ottawa Scale.

RESULTS:

Some 115 observational studies were included. The median (i.q.r.) incidence of transient and permanent hypocalcaemia was 27 (19-38) and 1 (0-3) per cent respectively. Independent predictors of transient hypocalcaemia included levels of preoperative calcium, perioperative parathyroid hormone (PTH), preoperative 25-hydroxyvitamin D and postoperative magnesium. Clinical predictors included surgery for recurrent goitre and reoperation for bleeding. A calcium level lower than 1.88 mmol/l at 24 h after surgery, identification of fewer than two parathyroid glands (PTGs) at surgery, reoperation for bleeding, Graves' disease and heavier thyroid specimens were identified as independent predictors of permanent hypocalcaemia in multivariable analysis. Factors associated with transient hypocalcaemia in meta-analyses were inadvertent PTG excision (odds ratio (OR) 1.90, 95 per cent confidence interval 1.31 to 2.74), PTG autotransplantation (OR 2.03, 1.44 to 2.86), Graves' disease (OR 1.75, 1.34 to 2.28) and female sex (OR 2.28, 1.53 to 3.40).

CONCLUSION:

Perioperative PTH, preoperative vitamin D and postoperative changes in calcium are biochemical predictors of post-thyroidectomy hypocalcaemia. Clinical predictors include female sex, Graves' disease, need for parathyroid autotransplantation and inadvertent excision of PTGs.

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PARATIROID

PROSPEKTİF

1. [Am J Surg](#). 2014 Jan;207(1):39-45. doi: 10.1016/j.amjsurg.2013.05.007. Epub 2013 Oct 9. (IF: 2.39)

Randomized controlled trial of alfacalcidol supplementation for the reduction of hypocalcemia after total thyroidectomy.

[Genser L¹](#), [Trésallet C¹](#), [Godiris-Petit G¹](#), [Li Sun Fui S¹](#), [Salepcioglu H¹](#), [Royer C²](#), [Menegaux F³](#).

Author information

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Abstract

BACKGROUND:

The aim of this study was to evaluate the effect of perioperative alfacalcidol on postoperative hypocalcemia after total thyroidectomy.

METHODS:

A total of 219 patients scheduled for total thyroidectomy were randomized into groups not receiving (group A) or receiving (group B) perioperative alfacalcidol. Postoperative hypocalcemia was compared between groups on postoperative day (POD) 1 and POD2. Patients with hypocalcemia (<2.00 mmol/L) received oral calcium supplementation. Calcium and vitamin D levels were measured at 5-week and 6-month follow-ups.

RESULTS:

The incidence of symptomatic hypocalcemia was significantly lower in group A ($P = .02$), whereas similarly low levels of calcemia were observed in both groups on POD1 (37% and 30%, respectively; $P =$ not significant) and persisted on POD2 (14% and 6%, respectively; $P =$ not significant). Patients with severe hypocalcemia (<1.90 mmol/L) showed faster recovery in group A compared with group B (6% vs 1%, $P = .04$). At 5 weeks, calcium and vitamin D levels were similar between the groups. Six months after surgery, 4% (group A) versus 0% (group B) of subjects exhibited permanent hypoparathyroidism ($P = .04$).

CONCLUSIONS:

Although the treatment did not correct vitamin D deficiency, perioperative alfacalcidol uptake resulted in decreased transient hypocalcemia and related symptoms in patients undergoing total thyroidectomy.

KEYWORDS:

Active vitamin D, Alfacalcidol, Hypocalcemia, Total thyroidectomy, Vitamin D

PMID: [24119718](#)

<http://dx.doi.org/10.1016/j.amjsurg.2013.05.007>

2. [Surgery](#). 2014 Feb;155(2):320-8. doi: 10.1016/j.surg.2013.08.013. Epub 2013 Sep 11. (IF: 3.19)

Parathyroidectomy improves symptomatology and quality of life in patients with secondary hyperparathyroidism.

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Abstract

BACKGROUND:

The parathyroidectomy assessment of symptoms (PAS) score was designed initially for primary hyperparathyroidism to provide a specific symptom assessment and was validated later in secondary and tertiary hyperparathyroidism. The aim of our study was to evaluate changes in the PAS scores and quality of life before and after parathyroidectomy for secondary hyperparathyroidism.

METHODS:

This prospective study included 49 consecutive patients who underwent parathyroidectomy for secondary hyperparathyroidism. The PAS and Short Form (SF)-36 questionnaires were completed before parathyroidectomy and at 12 months postoperatively.

RESULTS:

All 13 symptoms included in the PAS score improved significantly. The mean \pm standard deviation PAS score decreased from 545 ± 263 to 284 ± 201 ($P < .0001$) after parathyroidectomy. Quality of life was enhanced in both physical (40.3 ± 17.1 to 59.0 ± 14.9 ; $P < .0001$) and mental (47.6 ± 17.1 to 63.7 ± 13.0 ; $P < .0001$) components. The PAS score was inversely correlated with the SF-36 global score preoperatively and postoperatively ($r(2) = 0.48$ and 0.25 ; $P < .001$). The change in PAS score also correlated with the change in SF-36 global score ($r(2) = 0.29$; $P < .001$). Multiple linear regression analysis showed that preoperative PAS score and bone mineral density T-score were predictors of the decrease in PAS score. Preoperative SF-36 global score and intact parathyroid hormone levels were predictors of the increment in SF-36 score.

CONCLUSION:

The symptom burden of secondary hyperparathyroidism has a negative impact on a patient's quality of life. Parathyroidectomy is associated with a marked improvement in symptoms and quality of life.

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<http://dx.doi.org/10.1016/j.surg.2013.08.013>.

3. [J Surg Res](#). 2014 Mar 2. pii: S0022-4804(14)00191-7. doi: 10.1016/j.jss.2014.02.050. [Epub ahead of print] (IF: 2.08)

Elevated parathyroid hormone after parathyroidectomy delays symptom improvement.

[Pathak PR](#)¹, [Holden SE](#)¹, [Schaefer SC](#)¹, [Levenson G](#)¹, [Chen H](#)¹, [Sippel RS](#)².

Author information

Abstract

BACKGROUND:

Curative parathyroidectomy for primary hyperparathyroidism (PHPT) resolves various nonspecific symptoms related to the disease. Between 8% and 40% of patients with normocalcemia after parathyroidectomy have persistently elevated parathyroid hormone (ePTH) levels at follow-up. We investigated whether ePTH in the early postoperative period was associated with the timing of symptom improvement.

MATERIALS AND METHODS:

This prospective study included adult patients with PHPT who underwent curative parathyroidectomy from November 2011 to September 2012. Biochemical testing at 2 wk postoperatively identified ePTH (defined as PTH > 72 pg/mL) versus normal PTH (nPTH). A questionnaire administered pre- and post-operatively at 6 wk and 6 mo asked patients to rate the frequency of 18 symptoms of PHPT on a five-point Likert scale. Student t-tests were used to compare pre- with postoperative changes in scores for individual symptoms.

RESULTS:

Of 194 patients who underwent parathyroidectomy, 129 (66%) participated in the study. Preoperatively, all patients were symptomatic, with a mean of 13 ± 4 symptoms. Two weeks postoperatively, 20 patients (16%) had ePTH. The percentage of patients with postoperative improvement for individual symptoms was compared between groups. At the early time point (6 wk), the ePTH group showed less improvement in 14 of 18 symptoms. This difference reached statistical significance for four symptoms: anxiety, constipation, thirst, and polyuria. By the 6-mo time point, these differences had resolved, and symptom improvement was similar between groups.

CONCLUSIONS:

ePTH after curative parathyroidectomy may result in a delay in symptom improvement 6 wk postoperatively; however, this difference resolves in 6 mo.

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KEYWORDS:

Elevated parathyroid hormone, Parathyroidectomy, Primary hyperparathyroidism, Prognosis, Symptom improvement, Timing

PMID: [24685332](#)

<http://dx.doi.org/10.1016/j.jss.2014.02.050>

4. [J Laryngol Otol](#). 2014 Mar 25:1-4. [Epub ahead of print] (IF: 0.79)

Relationship of the recurrent laryngeal nerve to the superior parathyroid gland during thyroidectomy.

[Persky M](#)¹, [Fang Y](#)², [Myssiorek D](#)¹.

Author information

Abstract

Design: The relationship of the recurrent laryngeal nerve to the superior parathyroid gland during consecutive thyroidectomies was prospectively evaluated. When one structure was noted, careful dissection was performed to locate the other structure, to preserve their natural anatomical relationship. Patients: In total, 103 consecutive thyroid lobectomies were performed on 73 patients. The distance from the superior parathyroid gland to the recurrent laryngeal nerve was recorded. Results: In 88 cases (88.9 per cent), the superior parathyroid gland was identified within 5 mm of the recurrent laryngeal nerve. In 62 cases (62.6 per cent), the gland was within 1 mm of the recurrent laryngeal nerve. The height of the thyroid lobe was positively associated with the distance between the two structures ($p = 0.001$), as was the incidence of cancer ($p = 0.033$). The incidence of recurrent laryngeal nerve paresis was less than 4 per cent. Conclusion: In most cases, the recurrent laryngeal nerve was found in close proximity to the superiorparathyroid gland. In a thyroid gland with a large height, or in a cancerous lobe, this relationship is less reliable.

PMID: [24666972](#)

5. [J Laryngol Otol](#). 2014 Mar;128(3):274-8. doi: 10.1017/S0022215113002600. (IF: 0.79)

Hypocalcaemia following total thyroidectomy: early post-operative parathyroid hormone assay as a risk stratification and management tool.

[Islam S](#), [Al Maqbali T](#), [Howe D](#), [Campbell J](#).

Author information

Abstract

Objective: To develop a practical, efficient and predictive algorithm to manage potential or actual post-operative hypocalcaemia after complete thyroidectomy, using a single post-operative parathyroid hormone assay. Methods: This paper reports a prospective study of 59 patients who underwent total or completion thyroidectomy over a period of 24 months. Parathyroid hormone levels were checked post-operatively on the day of surgery, and all patients were evaluated for hypocalcaemia both clinically and biochemically with serial corrected calcium measurements. Results: No patient with an early post-operative parathyroid hormone level of 23 ng/l or more (i.e. approximately twice the lower limit of the normal range) developed hypocalcaemia. All the patients who initially had post-operative hypocalcaemia

but had an early parathyroid hormone level of 8 ng/l or more (i.e. approximately two-thirds of the lower limit of the normal range) had complete resolution of their hypocalcaemia within three months. Conclusion: Early post-operative parathyroid hormone measurement can reliably predict patients at risk of post-thyroidectomy hypocalcaemia, and predict those patients expected to recover from temporary hypocalcaemia. A suggested post-operative management algorithm is presented.

PMID: [24666803](#)

<http://dx.doi.org/10.1017/S0022215113002600>

6. [World J Surg.](#) 2014 Feb 8. [Epub ahead of print] (IF: 2.47)

The Small Abnormal Parathyroid Gland is Increasingly Common and Heralds Operative Complexity.

[McCoy KL](#)¹, [Chen NH](#), [Armstrong MJ](#), [Howell GM](#), [Stang MT](#), [Yip L](#), [Carty SE](#).

[Author information](#)

Abstract

BACKGROUND:

Over decades, improvements in presymptomatic screening and awareness of surgical benefits have changed the presentation and management of primary hyperparathyroidism (PHPT). Unrecognized multiglandular disease (MGD) remains a major cause of operative failure. We hypothesized that during parathyroid surgery the initial finding of a mildly enlarged gland is now frequent and predicts both MGD and failure.

METHODS:

A prospective database was queried to examine the outcomes of initial exploration for sporadic PHPT using intraoperative PTH monitoring (IOPTH) over 15 years. All patients had follow-up ≥ 6 months (mean = 1.8 years). Cure was defined by normocalcemia at 6 months and microadenoma by resected weight of < 200 mg.

RESULTS:

Of the 1,150 patients, 98.9 % were cured and 15 % had MGD. The highest preoperative calcium level decreased over time ($p < 0.001$) and varied directly with adenoma weight ($p < 0.001$). Over time, single adenoma weight dropped by half ($p = 0.002$) and microadenoma was increasingly common ($p < 0.01$). MGD risk varied inversely with weight of first resected abnormal gland. Microadenoma required bilateral exploration more often than macroadenoma (48 vs. 18 %, $p < 0.01$). When at exploration the first resected gland was < 200 mg, the rates of MGD (40 vs. 11 %, $p = 0.001$), inadequate initial IOPTH drop (67 vs. 79 %, $p = 0.002$), operative failure (6.6 vs. 0.7 %, $p < 0.001$), and long-term recurrence (1.6 vs. 0.3 %, $p = 0.007$) were higher.

CONCLUSIONS:

Single parathyroid adenomas are smaller than in the past and require more complex pre- and intraoperative management. During exploration for sporadic PHPT, a first abnormal gland < 200 mg should heighten suspicion of MGD and presages a tenfold higher failure rate.

PMID: [24510243](#)

7. [Endocrine.](#) 2014 Jan 11. [Epub ahead of print] (IF: 2.24)

Diagnostic value of endoscopic ultrasonography for preoperative localization of parathyroid adenomas.

[Ersoy R](#)¹, [Ersoy O](#), [Evrano Oqmen B](#), [Polat SB](#), [Kilic M](#), [Yildirim N](#), [Ozturk L](#), [Cakir B](#).

[Author information](#)

Abstract

The most common cause of primary hyperparathyroidism (PHPT) is a single, sporadic parathyroid adenoma. Ultrasonography (US) and ^{99m}Tc -MIBI scintigraphy are the imaging methods most widely used to localize parathyroid adenomas. The purpose of the present study was to determine the diagnostic value and accuracy of endoscopic ultrasonography (EUS) for localizing parathyroid adenoma compared with those of US and ^{99m}Tc -MIBI scintigraphy. Forty-seven patients with a PHPT diagnosis and who were recommended for surgery were enrolled in this study. An endoscopist who was blinded to the previous US and ^{99m}Tc -MIBI scintigraphy results performed the EUS in each patient. Thirty-nine female and eight male patients with PHPT were evaluated. The presence of adenoma was confirmed by subsequent postsurgical pathology results. One case was excluded because the histopathological evaluation was compatible with a lymph node, although the lesion was detected using three different imaging modalities preoperatively. The locations of the parathyroid adenomas were correctly documented by US in 39 patients (84.7 %) by ^{99m}Tc -MIBI scintigraphy in 35 (76.0 %), and by EUS in 44 (95.6 %) of 46 patients. EUS located all 31 adenomas detected previously with US and ^{99m}Tc -MIBI scintigraphy. EUS also successfully located three adenomas that could not be identified by US and ^{99m}Tc -MIBI scintigraphy. The positive predictive value and diagnostic accuracy of EUS, US, and ^{99m}Tc -MIBI were 97.7, 97.7, and 95.6 %; 88.6, 97.5, and 86.9 %; and 77.7, 97.2, 76.0 %, respectively. EUS was preferred as the second step imaging tool for detecting parathyroid adenomas that could not be localized by US and ^{99m}Tc -MIBI scintigraphy.

PMID: [24415171](#)

8. [Surgery](#). 2014 Feb;155(2):320-8. doi: 10.1016/j.surg.2013.08.013. Epub 2013 Sep 11. (IF: 3.19)

Parathyroidectomy improves symptomatology and quality of life in patients with secondary hyperparathyroidism.

[Cheng SP](#)¹, [Lee JJ](#)², [Liu TP](#)³, [Yang TL](#)⁴, [Chen HH](#)⁵, [Wu CJ](#)⁶, [Liu CL](#)⁷.

[Author information](#)

Abstract

BACKGROUND:

The parathyroidectomy assessment of symptoms (PAS) score was designed initially for primary hyperparathyroidism to provide a specific symptom assessment and was validated later in secondary and tertiary hyperparathyroidism. The aim of our study was to evaluate changes in the PAS scores and quality of life before and after parathyroidectomy for secondary hyperparathyroidism.

METHODS:

This prospective study included 49 consecutive patients who underwent parathyroidectomy for secondary hyperparathyroidism. The PAS and Short Form (SF)-36 questionnaires were completed before parathyroidectomy and at 12 months postoperatively.

RESULTS:

All 13 symptoms included in the PAS score improved significantly. The mean \pm standard deviation PAS score decreased from 545 ± 263 to 284 ± 201 ($P < .0001$) after parathyroidectomy. Quality of life was enhanced in both physical (40.3 ± 17.1 to 59.0 ± 14.9 ; $P < .0001$) and mental (47.6 ± 17.1 to 63.7 ± 13.0 ; $P < .0001$) components. The PAS score was inversely correlated with the SF-36 global score preoperatively and postoperatively ($r(2) = 0.48$ and 0.25 ; $P < .001$). The change in PAS score also correlated with the change in SF-36 global score ($r(2) = 0.29$; $P < .001$). Multiple linear regression analysis showed that preoperative PAS score and bone mineral density T-score were predictors of the decrease in PAS score. Preoperative SF-36 global score and intact parathyroid hormone levels were predictors of the increment in SF-36 score.

CONCLUSION:

The symptom burden of secondary hyperparathyroidism has a negative impact on a patient's quality of life. Parathyroidectomy is associated with a marked improvement in symptoms and quality of life.

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<http://dx.doi.org/10.1016/j.surg.2013.08.013>

PARATIROID

RETROSPEKTİF

1. [Ann Surg.](#) 2014 Mar;259(3):563-8. doi: 10.1097/SLA.000000000000207. (IF: 6.85)

Predictors of recurrence in primary hyperparathyroidism: an analysis of 1386 cases.

[Schneider DF](#)¹, [Mazeh H](#), [Chen H](#), [Sippel RS](#).

Author information

- ¹From the Section of Endocrine Surgery, Department of Surgery, University of Wisconsin, Madison, WI.

Abstract

OBJECTIVE:

The purpose of this study was to determine whether the operative approach independently influenced recurrence and to identify perioperative predictors of recurrence.

BACKGROUND:

Intraoperative parathyroid hormone (IoPTH) monitoring has enabled surgeons to perform minimally invasive parathyroidectomy (MIP). Yet, the long-term durability of this approach has recently been questioned.

STUDY DESIGN:

A retrospective review was performed, and cases of initial neck surgery for nonfamilial primary hyperparathyroidism were selected for analysis. Cases were classified as either open parathyroidectomy (OP) when both sides of the neck were explored or MIP when only one side was explored. Kaplan-Meier estimates were plotted for disease-free survival, and a Cox proportional hazards model was developed to evaluate factors associated with recurrence for both the entire cohort and the MIP subset. Further comparisons were made between those who recurred and those who did not recur.

RESULTS:

In the past 10-year period, 1368 parathyroid operations for primary hyperparathyroidism were performed at our institution. A total of 1006 were MIP whereas 380 were OP. There were no differences in recurrence between the MIP and OP groups (2.5% vs 2.1%; $P = 0.68$), and the operative approach (MIP vs OP) did not independently predict recurrent disease in our multivariate analysis. The percentage decrease in IoPTH was protective against recurrence for both the entire cohort (hazard ratio = 0.96; 95% confidence interval = 0.93-0.99; $P = 0.03$) and the MIP subset. A higher postoperative PTH also independently predicted disease recurrence.

CONCLUSIONS:

Operative approach does not independently predict recurrent hyperparathyroidism. The percentage decrease in IoPTH is one of many adjuncts the surgeon can use to determine which patients are best served by bilateral exploration whereas the postoperative PTH can guide follow-up after parathyroidectomy.

PMID: [24263316](#)

<http://dx.doi.org/10.1097/SLA.000000000000207>

2. [B-ENT](#). 2014;10(1):1-6. (IF: 0.42)

Incidence of multiglandular disease in sporadic primary hyperparathyroidism.

[Vandenbulcke O](#), [Delaere P](#), [Vander Poorten V](#), [Debruyne F](#).

Abstract

OBJECTIVES:

Multiple, minimally invasive surgical techniques have been developed over the last few decades for the management of sporadic primary hyperparathyroidism (PHTP). However, in cases with multiglandular disease, bilateral cervical exploration remains the gold standard. Therefore, it is important to have an accurate estimation of the incidence of multiglandular disease in sporadic PHTP.

METHODOLOGY:

698 patients were treated for PHTP between 1993 and 2010 at the University Hospitals Leuven, using the bilateral cervical exploration method. After excluding cases of multiple endocrine carcinoma syndrome, the incidences of double adenoma and multiple gland hyperplasia were investigated in these patients. Age, gender, imaging results, serum calcium and parathyroid hormone concentrations were analyzed and compared to the data of 50 randomly-selected, PHTP patients with solitary adenomas.

RESULTS:

6.6% and 2.4% of the patients with sporadic PHTP had double adenomas and multiple gland hyperplasia, respectively. The female/male ratio was 4.8 (38/8) and 1.8 (11/6), and the average age was 63 and 52 yrs for patients with double adenomas and multiple gland hyperplasia, respectively. The patients with solitary adenomas had a female/male ratio of 3.5, and an average age of 60 yrs. There were no significant differences in serum calcium or parathyroid hormone concentrations between patients with multiglandular disease and those with solitary adenomas.

CONCLUSIONS:

Multiglandular disease occurs in 9% of patients with sporadic PHTP, and cannot be excluded before surgery. This incidence must be considered when using minimally invasive techniques for treatment of sporadic PHTP. In cases of multiglandular disease, bilateral cervical exploration is indicated.

PMID: [24765822](#)

3. [J Surg Res](#). 2014 Mar 19. pii: S0022-4804(14)00268-6. doi: 10.1016/j.jss.2014.03.038. [Epub ahead of print] (IF: 2.08)

Role of cervical ultrasound in detecting thyroid pathology in primary hyperparathyroidism.

[Weiss DM](#)¹, [Chen H](#)².

[Author information](#)

Abstract

BACKGROUND:

Minimally invasive parathyroidectomy for primary hyperparathyroidism is made possible with accurate preoperative imaging. In addition to the detection of parathyroid adenomas, cervical ultrasound also provides concomitant assessment of the thyroid gland, and many surgeons believe that it is essential. However, the incidental identification of thyroid nodules may then subject patients to further workup and potentially invasive thyroid procedures. We sought to determine the long-term consequence of omitting preoperative ultrasound on the development of thyroid pathology and cancer.

METHODS:

At our institution, 222 patients with primary hyperparathyroidism underwent parathyroidectomy without preoperative cervical ultrasound from 1990-2001. Thyroid pathology discovered by follow-up after parathyroidectomy, subsequent biopsy, and surgical interventions were analyzed.

RESULTS:

Of the 222 patients who underwent parathyroidectomy, the mean age was 55 ± 1 y and 149 were female (67%). In the course of their follow-up after parathyroidectomy, 13 patients (6%) received a cervical ultrasound, and seven of 13 (3%) underwent fine needle aspiration of a thyroid nodule. Only one of seven (0.4% of all patients) was ultimately diagnosed with thyroid cancer. Four additional patients were discovered to have thyroid malignancies as a result of intraoperative decision making. All five patients are currently alive with an average follow-up time of 14.9 ± 1.6 y. No patients in this series had an unnecessary thyroid intervention.

CONCLUSIONS:

In patients who underwent parathyroidectomy without a preoperative ultrasound, only a small number (0.4%) were subsequently diagnosed with thyroid cancer. Furthermore, omission of ultrasound during the localization of parathyroid glands does not have a negative impact on the diagnosis of thyroid pathology as all patients who had thyroid cancer had good outcomes, and in fact, may prevent unnecessary thyroid interventions. Therefore, the use of cervical ultrasound for parathyroid localization should be considered optional rather than essential.

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KEYWORDS:

Primary hyperparathyroidism, Thyroid, Ultrasound

PMID: [24739507](#)

<http://dx.doi.org/10.1016/j.jss.2014.03.038>

4. [Indian J Med Res.](#) 2014 Feb;139(2):279-84. (IF: 2.18)

Effect of gender, biochemical parameters & parathyroid surgery on gastrointestinal manifestations of symptomatic primary hyperparathyroidism.

[Shah VN](#), [Bhadada SK¹](#), [Bhansali A](#), [Behera A](#), [Bhattacharya A](#), [Nahar U](#), [Bhasin D](#), [Vadera B](#).

Author information

Abstract

Background & objectives: Information on gastrointestinal manifestations and then response after curative parathyroid surgery is scarce in symptomatic primary hyperparathyroidism (PHPT). This study was carried out to analyse gastrointestinal manifestations in patients with PHPT and their associations with biochemical parameters. Methods: This retrospective study included 153 patients with symptomatic primary hyperparathyroidism (PHPT). The signs and symptoms pertaining to gastrointestinal system were analyzed. The difference of symptoms between men and women and difference in biochemical parameters in presence of different symptoms were evaluated. The relationship between serum calcium, phosphate and parathyroid hormone (PTH) levels with presence of gallstone and pancreatitis was also studied. Result: Of the 153 patients, 46 (30%) were men. The mean age was 39.2 ± 13.9 yr. Nearly 80 per cent of PHPT patients had at least one symptom/ sign related to gastrointestinal system. The most common gastrointestinal manifestations were abdominal pain 66 (43%), constipation 55 (36%), and nausea/or vomiting 46 (30%). Nearly one-fourth 34 (22%) of patients had a history of either gallstone disease or cholecystectomy or both. The prevalence of gallstone disease was higher in women ($P < 0.05$). Imaging and biochemical evidence of pancreatitis was found in 27 (18%) patients. Pancreatitis was more common in men compared to women ($P < 0.05$) despite the higher prevalence of gallstones in women. Serum calcium, phosphate or PTH levels were not associated with high risk for gallstone disease, however, serum calcium ($P < 0.05$) was associated with 1.3 times higher risk of developing pancreatitis. In majority of patients, gastrointestinal manifestations resolved within three months of curative parathyroidectomy. Except two patients, none had recurrence of pancreatitis. Interpretation & conclusions: The study revealed that the gastrointestinal symptoms were common in patients with symptomatic PHPT. There was not much gender difference in gastrointestinal symptoms except higher occurrence of gallstones in women and pancreatitis in men. There was no difference in biochemical profile between those who had and did not have gastrointestinal symptoms.

PMID: [24718404](#)

5. [ANZ J Surg.](#) 2014 Mar 27. doi: 10.1111/ans.12571. [Epub ahead of print] (IF:1.35)

Four-dimensional computed tomography for parathyroid localization: a new imaging modality.

[Brown SJ¹](#), [Lee JC](#), [Christie J](#), [Maher R](#), [Sidhu SB](#), [Sywak MS](#), [Delbridge LW](#).

Author information

Abstract

INTRODUCTION:

Four-dimensional computed tomography (4DCT) is a new parathyroid localization technique not previously reported in Australia. It provides both functional and anatomical imaging in a single test, with superior sensitivity compared with sestamibi scintigraphy (SeS). This study examines the utility of 4DCT in defined clinical situations.

METHODS:

This is a retrospective cohort study in a tertiary referral hospital setting. One hundred consecutive operative cases of primary hyperparathyroidism (99 patients) undergoing both preoperative 4DCT and SeS. Localization studies were correlated with operative findings, histopathology and clinical outcomes. The

utility of 4DCT was analysed in three common clinical settings: primary cases with positive SeS (Group A, n = 68), primary cases with negative SeS (Group B, n = 21) and re-operative cases (Group C, n = 11).

RESULTS:

The overall sensitivity of 4DCT was 92% compared with 70% for SeS. The sensitivity of 4DCT was superior to SeS in Groups B and C (76% versus 0% and 91% versus 46%, respectively). The overall cure rate was 98%, with 94% of cases completed as minimally invasive procedures. Up to 62% of Group B cases potentially avoided a bilateral neck exploration owing to a positive 4DCT.

CONCLUSIONS:

4DCT is an accurate technique providing both functional and anatomical localization of abnormal parathyroid glands. However, the advantage of speed and simplicity in image acquisition needs to be balanced against the small risk of increased radiation exposure in the younger patient group.

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KEYWORDS:

4DCT, hyperparathyroidism, localization, parathyroid adenoma

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<http://dx.doi.org/10.1111/ans.12571>

6. [ORL J Otorhinolaryngol Relat Spec.](#) 2014 Mar 19;76(1):19-24. [Epub ahead of print] (IF: 1.02)

The Role of the Robotic-Assisted Transaxillary Gasless Approach for the Removal of Parathyroid Adenomas.

[Noureldine SI](#)¹, [Lewing N](#), [Tufano RP](#), [Kandil E](#).

Author information

Abstract

Background: We sought to describe a robotic technique of transaxillary gasless parathyroidectomy for the management of primary hyperparathyroidism (PHPT) due to a parathyroid adenoma. Methods: All consecutive patients who underwent robotic parathyroidectomy for a parathyroid adenoma by a single surgeon were included. Data was obtained by a retrospective review of patients' medical charts. Results: Nine patients with confirmed PHPT underwent robotic parathyroidectomy. Curative resection was established in all patients with the aid of intraoperative parathyroid hormone monitoring. One patient required bilateral cervical exploration of multiglandular disease. There were no complications. Patients were followed up for a period exceeding 6 months without any evidence of persistent or recurrent hyperparathyroidism. Conclusions: Our initial experience demonstrates that this technique is safe and effective for the treatment of PHPT. We believe that the use of robotic technology for endoscopic parathyroid surgeries could overcome the limitations of conventional techniques in the management of parathyroid lesions. © 2014 S. Karger AG, Basel.

PMID: [24662482](https://pubmed.ncbi.nlm.nih.gov/24662482/)

7. [Eur Arch Otorhinolaryngol.](#) 2014 Mar 15. [Epub ahead of print] (IF: 1.59)

Co-existent thyroid disease in patients treated for primary hyperparathyroidism: implications for clinical management.

[Ryan S¹](#), [Courtney D](#), [Timon C](#).

[Author information](#)

Abstract

Treatment for primary hyperparathyroidism necessitates complete excision of involved parathyroid tissue. Simultaneous thyroidectomy may also be required in order to optimise operative access and/or where suspicion of synchronous abnormal thyroid pathology exists. We sought to determine how often simultaneous removal of thyroid tissue was required during parathyroidectomy and the nature of any associated pathology. Radiology reports were also reviewed to determine how often confirmed thyroid pathology from histological specimens, benign or malignant, had been identified pre-operatively. A retrospective chart review of 135 parathyroidectomy procedures performed between 2003 and 2013 was performed. Of 135 parathyroidectomy procedures, 39 patients (29 %) underwent simultaneous partial thyroidectomy of which 36 (27 % of total parathyroidectomies) had dual pathology confirmed. Specifically, malignant lesions were identified in 14 % (n = 5), Graves' disease 3 % (n = 1), thyroiditis 17 % (n = 6), multinodular goitre 50 % (n = 18), unilateral nodule 6 % (n = 2), hyperplasia 8 % (n = 3) and intra-thyroid adenoma 3 % (n = 1). Reference to these thyroid lesions was made in only 47 % of preoperative radiology reports. In conclusion, synchronous thyroid surgery was required in 29 % of all parathyroidectomy procedures performed for treatment of primary hyperparathyroidism with malignant thyroid lesions incidentally detected in 14 % of cases. Less than half of all confirmed concomitant thyroid pathology had been referred to or recognised on pre-operative radiology studies. These findings highlight the importance of considering the potential need to perform thyroid surgery during parathyroidectomy and obtaining appropriate informed consent.

PMID: [24633247](#)

8. [Braz J Otorhinolaryngol.](#) 2014 Jan-Feb;80(1):29-34. doi: 10.5935/1808-8694.20140008. (IF: 0.65)

Localization of ectopic and supernumerary parathyroid glands in patients with secondary and tertiary hyperparathyroidism: surgical description and correlation with preoperative ultrasonography and Tc99m-Sestamibi scintigraphy.

[Article in English, Portuguese]

[de Andrade JS¹](#), [Mangussi-Gomes JP¹](#), [da Rocha LA²](#), [Ohe MN³](#), [Rosano M¹](#), [das Neves MC¹](#), [Santos Rde O¹](#).

[Author information](#)

Abstract

INTRODUCTION:

Hyperparathyroidism is an expected metabolic consequence of chronic kidney disease (CKD). Ectopic and/or supernumerary parathyroid glands (PT) may be the cause of surgical failure in patients undergoing total parathyroidectomy (PTX).

AIM:

To define the locations of ectopic and supernumerary PT in patients with renal hyperparathyroidism and to correlate intraoperative findings with preoperative tests.

MATERIALS AND METHODS:

A retrospective study was conducted with 166 patients submitted to PTX. The location of PT during surgery was recorded and classified as eutopic or ectopic. The preoperative localizations of PT found by

ultrasonography (USG) and Tc99m-Sestamibi scintigraphy (MIBI) were subsequently compared with intraoperative findings.

RESULTS:

In the 166 patients studied, 664 PT were found. Five-hundred-seventy-seven (86.4%) glands were classified as eutopic and 91 (13.6%) as ectopic. Eight supernumerary PT were found. The most common sites of ectopic PT were in the retroesophageal and thymic regions. Taken together, USG and MIBI did not identify 56 (61.5%) ectopic glands. MIBI was positive for 69,7% of all ectopic glands located in the mediastinal and thymic regions.

CONCLUSION:

The presence of ectopic and supernumerary PT in patients with renal hyperparathyroidism is significant. Although preoperative imaging tests did not locate most of ectopic glands, MIBI may be important for identifying ectopic PT in the mediastinal and thymic regions.

PMID: [24626889](https://pubmed.ncbi.nlm.nih.gov/24626889/)

<http://dx.doi.org/10.5935/1808-8694.20140008>

9. [Surgery](#). 2014 Jan;155(1):22-32. doi: 10.1016/j.surg.2013.06.011. Epub 2013 Oct 25. (IF: 3.19)

Presence of small parathyroid glands in renal transplant patients supports less-than-total parathyroidectomy to treat hypercalcemic hyperparathyroidism.

[Jäger MD](#)¹, [Emmanouilidis N](#)², [Jackobs S](#)², [Kespohl H](#)², [Hett J](#)², [Musatkin D](#)², [Tränkenschuh W](#)³, [Schrem H](#)², [Klempnauer J](#)², [Scheumann GF](#)².

Author information

Abstract

BACKGROUND:

Parathyroid glands (PG) are rarely analyzed in renal transplant (RTX) patients. This study analyzes comparatively PG of RTX and end-stage renal disease (ESRD) patients. The clinical part of the study evaluates if total parathyroidectomy with autotransplantation (TPT+AT) treats appropriately hypercalcemic hyperparathyroidism in RTX patients.

METHODS:

TPT+AT was performed in 15 of 23 RTX and 21 of 27 ESRD patients. Remaining patients underwent less-than-total PT. Volume and stage of hyperplasia were determined from 86 PG of RTX and 109 PG of ESRD patients. Patients were categorized according to the presence of small PG (volume < 100 mm³). Calcium homeostasis and hyperparathyroidism were evaluated 2 years after PT in RTX patients.

RESULTS:

PG of RTX patients were significantly smaller, but similar hyperplastic in comparison to PG of ESRD patients. Small PG were more frequent in RTX than in ESRD patients (19% vs 6%) and mainly graded normal or diffuse hyperplastic (94%). Forty-seven percent of RTX, but only 14% of ESRD, patients receiving a total PT possessed ≥1 small PG (P < .05). Overall, PT treated successfully hypercalcemic hyperparathyroidism. However, TPT+AT caused permanent hypocalcemia in 50% of RTX patients without small PG and even in 83% of RTX patients with small PG. All RTX patients receiving less-than-total PT were normocalcemic at 2-year follow-up. Logistic regression revealed a 10.7 times greater risk of permanent hypocalcemia in RTX patients with small PG receiving TPT+AT compared with RTX patients without small PG receiving TPT+AT or RTX patients undergoing less-than-total PT.

CONCLUSION:

Surgeons performing PT should be aware of the high frequency of small and less diseased PG in RTX patients. In this context, TPT+AT might overtreat hypercalcemic hyperparathyroidism in RTX patients, especially when small PG are present.

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10. [J Ultrasound](#). 2014 Jan 31;17(1):1-12. doi: 10.1007/s40477-014-0067-8. eCollection 2014. (IF: 0.27)

Role of ultrasonography in the management of patients with primary hyperparathyroidism: retrospective comparison with technetium-99m sestamibi scintigraphy.

[Vitetta GM](#)¹, [Neri P](#)², [Chiecchio A](#)³, [Carriero A](#)², [Cirillo S](#)¹, [Mussetto AB](#)¹, [Codegone A](#)⁴.

[Author information](#)

Abstract

in [English](#), [German](#)

OBJECTIVE:

Primary hyperparathyroidism (PHPT) is a common endocrine disorder that can be cured only by parathyroidectomy. Cervical ultrasonography and scintigraphy are the imaging studies most widely used for preoperative localization of the affected glands. The aim of this retrospective comparative study was to define the respective roles of ultrasonography and parathyroid scintigraphy in these cases.

MATERIALS AND METHODS:

We analyzed 108 patients who had undergone parathyroidectomies for PHPT following cervical ultrasonographic and scintigraphic examinations. The ultrasound examinations were carried out by an expert physician sonographer in 61 cases and by various physician sonographers with different levels of experience in 47 cases. Sonographic and scintigraphic findings were compared with surgical findings and the diagnostic performance of the two imaging methods was evaluated by means of statistical analysis.

RESULTS:

The operator dependency of ultrasonography was confirmed by marked variations in sensitivity related to the experience of the sonographer. When sonography was performed by an expert, the sensitivity of combined use of the two methods was not significantly higher than that of sonography alone.

CONCLUSIONS:

In expert hands, the diagnostic yield of ultrasound is appreciably superior. It can therefore be used as the main and possibly sole method for preoperative localization of pathological parathyroid tissues. Combined use of ultrasound and scintigraphy is not cost-effective in these cases. Scintigraphy is indicated only when the ultrasound examination produces negative results.

KEYWORDS:

Localization, Parathyroid adenoma, Primary hyperparathyroidism, Ultrasonography

11. [Ann Surg Oncol](#). 2014 Feb 13. [Epub ahead of print] (IF: 4.33)

Oncologic Resection Achieving R0 Margins Improves Disease-Free Survival in Parathyroid Cancer.

[Schulte KM](#)¹, [Talat N](#), [Galata G](#), [Gilbert J](#), [Miell J](#), [Hofbauer LC](#), [Barthel A](#), [Diaz-Cano S](#), [Bornstein SR](#).

[Author information](#)

Abstract

BACKGROUND:

Parathyroid cancer has a poor mid-term prognosis, often because of local recurrence, observed in half of all patients. Modern diagnostic workup increasingly enables a preoperative diagnosis of parathyroid cancer. There is limited evidence that more comprehensive oncologic surgery can reduce the risk of local recurrence. This study aims to identify the best specific surgical approach in parathyroid cancer.

METHODS:

This observational cohort study comprises 19 consecutive patients who had undergone oncologic or nononcologic resection for parathyroid cancer. Baseline parameters were compared by using univariate analysis; outcomes were assessed by χ^2 testing and Kaplan-Meier statistics.

RESULTS:

Fifteen of 19 patients were primarily operated on in our tertiary center between 1996 and 2013, and four were referred for follow-up because of their cancer diagnosis. Patient cohorts defined by histologic R-status were comparable for established risk factors: sex, calcium levels, low-risk/high-risk status, and presence of vascular invasion. Oncologic resections were performed in 13 of 15 patients primarily treated in the center and 0 of 4 treated elsewhere ($\chi^2 = 5.6$; $p < 0.01$). R0 margins were achieved in 11 of 13 (85 %) undergoing oncologic resection and 1 of 6 (17 %) undergoing local excision ($\chi^2 = 8.1$; $p < 0.01$). R0 margins and primary oncologic resection were associated with higher disease-free survival rates ($\chi^2 = 7.9$; $p = 0.005$ and $\chi^2 = 4.7$; $p = 0.03$, respectively). Revision surgery achieved R0 margins in only 2 of 4 (50 %) of patients.

CONCLUSIONS:

In parathyroid cancer, a more comprehensive surgery (primary oncologic resection) provides significantly better outcomes than local excision as a result of reduction of R1 margins and locoregional recurrence.

PMID: [24522991](#)

12. [Otolaryngol Head Neck Surg.](#) 2014 Feb 4. [Epub ahead of print] (IF: 1.68)

Incidental Parathyroidectomy during Thyroid Surgery Using Capsular Dissection Technique.

[Prazenica P¹](#), [O'Driscoll K](#), [Holy R](#).

Author information

Abstract

OBJECTIVE:

To identify incidence, preoperative features, surgical factors, and postoperative events of incidental parathyroidectomy (IP) during thyroidectomy.

STUDY DESIGN:

A total of 1068 consecutive patients who underwent thyroidectomy performed by a single surgeon between January 2003 and April 2012 were enrolled in retrospective study with prospectively collected data.

SETTING:

University hospital.

SUBJECTS AND METHODS:

To assess the impact of IP on study variables, patients were stratified into 2 study groups: IP group and non-IP group. Univariate and multivariate analyses identified significant correlates of IP.

RESULTS:

In all, 5.4% patients experienced IP. Significant difference ($P < .001$) was in incidence of temporary hypocalcemia between IP group (36.2%) and non-IP group (16.8%). Multivariable logistic regression model identified total thyroidectomy (odds ratio 3.937, 95% confidence interval [CI] 1.462-10.601, $P = .007$) and Graves' disease (odds ratio 2.192, 95% CI 1.157-4.158, $P = .016$) as risk-adjusted factors associated with IP. Multivariate analysis of repeated measures identified statistically significant difference of repeated total calcium level ($P < .001$) and ionized calcium level ($P = .020$) between study groups.

CONCLUSION:

IP during thyroidectomy might be potential complication. Total thyroidectomy, Graves' disease, longer operation time, and identification 3 and more parathyroid glands seemed to be predictive factors for IP. IP is significantly associated with temporary hypocalcemia, but not with permanent hypoparathyroidism.

KEYWORDS:

capsular dissection, hypocalcemia, incidental parathyroidectomy, thyroid, thyroidectomy

PMID: [24496742](#)

13. [J Otolaryngol Head Neck Surg](#). 2014 Jan 29;43:5. doi: 10.1186/1916-0216-43-5. (IF: 1.68)

Validation of 1-hour post-thyroidectomy parathyroid hormone level in predicting hypocalcemia.

[Le TN](#)¹, [Kerr PD](#), [Sutherland DE](#), [Lambert P](#).

[Author information](#)

Abstract

BACKGROUND:

Prior work by our group suggested that a single one hour post-thyroidectomy parathyroid hormone (1 hr PTH) level could accurately stratify patients into high and low risk groups for the development of hypocalcemia. This study looks to validate the safety and efficacy of a protocol based on a 1 hr PTH threshold of 12 pg/ml.

STUDY DESIGN:

Retrospective analysis of consecutive cohort treated with standardized protocol.

METHODS:

One hundred and twenty five consecutive patients underwent total or completion thyroidectomy and their PTH level was drawn 1-hour post operatively. Based on our previous work, patients were stratified into either a low risk group (PTH < 12 pg/ml) or a high risk group (PTH ≥ 12 pg/ml). Patients in the high risk group were immediately started on prophylactic calcium carbonate (5-10 g/d) and calcitriol (0.5-1.0 mcg/d). The outcomes were then reviewed focusing mainly on how many low risk patients developed hypocalcemia (false negative rate), and how many high risk patients failed prophylactic therapy.

RESULTS:

Thirty one patients (25%) were stratified as high risk, and 94 (75%) as low risk. Five (16%) of the high risk patients became hypocalcemic despite prophylactic therapy. Two of the low risk group became hypocalcemic, (negative predictive value = 98%). None of the hypocalcemic patients had anything more than mild symptoms.

CONCLUSIONS:

A single 1-hour post-thyroidectomy PTH level is a very useful way to stratify thyroidectomy patients into high and low risk groups for development of hypocalcemia. Early implementation of oral prophylactic calcium and vitamin D in the high risk patients is a very effective way to prevent serious hypocalcemia. Complex protocols requiring multiple calcium and PTH measurements are not required to guide post-thyroidectomy management.

PMID: [24476535](#)

<http://dx.doi.org/10.1186/1916-0216-43-5>

14. [Laryngoscope](#). 2014 Jan 28. doi: 10.1002/lary.24615. [Epub ahead of print] (IF: 1.32)

A simplified approach to minimally invasive parathyroidectomy.

[Kanoetra SP](#)¹, [Kuriloff DB](#), [Vyas PK](#).

[Author information](#)

Abstract

OBJECTIVES/HYPOTHESIS:

To assess the feasibility of a simplified approach for the use of a rapid intraoperative parathyroid hormone (IOPTH) assay based on a single 10-minute post-excision level using the workup parathyroid hormone level (wPTH) as the baseline in minimally invasive parathyroidectomy (MIP) and to compare the predictive value of this criterion with other recommended criteria.

STUDY DESIGN:

Case series with chart review.

METHODS:

A single surgeon's prospectively maintained parathyroidectomy database at an academic center was reviewed over a 2-year period from June 2009 through June 2011.

RESULTS:

A total of 102 patients undergoing MIP met the inclusion criteria. An IOPTH threshold of a $\geq 50\%$ drop at 10 minutes post-excision from the wPTH baseline resulted in acceptable false positive (1.9%) and false negative (0.9%) rates. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of this modified criterion was 98.9%, 71.4%, 98%, 83.3%, and 97%, respectively.

CONCLUSIONS:

In our patient cohort, the pre-incision and pre-excision IOPTH levels did not seem to change the overall accuracy of predicting surgical success in MIP if a single 10-minute post-excision IOPTH level is used along with the wPTH, and is commensurate with the commonly used Miami and Vienna criteria. A single intraoperative blood sample demonstrating a $\geq 50\%$ drop from the wPTH at 10 minutes post-excision should be explored further as a feasible simplified criterion that avoids multiple IOPTH samples. LEVEL OF EVIDENCE: 4. Laryngoscope, 2014.

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KEYWORDS:

Intraoperative parathyroid hormone assay, minimally invasive parathyroidectomy, parathyroid adenoma, parathyroidectomy, sporadic primary hyperparathyroidism

PMID: [24470308](https://pubmed.ncbi.nlm.nih.gov/24470308/)

<http://dx.doi.org/10.1002/lary.24615>

15. [Ann Surg Oncol](#). 2014 Jan 23. [Epub ahead of print] (IF: 4.33)

Operative Failure in Minimally Invasive Parathyroidectomy Utilizing an Intraoperative Parathyroid Hormone Assay.

[Lee S¹](#), [Ryu H](#), [Morris LF](#), [Grubbs EG](#), [Lee JE](#), [Harun N](#), [Feng L](#), [Perrier ND](#).

[Author information](#)

Abstract

BACKGROUND:

Minimally invasive parathyroidectomy (MIP) is a targeted operation to cure primary hyperparathyroidism utilizing intraoperative parathyroid hormone monitoring (IOPTH). The purpose of this study was to quantify the operative failure of MIP.

METHODS:

Utilizing institutional parathyroid surgery database, demographic, operative, and biochemical data were analyzed for successful and failed MIP. Operative failure was defined as < 6 months of eucalcemia after operation.

RESULTS:

Five hundred thirty-eight patients (96.6 %) had successful MIP with mean follow-up of 13 months, and 19 (3.4 %) had operative failure. The major cause of operative failure (11 of 19) was the result of surgeons' inability to identify all abnormal parathyroid glands. The remaining eight operative failures were the result of

falsely positive IOPTH results. Eleven of 19 patients whose MIP had failed underwent a second parathyroid surgery. All but one of these patients achieved operative success, and 9 patients had missed multigland disease. Only 46 (8.3 %) of 557 patients had conversion to bilateral cervical exploration (BCE). Eighty percent of patients had more than 70 % IOPTH decrease, and all had successful operations. Patients with a marginal IOPTH decrease (50-59 %) had a treatment failure rate of 20 %.

CONCLUSIONS:

The most common cause of operative failure in MIP utilizing IOPTH was the result of surgeons' failure to identify all abnormal parathyroid glands. Falsely positive IOPTH is rare, and a targeted MIP utilizing IOPTH can achieve an excellent operative success rate without routine BCE. Selective BCE on patients with marginal IOPTH decrease may improve surgical outcome.

PMID: [24452409](#)

16. [Ann Surg.](#) 2014 Mar;259(3):563-8. doi: 10.1097/SLA.000000000000207. (IF: 6.85)

Predictors of recurrence in primary hyperparathyroidism: an analysis of 1386 cases.

[Schneider DF](#)¹, [Mazeh H](#), [Chen H](#), [Sippel RS](#).

[Author information](#)

Abstract

OBJECTIVE:

The purpose of this study was to determine whether the operative approach independently influenced recurrence and to identify perioperative predictors of recurrence.

BACKGROUND:

Intraoperative parathyroid hormone (IoPTH) monitoring has enabled surgeons to perform minimally invasive parathyroidectomy (MIP). Yet, the long-term durability of this approach has recently been questioned.

STUDY DESIGN:

A retrospective review was performed, and cases of initial neck surgery for nonfamilial primary hyperparathyroidism were selected for analysis. Cases were classified as either open parathyroidectomy (OP) when both sides of the neck were explored or MIP when only one side was explored. Kaplan-Meier estimates were plotted for disease-free survival, and a Cox proportional hazards model was developed to evaluate factors associated with recurrence for both the entire cohort and the MIP subset. Further comparisons were made between those who recurred and those who did not recur.

RESULTS:

In the past 10-year period, 1368 parathyroid operations for primary hyperparathyroidism were performed at our institution. A total of 1006 were MIP whereas 380 were OP. There were no differences in recurrence between the MIP and OP groups (2.5% vs 2.1%; $P = 0.68$), and the operative approach (MIP vs OP) did not independently predict recurrent disease in our multivariate analysis. The percentage decrease in IoPTH was protective against recurrence for both the entire cohort (hazard ratio = 0.96; 95% confidence interval = 0.93-0.99; $P = 0.03$) and the MIP subset. A higher postoperative PTH also independently predicted disease recurrence.

CONCLUSIONS:

Operative approach does not independently predict recurrent hyperparathyroidism. The percentage decrease in IoPTH is one of many adjuncts the surgeon can use to determine which patients are best served by bilateral exploration whereas the postoperative PTH can guide follow-up after parathyroidectomy.

PMID: [24263316](#)

<http://dx.doi.org/10.1097/SLA.000000000000207>

17. [World J Surg.](#) 2014 Mar;38(3):558-63. doi: 10.1007/s00268-013-2329-6. (IF: 2.47)

The final intraoperative parathyroid hormone level: how low should it go?

[Wharry LI¹](#), [Yip L](#), [Armstrong MJ](#), [Virji MA](#), [Stang MT](#), [Carty SE](#), [McCoy KL](#).

[Author information](#)

Abstract

BACKGROUND:

In minimally invasive surgery for primary hyperparathyroidism (HPT), intraoperative parathyroid hormone (IOPTH) monitoring assists in obtaining demonstrably better outcomes, but optimal criteria are controversial.

METHODS:

The outcomes of 1,108 initial parathyroid operations for sporadic HPT using IOPTH monitoring from 1997 to 2011 were stratified by final post-resection IOPTH level. All patients had adequate follow-up to verify cure.

RESULTS:

With mean follow-up of 1.8 years (range 0.5-14.3 years), parathyroidectomy using IOPTH monitoring failed in 1.2 % of cases, with an additional 0.5 % incidence of long-term recurrence at a mean of 3.2 years (range 0.8-6.8 years) postoperatively. Operative success was equally likely with a final IOPTH drop to 41-65 pg/mL vs ≤ 40 pg/mL ($p = 1$). In the 76 patients with an elevated baseline IOPTH level that did not drop to ≤ 65 pg/mL, surgical failure was 43 times more likely than with a drop into normal range (13 vs. 0.3 %; $p < 0.001$). When the final IOPTH level dropped by >50 % but not into the normal range, surgical failure was 19 times more likely (3.8 vs. 0.2 %; $p = 0.015$). Long-term recurrence was more likely in patients with a final IOPTH level of 41-65 pg/mL than with a level ≤ 40 pg/mL (1.2 vs. 0; $p = 0.016$).

CONCLUSIONS:

Adjunctive intraoperative PTH monitoring facilitates a high cure rate for initial surgery of sporadic primary hyperparathyroidism. A final IOPTH level that is within the normal range and drops by >50 % from baseline is a strong predictor of operative success. Patients with a final IOPTH level between 41-65 pg/mL should be followed beyond 6 months for long-term recurrence.

PMID: [24253106](#)

<http://dx.doi.org/10.1007/s00268-013-2329-6>

18. [World J Surg.](#) 2014 Mar;38(3):525-33. doi: 10.1007/s00268-013-2327-8. (IF: 2.47)

Cure predictability during parathyroidectomy.

[Udelsman R¹](#), [Donovan P](#), [Shaw C](#).

[Author information](#)

Abstract

BACKGROUND:

A mathematical model for primary hyperparathyroidism (1°HPTH) was developed and embedded in software to yield intraoperative predictability curves.

METHODS:

A total of 1,754 consecutive 1°HPTH operative cases were screened to select 617 [554 single adenoma (SA), 63 multigland] patients with complete preoperative, intraoperative (pre-exploration, time 0, every 5 min post-resection), and postoperative parathyroid hormone (PTH) and calcium data. Data transformations and models were hypothesized and tested, including inverse functions, differences, half-lives, differences from projected half-lives, second-order kinetics, second-order derivatives, and time-dependent ratios. Sub-models of ratios were developed for time-dependent and initial-value combinations.

For each time segment the log odds were modeled using multiple logistic stepwise regression. An idealized model was selected, embedded in software, and installed in a laptop computer to enable intraoperative decision analyses, PTH curve plotting, and storage and transmission of data. A subsequent cohort of 100 consecutive unselected patients [81 SAs, 19 multigland (13 hyperplasia, 2 MEN1, 1 lithium, 3 double adenomas)] inclusive of seven remedial cervical explorations were tested.

RESULTS:

The model predicted an overall curative resection in 95 % of patients. In SA patients, cure was predicted in 78/81 patients with a mean probability of 99.3 % at 11.8 ± 10.4 min post-resection. In three cured patients, the software failed to suggest cure, because of a low baseline PTH or delayed clearance. The model also correctly predicted residual hyperfunctioning tissue in all tested multigland patients. All multigland patients underwent additional exploration with resection of residual disease resulting in a mean predicted cure rate of 97.9 % at 10.6 ± 7.3 min post-resection completion in 17 patients. In two patients, the software predicted a mean cure rate of 22 % due to either a low PTH baseline or delayed clearance. Overall, the software accurately predicted cure in 95 of 100 cured cases.

CONCLUSIONS:

This intraoperative prediction software expedites termination of surgery with a high level of curative confidence. Alternatively, the model accurately predicts residual disease prompting additional exploration. Because the model is based on a large set of multivariate regression curves, PTH values obtained at any post-resection sampling interval generate prediction data with far greater accuracy than existing algorithms. The software is designed for convenient operative use and can print, store, and electronically transmit probability analyses and PTH curves in real-time.

PMID: [24240672](https://pubmed.ncbi.nlm.nih.gov/24240672/)

<http://dx.doi.org/10.1007/s00268-013-2327-8>

19. [Laryngoscope](#). 2014 May;124(5):1272-7. doi: 10.1002/lary.24519. Epub 2014 Feb 10. (IF: 1.32)

Preservation of the inferior thyroïdal vein reduces post-thyroidectomy hypocalcemia.

[Lee DY](#)¹, [Cha W](#), [Jeong WJ](#), [Ahn SH](#).

Author information

Abstract

OBJECTIVES/HYPOTHESIS:

We present a novel surgical method to preserve the inferior thyroïdal vein and investigated its effectiveness in reducing postoperative transient hypocalcemia.

STUDY DESIGN:

Retrospective cohort study.

METHODS:

From January 2012 to October 2012, 109 total thyroidectomy patients with bilateral central neck dissection were included in this study. The controls were 96 sex- and age-matched patients who underwent a conventional total thyroidectomy from January 2011 to December 2011. Differences in the incidence of postoperative hypocalcemia, serial ionized calcium levels, and postoperative day 1 intact parathyroid hormone levels were analyzed using χ^2 and independent t tests.

RESULTS:

Age, male-to-female ratio, T stage, N stage, thyroid size, number of inadvertently excised parathyroid glands, operation time, number of harvested central lymph nodes, and total drainage amount were not significantly different between the groups. By saving the bilateral inferior thyroïdal veins, the incidence of both biochemical and symptomatic hypocalcemia were significantly decreased compared to the controls ($P = .044$ and $.012$, respectively). The number of patients whose postoperative day 1 intact parathyroid hormones were <10 pg/mL was significantly lower in the study group ($P = .000$). Average ionized calcium levels were significantly higher in study-group patients; among the hypocalcemic patients,

postoperative ionized calcium levels in the study group showed significantly faster recovery times than the control group.

CONCLUSIONS:

The described surgical method preserves the inferior thyroidal vein and may reduce post-thyroidectomy hypocalcemia without disturbing the extent of central lymph node harvesting. Preservation of the bilateral inferior thyroidal veins is important for reducing hypocalcemia and promoting faster recovery following thyroidectomy.

LEVEL OF EVIDENCE:

3b. Laryngoscope, 124:1272-1277, 2014.

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KEYWORDS:

Papillary thyroid carcinoma, central neck dissection, hypocalcemia, thyroid vein, total thyroidectomy

PMID: [24222097](https://pubmed.ncbi.nlm.nih.gov/24222097/)

<http://dx.doi.org/10.1002/lary.24519>

20. [World J Surg.](#) 2014 Jan;38(1):88-91. doi: 10.1007/s00268-013-2234-z. (IF: 2.47)

Ultrasound-guided methylene blue dye injection for parathyroid localization in the reoperative neck.

[Candell L](#)¹, [Campbell MJ](#), [Shen WT](#), [Gosnell JE](#), [Clark OH](#), [Duh QY](#).

Author information

Abstract

BACKGROUND:

The goal of this study was to review a single institution's experience using intraoperative ultrasound-guided (ioUSG) methylene blue dye injection for the localization and removal of enlarged parathyroid glands in patients with primary hyperparathyroidism and a history of previous neck surgery.

METHODS:

We performed a retrospective review of nine consecutive patients who underwent reoperative parathyroidectomy using ioUSG methylene blue dye injection.

RESULTS:

All patients had successful resolution of their hyperparathyroidism, with at least a 50 % decrease in intraoperative parathyroid hormone level after resection. One patient had transient recurrent laryngeal nerve paresis. There were no permanent recurrent laryngeal nerve injuries or cases of permanent hypoparathyroidism.

CONCLUSIONS:

Blue dye injection is a safe and effective method of localizing diseased parathyroid glands in the reoperative neck.

PMID: [24132819](https://pubmed.ncbi.nlm.nih.gov/24132819/)

<http://dx.doi.org/10.1007/s00268-013-2234-z>

PARATIROID

VAKA SUNUMU

1. [Intern Med.](#) 2014;53(7):743-7. Epub 2012 Mar 1. (IF: 1.05)

Pseudohypoparathyroidism Type II in a Woman with a History of Thyroid Surgery.

[Murakami T](#)¹, [Nambu T](#), [Morimoto Y](#), [Matsuda Y](#), [Matsuo K](#), [Yonemitsu S](#), [Muro S](#), [Oki S](#).

Author information

Abstract

We herein describe the case of a woman with pseudohypoparathyroidism (PHP) type II. She had a history of subtotal thyroidectomy against Graves' disease without levothyroxine supplementation and presented with stiffness, numbness and muscle cramps. Her surgical history suggested the possibility of secondary hypoparathyroidism; however, the serum intact parathyroid hormone level and results of a Ellsworth-Howard test led to the diagnosis of PHP type II. In the present case, making the differential diagnosis was challenging because two distinct disorders, such as PHP and secondary hypoparathyroidism, may exist simultaneously. This case demonstrates the need to consider the possibility of PHP type II in patients exhibiting hypocalcemia.

PMID: [24694489](#)

2. [BMJ Case Rep.](#) 2014 Mar 11;2014. pii: bcr2013203225. doi: 10.1136/bcr-2013-203225. (IF: 3.71)

Sestamibi scintigraphy for parathyroid localisation: a reminder of the dangers of false positives.

[Whitcroft KL](#)¹, [Sharma A](#).

Author information

Abstract

Surgical parathyroidectomy is the only curative treatment for primary hyperparathyroidism. As minimally invasive parathyroidectomy increases in popularity, so does reliance on preoperative parathyroid localisation techniques. One such technique is sestamibi scintigraphy. We report a case of false-positive sestamibi scintigraphy caused by follicular variant of papillary thyroid carcinoma. Subsequent completion thyroidectomy was not possible due to widespread postoperative fibrosis. This case, therefore, highlights the potential dangers of false-positive results due to thyroid carcinoma and encourages surgeons to consider this possibility when faced with intrathyroidal or otherwise ambiguous parathyroid localisation results.

PMID: [24618871](#)

<http://dx.doi.org/10.1136/bcr-2013-203225>

3. [Clin Nucl Med](#). 2014 Jan 22. [Epub ahead of print] (IF: 0.86)

Recurrent Parathyroid Carcinoma Appearing as FDG Negative but MIBI Positive.

[Alabed YZ](#)¹, [Rakheja R](#), [Novales-Diaz JA](#), [Lisbona R](#).

Author information

Abstract

A 44-year-old woman with recurrent parathyroid carcinoma (PTC) presents with moderately elevated parathyroid hormone and ionized calcium levels. Dual-phase Tc-MIBI SPECT study of the neck and chest demonstrated 2 new foci in keeping with neoplastic seeding. A restaging whole-body F-FDG PET/CT showed no evidence of FDG uptake in the region of the MIBI-positive foci or any evidence of distant metastases. The role of F-FDG PET/CT for imaging PTC is still somewhat limited because of the rarity of this disease. We present a case highlighting a potential pitfall for FDG PET in detecting PTC.

PMID: [24458176](#)

ADRENAL

DERLEME

1. [Nat Rev Endocrinol](#). 2014 May;10(5):282-92. doi: 10.1038/nrendo.2014.26. Epub 2014 Mar 18. (IF: 3.73)

Surgical management of adrenocortical tumours.

[Miller BS](#)¹, [Doherty GM](#)².

[Author information](#)

Abstract

The surgical treatment of adrenal tumours has evolved over the past century, as has our understanding of which hormones are secreted by the adrenal glands and what these hormones do. This article reviews the preoperative evaluation of patients with adrenal tumours that could be benign or malignant, including metastases. The biochemical evaluation of excess levels of hormones is discussed, as are imaging characteristics that differentiate benign tumours from malignant tumours. The options for surgical management are outlined, including the advantages and disadvantages of various open and laparoscopic approaches. The surgical management of adrenocortical carcinoma is specifically reviewed, including controversies in operative approaches as well as surgical management of invasive or recurrent disease.

PMID: [24637859](#)

<http://dx.doi.org/10.1038/nrendo.2014.26>

2. [J Endocrinol Invest](#). 2014 Jan 24. [Epub ahead of print] (IF: 1.57)

Management of adrenal cancer: a 2013 update.

[Terzolo M](#)¹, [Daffara F](#), [Ardito A](#), [Zaggia B](#), [Basile V](#), [Ferrari L](#), [Berruti A](#).

[Author information](#)

Abstract

Adrenocortical carcinoma (ACC) is a devastating tumor for either patients or their families because of short life expectancy and severe impact on quality of life. Due to the rarity of ACC, with a reported annual incidence of 0.5-2 cases per million population, progress in the development of treatment options beyond surgery has been limited. Up to now, no personalized approach of ACC therapy has emerged, apart from plasma level-guided mitotane therapy, and no simple targetable molecular event has been identified from preclinical studies. Complete surgical removal of ACC is the only potentially curative approach and has the most important impact on patient's prognosis. Despite the limits of the available evidence, adjuvant mitotane therapy is currently recommended in many expert centers whenever the patients present an elevated risk of recurrence. The management of patients with recurrent and metastatic disease is challenging and the prognosis is often poor. Mitotane monotherapy is indicated in the management of patients with a low tumor burden and/or more indolent disease while patients whose disease show an aggressive behavior need cytotoxic chemotherapy. The treatment of patients with advanced ACC may include loco-regional approaches such as surgery and radiofrequency ablation in addition to systemic therapies. The present review provides an updated overview of the management of ACC patients following surgery and of the management of ACC patients with advanced disease.

PMID: [24458831](#)

3. [J Surg Oncol](#). 2014 Jan;109(1):31-5. doi: 10.1002/jso.23461. Epub 2013 Oct 21. (IF: 2.97)

Surgical management of adrenal metastases.

[Bradley CT](#)¹, [Strong VE](#).

[Author information](#)

Abstract

In the presence of a history of cancer, adrenal masses are commonly, but not exclusively, metastases. Depending upon the status of the patient's ongoing cancer therapy, overall tumor burden, and performance score, adrenalectomy is a viable treatment option. Herein we review the prevalence, diagnostic evaluation, and selection for surgical treatment of adrenal metastases. Additional attention is paid to recent data supporting the safety and oncologic efficacy of laparoscopic adrenalectomy.

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KEYWORDS:

adrenal, laparoscopy, metastasis, surgery

PMID: [24338382](#)

<http://dx.doi.org/10.1002/jso.23461>

ADRENAL

PROSPEKTIF

ADRENAL

RETROSPEKTİF

1. [Postgrad Med J](#). 2014 Mar 31. doi: 10.1136/postgradmedj-2013-132386. [Epub ahead of print] (IF: 1.54)

Adrenal incidentalomas: management in British district general hospitals.

[Davenport E](#)¹, [Lang Ping Nam P](#), [Wilson M](#), [Reid A](#), [Aspinall S](#).

Author information

Abstract

INTRODUCTION:

Adrenal incidentalomas have become a common clinical dilemma with the increasing use and resolution of cross sectional imaging modalities.

OBJECTIVES:

This retrospective observational study examined the management of adrenal incidentalomas in district general hospitals in Northumbria and adherence to current guidelines.

MATERIALS AND METHODS:

We searched 4028 abdominal CT scans performed in Northumbria between 1 January and 31 December 2010. All patients with an incidental adrenal lesion were identified and their clinical records reviewed.

RESULTS:

75 patients with adrenal incidentalomas were identified. Of these, only 13 (17%) were referred for specialist review with a further two patients undergoing additional evaluation by the primary medical team; 80% received no biochemical investigation or follow-up. Comorbidity may have affected the decision in a proportion, but 36 of 62 patients (58%) had no comorbidities precluding additional evaluation. In contrast, all patients reviewed by an endocrine specialist were appropriately investigated and managed, the majority conservatively, with three requiring adrenalectomy for phaeochromocytoma or cortisol secreting adenomas. In the patients with an incidentaloma, comorbidities which may be attributable to autonomous adrenal cortisol or aldosterone release were higher than regional averages, suggesting possible undiagnosed functional tumours.

CONCLUSIONS:

The management of adrenal incidentalomas in British district general hospitals in Northumbria shows poor adherence to guidelines. Adherence was significantly better in those patients managed by an endocrine specialist. We suggest a pathway for the management and referral process.

PMID: [24686243](#)

<http://dx.doi.org/10.1136/postgradmedj-2013-132386>

2. [World J Surg.](#) 2014 Mar 11. [Epub ahead of print] (IF: 2.47)

Borderline Resectable Adrenal Cortical Carcinoma: A Potential Role for Preoperative Chemotherapy.

[Bednarski BK](#)¹, [Habra MA](#), [Phan A](#), [Milton DR](#), [Wood C](#), [Vauthey N](#), [Evans DB](#), [Katz MH](#), [Ng CS](#), [Perrier ND](#), [Lee JE](#), [Grubbs EG](#).

Author information

Abstract

BACKGROUND:

Adrenal cortical carcinoma (ACC) may have tumor or patient characteristics at presentation that argue against immediate surgery because of an unacceptable risk of morbidity/mortality, incomplete resection, or recurrence. This clinical stage can be characterized as borderline resectable ACC (BRACC). At present, systemic therapies in ACC can reduce tumor burden in some patients, creating an opportunity in BRACC for a strategy of preoperative chemotherapy (ctx) followed by surgery.

MATERIALS AND METHODS:

A single-institution retrospective review was conducted of all patients considered for surgery for primary ACC. Patients with BRACC treated with preoperative ctx were categorized as follows: group A, imaging suggesting a need for multiorgan/vascular resection; group B, imaging suggesting potentially resectable oligometastases; and group C, patients having marginal performance status/comorbidities precluding immediate surgery. Both the disease-free survival (DFS) and the overall survival (OS) were compared in BRACC patients treated with preoperative ctx+surgery and those who had upfront surgery.

RESULTS:

Fifty-three patients with primary ACC were considered for surgery (median follow-up: 49.9 months). Thirty-eight patients (71.7 %) had initial surgery and 15 of them (28.3 %) were considered BRACC and received preoperative therapy. Of these 15 patients, 12 (80 %) received combination therapy with mitotane and etoposide/cisplatin-based ctx, 2 (13 %) received mitotane alone, and 1 (7 %) received ctx alone. Six patients were defined as group A, 5 as group B, and 4 as group C. Thirteen (87 %) BRACC patients underwent surgical resection. BRACC patients were younger but had more advanced disease than the patients having initial surgery (stage IV in 40 vs 2.6 % [$p < 0.01$]). By Response Evaluation Criteria In Solid Tumors criteria, 5 patients (38.5 %) had a partial response, 7 (53.8 %) had stable disease, and 1 (7.7 %) had disease that progressed. Postoperative mitotane use was similar between groups ($p = .15$). Median DFS for resected BRACC patients was 28.0 months [95 % confidence interval (CI), 2.9-not attained] vs 13 months (95 % CI, 5.8-46.9) ($p = 0.40$) for initial surgery patients. Five-year OS rates were also similar: 65 % for resected BRACC vs 50 % for initial surgery ($p = 0.72$).

CONCLUSIONS:

The favorable outcome of patients with BRACC, despite more advanced stage of disease compared to those treated with surgery first, together with uncommon disease progression, suggests a benefit of neoadjuvant treatment sequencing in patients with BRACC.

PMID: [24615603](#)

3. [World J Surg.](#) 2014 Mar 11. [Epub ahead of print] (IF: 2.47)

The Role of Adrenal Scintigraphy in the Diagnosis of Subclinical Cushing's Syndrome and the Prediction of Post-surgical Hypoadrenalism.

[Ricciato MP¹](#), [Di Donna V](#), [Perotti G](#), [Pontecorvi A](#), [Bellantone R](#), [Corsello SM](#).

Author information

Abstract

BACKGROUND:

Management of subclinical Cushing's syndrome (SCS) remains controversial; it is not possible to predict which patients would benefit from adrenalectomy. In the present study we aimed to evaluate the role of adrenocortical scintigraphy (ACS) in the management of patients with SCS.

METHODS:

The medical records of 33 consecutive patients with adrenal "incidentaloma" and proven or suspected SCS who underwent ¹³¹I-19-iodocholesterol ACS between 2004 and 2010 were reviewed. Sixteen underwent laparoscopic adrenalectomy (surgical group-S-group) and 17 were medically managed (medical group-M-group). Follow-up evaluation was obtained by outpatient consultation.

RESULTS:

Overall 25 patients (15 in the S-group and 10 in the M-group) had concordant unilateral uptake at ACS (ACS+). In the S-group, the mean follow-up duration was 30.9 ± 16.1 months and, irrespective of the presence of hormonal diagnosis of SCS, in patients who were ACS+ adrenalectomy resulted in a significant increase in HDL cholesterol and decreases in body mass index, glycemia, and blood pressure (BP). One patient reduced antihypertensive medication and three others were able to discontinue it altogether. Prolonged postoperative hypoadrenalism (PH) occurred in 14 patients in the S-group. The overall accuracy in predicting PH was 93.7 % for ACS and 68.7 % for laboratory findings. In the M-group, the mean follow-up duration was 31.5 ± 26.3 months and no patient developed overt Cushing's syndrome, although ACS+ patients experienced a worsening in glycemia and diastolic BP.

CONCLUSIONS:

Adrenal scintigraphy seems the most accurate diagnostic test for SCS. It is able to predict the metabolic outcome and the occurrence of PH, identifying the patients who could benefit from adrenalectomy irrespective of hormonal diagnosis.

PMID: [24615601](#)

4. [Urol J.](#) 2014 Mar 3;11(1):1228-31. (IF: 0.94)

Cliplless laparoscopic adrenalectomy in children and young patients: a single center experience with 12 cases.

[Simforoosh N¹](#), [Ahanian A¹](#), [Mirsadeghi A¹](#), [Lashay A¹](#), [Hosseini Sharifi SH¹](#), [Soltani MH²](#).

Author information

Abstract

PURPOSE:

Laparoscopy is the gold standard approach for management of some adrenal masses in adult cases. Still there have not been many findings in case of children. We present our experience with cliplless laparoscopic adrenalectomy in pediatric cases for the first time.

MATERIALS AND METHODS:

From January 2007 to January 2011, thirteen laparoscopic adrenalectomy were performed in patients 5-18 years old. The first port (10 mm) was inserted using open approach above the umbilicus and three 5 mm trocars were inserted under direct vision. On the left side, the colon was mobilized medially, then the renal vein exposed. Adrenal vein was coagulated using bipolar cautery after separating from renal vein. No endoscopic clips were used.

RESULTS:

Eight girls and five boys with the mean age of 14.4 years old (ranging from 5 to 18 years old) underwent laparoscopic adrenalectomy. The mean operative time was 151 ± 47 (80- 240) minutes. The mean size of adrenal lesions in greatest diameter was 6.9 ± 2.4 cm (3.5 to 10). The mean hospital stay was 3.7 days (2-5) and average follow-up time was 21 months (6-27).

CONCLUSION:

Laparoscopic adrenalectomy in children and young adults is effective and safe if the cases are selected appropriately. Clipless laparoscopic approach by an expert surgeon has acceptable outcomes.

PMID: [24595929](#)

5. [Clin Med](#). 2014 Feb;14(1):16-21. doi: 10.7861/clinmedicine.14-1-16. (IF: 0.64)

Radiology reporting of adrenal incidentalomas - who requires further testing?

[Paterson F¹](#), [Theodoraki A](#), [Amajuoyi A](#), [Bouloux PM](#), [Maclachlan J](#), [Khoo B](#).

Author information

Abstract

Adrenal incidentalomas (AIs) are common and guidelines recommend testing to exclude functioning lesions and malignancy. Their increasing prevalence results in several investigations that are usually conducted in the endocrinology clinic. In 2011, we audited the prevalence and management of AIs identified on computed tomography (CT) imaging of abdomen over 1 calendar month. Consequently, a decision pathway for adrenal lesions was introduced in the radiology department of the Royal Free London Hospital. One year later, we re-audited the local practice. In total, 690 CT scans were reviewed in 2011 compared with 1,264 in 2012. In 2011, 17 (2.46%) patients with AIs were identified, and 26 (2.01%) in 2012. Of those, 1.01% in 2011 and 0.95% in 2012 had newly identified AIs. Only a few patients had been tested to exclude a functional lesion and there was inconsistent terminology in reporting adrenal lesions. Therefore, we support comprehensive reporting of AIs and a selective testing strategy.

KEYWORDS:

Adrenal incidentaloma, audit, clinical practice, endocrinology, radiology

PMID: [24532737](#)

<http://dx.doi.org/10.7861/clinmedicine.14-1-16>

6. [J Endourol](#). 2014 Mar 24. [Epub ahead of print] (IF: 2.36)

Surgical Outcome of Laparoscopic Surgery, Including Laparoendoscopic Single-Site Surgery, for Retroperitoneal Paraganglioma Compared with Adrenal Pheochromocytoma.

[Hattori S¹](#), [Miyajima A](#), [Hirasawa Y](#), [Kikuchi E](#), [Kurihara I](#), [Miyashita K](#), [Shibata H](#), [Nakagawa K](#), [Oya M](#).

Author information

Abstract

Abstract Objective: Paraganglioma (PGL) is a rare type of tumor that arises from the extra-adrenal paraganglia. A PGL tumor hypersecretes catecholamines and causes symptoms identical to those in patients with hyper-functioning adrenal pheochromocytoma (PCC). In this study, we compared the surgical outcome of laparoscopic surgery, including laparoendoscopic single-site (LESS) surgery, in patients with PCC and patients with retroperitoneal solitary PGL. Methods: The records of 49 patients with

PCC and 9 patients with unilateral retroperitoneal PGL at our institution from January 2001 to March 2013 were retrospectively reviewed. Multiple tumors, tumors suspected of being malignant preoperatively, and tumors operated on using a retroperitoneal approach were excluded from the study. Results: Each group was equivalent with respect to patient background, hemodynamic variables, and preoperative biochemical assessments, including plasma catecholamine levels and catecholamine levels in 24-hour urine samples. The mean operative time was significantly longer in the PGL group (149.4±56.5 minutes v 189.8±44.9 minutes, P=0.019). In univariate and multivariate analyses, tumor size ≥50 mm and PGL were statistically significant factors that predicted prolonged operative time. Intraoperative hypotension occurred in 15 patients in the PCC group and in 8 patients in the PGL group, and the difference was statistically significant (P=0.002). One postoperative complication in the PCC group and two postoperative complications (Clavien-Dindo grade II or higher) in the PGL group were observed, and the difference was statistically significant (P=0.012). Twenty-two patients in this series underwent LESS surgery (PCC: n=19; PGL: n=3), and there was no statistically significant difference in the perioperative outcomes between the two groups. Conclusions: The present results demonstrate that the operation for solitary extraperitoneal PGL required a longer operative time and had more hypotensive episodes and higher postoperative morbidity than the PCC group. Though the perioperative outcome of LESS surgery for PGL is comparable to that of PCC, we should treat the patients with PGL accordingly.

PMID: [24499341](#)

7. [Eur J Endocrinol](#). 2014 Feb 4;170(3):349-57. doi: 10.1530/EJE-13-0673. Print 2014 Mar. (IF: 3.64)

Seasonal variation in plasma free normetanephrine concentrations: implications for biochemical diagnosis of pheochromocytoma.

[Pamporaki C](#), [Bursztyn M](#), [Reimann M](#), [Ziemssen T](#), [Bornstein SR](#), [Sweep FC](#), [Timmers H](#), [Lenders JW](#), [Eisenhofer G](#).

Abstract

BACKGROUND:

Higher plasma concentrations of catecholamines in winter than in summer have been established, but whether this impacts the plasma concentrations of metanephrines used for the diagnosis of pheochromocytoma is unknown.

OBJECTIVE:

In this study, we examined seasonal variations in the plasma concentrations of metanephrines, the impact of this on diagnostic test performance and the influences of forearm warming ('arterialization' of venous blood) on blood flow and measured concentrations.

METHODS:

The measurements of the plasma concentrations of metanephrines were recorded from 4052 patients tested for pheochromocytoma at two clinical centers. Among these patients, 107 had tumors. An additional 26 volunteers were enrolled for the measurements of plasma metanephrines and forearm blood flow before and after forearm warming.

RESULTS:

There was no seasonal variation in the plasma concentrations of metanephrines among patients with pheochromocytoma, whereas among those without tumors, the plasma concentrations of normetanephrine were higher (P<0.0001) in winter than in summer. Lowest concentrations of normetanephrine were measured in July, with those recorded from December to April being more than 21% higher (P<0.0001). These differences resulted in a twofold higher (P=0.0012) prevalence of false-positive elevations of normetanephrine concentrations in winter than in summer, associated with a drop in overall diagnostic specificity from 96% in summer to 92% in winter (P=0.0010). Forearm warming increased blood flow and lowered (P=0.0020) plasma normetanephrine concentrations.

CONCLUSIONS:

The plasma concentrations of normetanephrine are subject to seasonal variation with a resulting higher prevalence of false-positive results in winter than in summer. Lowered plasma concentrations of normetanephrine with forearm warming suggest an effect of temperature. These results have implications for considerations of temperature to minimize false-positive results.

PMID: [24497497](#)

<http://dx.doi.org/10.1530/EJE-13-0673>

8. [Int Urol Nephrol](#). 2014 Feb 2. [Epub ahead of print] (IF: 1.34)

A retrospective study of laparoscopic unilateral adrenalectomy for primary hyperaldosteronism caused by unilateral adrenal hyperplasia.

[Jiang SB](#)¹, [Guo XD](#), [Wang HB](#), [Gong RZ](#), [Xiong H](#), [Wang Z](#), [Zhang HY](#), [Jin XB](#).

Author information**Abstract****OBJECTIVE:**

To evaluate the long-term outcomes of laparoscopic unilateral adrenalectomy for primary aldosteronism (PA) caused by unilateral adrenal hyperplasia (UAH).

METHODS:

One hundred and sixty-four patients who underwent laparoscopic unilateral adrenalectomy for UAH from January 2004 to December 2011 were entered in this retrospective analysis. Patients demographics, perioperative parameters, and follow-up results were recorded and analyzed statistically.

RESULTS:

All 164 cases suffered hypertension with biochemical evidence of hyperaldosteronism prior to operation. Hypokalemia was observed in 52/164 (37.14 %) patients. UAH was proved by multi-slice computed tomography (MSCT). All operations were completed successfully without any conversions or complications. Postoperative pathology confirmed that 164 cases were cortical nodular hyperplasia, of which 4 cases coexist with medullary hyperplasia and 7 with micro-adenoma. At the median follow-up of 48 months, hypertension was cured in 88 (53.7 %) patients, improved in 71 (43.3 %) patients, and refractory in 5 (3.05 %) patients. Hypokalemia and hyperaldosteronism were cured in all patients except re-elevation of blood pressure and plasma aldosterone in two patients 1 month after adrenalectomy.

CONCLUSIONS:

As an underestimated subtype of PA, UAH is accepted gradually. Laparoscopic unilateral adrenalectomy is nowadays the preferred approach to treat patients with PA caused by UAH. When adrenal venous sampling is not allowed, high-resolution MSCT is a reliable test for lateralization of aldosterone hypersecretion in carefully selected patients and 97 % had either cure or improvement in blood pressure control.

PMID: [24488149](#)

9. [World J Surg.](#) 2014 Jan 31. [Epub ahead of print] (IF: 2.47)

Is Adrenal Venous Sampling Mandatory before Surgical Decision in Case of Primary Hyperaldosteronism?

[Pirvu A¹](#), [Naem N](#), [Baquet JP](#), [Thony F](#), [Chabre O](#), [Chaffanjon P](#).

[Author information](#)

Abstract

BACKGROUND:

Primary hyperaldosteronism (PHA) is a cause of secondary arterial hypertension potentially curable by laparoscopic unilateral adrenalectomy. We describe the follow-up of these patients according to their medical or surgical treatment.

METHODS:

We report a retrospective single-center study of 91 patients with PHA from 1998 to 2012. Treatment was guided by computed tomography (CT) scans. Preoperative adrenal vein sampling (AVS) was performed when the CT scan did not show single solitary unilateral nodules on the adrenal glands. During the follow-up, we considered hypertension to be cured in patients with normal blood pressure without antihypertensive medication (AM), and improvement was defined by a decrease in AM.

RESULTS:

A total of 28 patients received only AM. Of the 62 patients who underwent a unilateral adrenalectomy, 46 (74 %) had an adrenal adenoma, 14 (22 %) a hyperplasia, and the adrenal gland was normal in two cases. Hypertension was cured in 24 cases (38 %), and 28 patients (45 %) showed improvement with a reduction in AM. Predictive factors for a cure were gender, age, number of preoperative AMs, preoperative arterial systolic blood pressure, and plasma renin activity. All patients who presented with hypokalemia were cured postoperatively. We performed 38 AVS and nine of these patients were operated on based on the AVS findings, with an improvement of 100 % of arterial blood pressure after surgery.

CONCLUSION:

Laparoscopic unilateral adrenalectomy for PHA cured or improved hypertension in 84 % of patients. Preoperative AVS is mandatory for surgical decision making if the CT scan shows bilateral or no lesions associated with PHA.

PMID: [24481990](#)

10. [World J Surg.](#) 2014 Jan 23. [Epub ahead of print] (IF: 2.47)

Adrenal Metastectomy is Safe in Selected Patients.

[Romero Arenas MA¹](#), [Sui D](#), [Grubbs EG](#), [Lee JE](#), [Perrier ND](#).

[Author information](#)

Abstract

BACKGROUND:

The benefit of adrenalectomy (ADX) for adrenal metastasis is not established. We evaluated outcomes after ADX for patients with adrenal metastasis.

METHODS:

We retrospectively analyzed the records of 90 patients who underwent ADX for metastatic disease. Overall survival (OS) after ADX was calculated using the Kaplan-Meier method. Clinical factors were evaluated for associations with OS using a Cox regression model, and with operative factors using the Wilcoxon two-sample or Fisher's exact test.

RESULTS:

The most common primary tumor types were melanoma (35, 39 %) and lung cancer (32, 35 %). A total of 49 (54 %) patients had isolated adrenal metastasis; 55 (61 %) underwent laparoscopic resection (LADX). Median OS was 2.46 years (range < 1 month-15 years), and 5-year survival rate was 38 % (6 % standard

error). Most patients experienced disease progression (56, 62 %) despite achieving disease-free status following ADX (78, 86 %). When compared with the open approach, LADX was associated with smaller tumor size, as well as reduced blood loss, operative time, and length of stay (all $p < 0.0001$), and no difference in OS ($p = 0.4122$) or complications ($p = 1$). Isolated adrenal bed recurrence was similar in LADX ($N = 3, 5\%$) and open ADX ($N = 2, 6\%$) ($p = 1$), and did not affect OS ($p = 0.2$). Larger tumors were associated with shorter median OS ($p = 0.0014$).

CONCLUSIONS:

ADX for metastasis can be safely performed in selected patients. Some patients with adrenal metastasis achieve prolonged survival following ADX. Compared with an open approach, LADX has no measurable oncologic disadvantage, minimizes morbidity, and should be considered when tumor characteristics permit.

PMID: [24452292](#)

11. [AJR Am J Roentgenol](#). 2014 Feb;202(2):W153-60. doi: 10.2214/AJR.13.10873. (IF: 3.25)

The value of adding (18)F-FDG PET/CT to adrenal protocol CT for characterizing adrenal metastasis (≥ 10 mm) in oncologic patients.

[Park SY](#)¹, [Park BK](#), [Kim CK](#).

Author information

Abstract

OBJECTIVE:

The objective of our study was to evaluate the value that PET/CT adds to adrenal protocol CT for characterizing adrenal metastasis in oncologic patients.

MATERIALS AND METHODS:

Sixty-eight oncologic patients with 68 adrenal masses underwent both adrenal protocol CT and (18)F-FDG PET/CT. For adrenal protocol CT, metastasis was diagnosed if a mass measured more than 10 HU on unenhanced CT and if the absolute and relative percentage washouts were less than 60% and 40%, respectively. For PET/CT, metastasis was diagnosed if FDG uptake of the lesion was equal to or greater than that of the liver. Diagnostic accuracies were compared between these two imaging modalities.

RESULTS:

The accuracy of adrenal protocol CT and PET/CT for a metastatic lesion, defined as a lesion with FDG uptake equal to or higher than that of the liver, was 85.3% (58/68) and 76.5% (52/68), respectively. However, the accuracy of PET/CT increased to 89.7% (61/68) when a lesion with high FDG uptake alone was considered a metastatic lesion. When both adrenal protocol CT and PET/CT were positive for metastasis, the accuracy increased to 91.2% (62/68), but the sensitivity decreased to 70.6% (12/17).

CONCLUSION:

Adding PET/CT to adrenal protocol CT improves the accuracy for adrenal metastasis in oncologic patients when a lesion with high FDG uptake alone is considered metastasis.

PMID: [24450697](#)

<http://dx.doi.org/10.2214/AJR.13.10873>

12. [J Clin Endocrinol Metab.](#) 2014 Jan 1;jc20133527. [Epub ahead of print] (IF: 7.02)

Long-term follow-up in adrenal incidentalomas: an Italian Multicenter Study.

[Morelli V¹](#), [Reimondo G](#), [Giordano R](#), [Della Casa S](#), [Policola C](#), [Palmieri S](#), [Salcuni AS](#), [Dolci A](#), [Mendola M](#), [Arosio M](#), [Ambrosi B](#), [Scillitani A](#), [Ghigo E](#), [Beck-Peccoz P](#), [Terzolo M](#), [Chiodini I](#).

[Author information](#)

Abstract

Context. The long-term consequences of subclinical hypercortisolism (SH) in patients with adrenal incidentalomas (AI) are unknown. **Setting-Patients.** In this retrospective multicentric study, 206 AI patients with a ≥ 5 yrs follow-up (median, range: 72.3, 60-186 months) were enrolled. **Intervention-Main Outcome Measure.** The adrenocortical function, adenoma size, metabolic changes and incident cardiovascular events (CVE) were assessed. We diagnosed SH in 11.6% of patients, in the presence of cortisol after 1mg-dexamethasone suppression test (1mg-DST) >5 $\mu\text{g/dL}$ (138 nmol/L) or ≥ 2 out of: low ACTH, increased urinary free cortisol and 1mg-DST >3 $\mu\text{g/dL}$ (83 nmol/L). **Results.** At baseline, age, CVE and type-2 diabetes (T2DM) prevalence were higher in patients with than in patients without SH (62.2 ± 11 yrs vs 58.5 ± 10 yrs; 20.5% vs 6%; 33.3% vs 16.8%, respectively, $P < 0.05$). SH and T2DM were associated with prevalent CVE (OR 3.1, 95%CI 1.1-9.0 and OR 2.0, 95%CI 1.2-3.3, respectively) regardless of age. At the end of the follow-up, SH was diagnosed in 15 patients without SH at baseline. An adenoma size >2.4 cm was associated with the risk of developing SH (SN 73.3%, SP 60.5%, $P = 0.014$). Weight, glycemic, lipidic and blood pressure control worsened in 26%, 25%, 13% and 34% of patients, respectively. A new CVE occurred in 22 patients. SH was associated with the worsening of ≥ 2 metabolic parameters (OR 3.32, 95%CI 1.6-6.9) and with incident CVE (OR 2.7, 95%CI 1.0-7.1) regardless of age and follow-up. **Conclusion.** SH is associated with the risk of incident CVE. Beside the clinical follow-up, in patients with an AI >2.4 cm also a long-term biochemical follow-up is required, for the risk of SH development.

PMID: [24423350](#)

13. [J Matern Fetal Neonatal Med.](#) 2014 Jan 29. [Epub ahead of print] (IF: 1.60)

Diagnosis and treatment of pheochromocytoma during pregnancy.

[Dong D¹](#), [Li H](#).

[Author information](#)

Abstract

Abstract Objective: To investigate the diagnosis and treatment of pheochromocytoma during pregnancy. **Materials and methods:** The data of four cases of pheochromocytoma was analyzed retrospectively. Their ages were 41, 28, 32 and 30 years old, and the four patients were at 32nd week, 12th week, 14th week and 13th week of gestation. All patients had hypertension during pregnancy, accompanied with headache, dizziness, palpitation and sweating. The 24-h urinary catecholamines (24 h UCA) increased significantly. Ultrasound and MRI confirmed the diagnosis of pheochromocytoma. **Results:** One case had Cesarean section at 32 weeks of gestation, and a healthy baby girl was delivered smoothly. Laparoscopic resection of the rightadrenal pheochromocytoma was performed at the same time, and an adrenal tumor of 7.0 cm was resected successfully. Two cases chose abortion and laparoscopic resection of pheochromocytoma was performed. One case chose abortion and refused further treatment. Histopathology confirmed the diagnosis of pheochromocytoma. **Conclusions:** For hypertension in pregnant women during pregnancy, typical paroxysmal hypertension accompanied by triad of headache, palpitation and sweating, pheochromocytoma should be considered. Early diagnosis can reduce the maternal and fetal mortality significantly. Second trimester of pregnancy is the ideal time for surgical treatment. Laparoscopic resection of pheochromocytoma during pregnancy is safe and effective.

PMID: [24397547](#)

14. [Surg Endosc.](#) 2014 Mar;28(3):816-20. doi: 10.1007/s00464-013-3274-z. Epub 2013 Dec 14. (IF:3.66)

Laparoscopic adrenal metastasectomy: appropriate, safe, and feasible.

[Chen JY¹](#), [Ardestani A](#), [Tavakkoli A](#).

[Author information](#)

Abstract

BACKGROUND:

The role of adrenalectomy in management of isolated metastatic adrenal tumors is increasingly established. Laparoscopy is becoming the preferred approach for these resections. We evaluated surgical and oncological outcomes of patients who underwent laparoscopic versus open adrenal metastasectomy and assessed the effect of such surgery on postoperative adjuvant therapy and survival.

METHODS:

We reviewed our institutional experience with adult patients who underwent an adrenal metastasectomy from 1997 to 2013. We assessed preoperative tumor size, operating room (OR) time, status of resection margin, and length of stay (LOS), as well as oncological outcomes including the use of adjuvant chemotherapy and radiotherapy within 1 year of surgery and 5-year survival. The χ^2 test, Mann-Whitney U test, and Kaplan-Meier curve were used for statistical analysis.

RESULTS:

Thirty-eight patients were identified. Lung was the primary site of malignancy (52.6 % of cases). Of the metastasectomies, 55.2 % (n = 21) were performed laparoscopically and 44.7 % (n = 17) were open. In the laparoscopic group, median tumor size was 2.6 cm versus 4.8 cm in the open group (p = 0.09). Median OR time and complication rates were similar between the 2 groups. The laparoscopic group, however, trended toward a shorter LOS (3 days laparoscopic vs. 4 days for open; p = 0.07). At 1 year, 37 % of all patients had not required any adjuvant chemotherapy or adjuvant radiotherapy.

CONCLUSIONS:

This series confirms that adrenal metastasectomy leads to favorable oncological outcomes in select patient groups, with over one-third of patients not requiring adjuvant therapy for at least 1 year after their resection. Laparoscopic approach leads to excellent oncological resection margins without increasing OR time and with a possible reduction in LOS.

PMID: [24337189](#)

<http://dx.doi.org/10.1007/s00464-013-3274-z>

15. [J Laparoendosc Adv Surg Tech A.](#) 2014 Jan;24(1):8-12. doi: 10.1089/lap.2013.0411. Epub 2013 Dec 13. (IF: 1.29)

Adrenal myelolipoma: operative indications and outcomes.

[Gershuni VM¹](#), [Bittner JG 4th](#), [Moley JF](#), [Brunt LM](#).

[Author information](#)

Abstract

BACKGROUND:

Adrenal myelolipoma (AM) is a benign lesion for which adrenalectomy is infrequently indicated. We investigated operative indications and outcomes for AM in a large single-institution series.

SUBJECTS AND METHODS:

A retrospective cohort study of prospectively collected data was conducted. Patients (≥ 16 years of age) who underwent adrenalectomy in the Division of General Surgery at Barnes-Jewish Hospital (1993-2010) were grouped by operative indication (myelolipoma versus other pathology) and compared using nonparametric tests ($\alpha < 0.05$).

RESULTS:

Sixteen patients (4.0%) had myelolipomas resected out of 402 patients who underwent adrenalectomy. Fourteen patients with suspected AM underwent adrenalectomy, 13 (93%) of whom had AM confirmed on pathology. Indications for adrenalectomy were abdominal or flank pain, large tumor size (>8 cm), atypical radiologic appearance, and/or inferior vena cava compression. Three patients with suspected other adrenal lesions had AM confirmed on final pathology. Operative approach was laparoscopic in 15 cases and open in 1 case of a 21-cm lesion. Patients who underwent laparoscopic adrenalectomy for AM (n=15) or other adrenal pathology (n=343) were similar with respect to age, gender, American Society of Anesthesiologists classification, prior abdominal operation, tumor side, operative time, conversion rate, estimated blood loss, intraoperative complications, hospital length of stay, and 30-day morbidity. However, patients with resected AM had a higher body mass index (36.5 ± 8.1 kg/m²) versus 30.1 ± 7.5 kg/m²; $P < .01$) and a larger preoperative tumor size (8.4 ± 3.0 cm versus 3.1 ± 1.7 cm; $P < .01$).

CONCLUSIONS:

Laparoscopic adrenalectomy may be appropriate for patients with a presumptive diagnosis of AM and abdominal or flank pain, large tumor size, and/or uncertain diagnosis after imaging. Outcomes and morbidity following LA for AM and other adrenal pathology appear comparable.

PMID: [24328509](https://pubmed.ncbi.nlm.nih.gov/24328509/)

<http://dx.doi.org/10.1089/lap.2013.0411>

16. [Asian J Endosc Surg](#). 2014 Jan;7(1):43-7. doi: 10.1111/ases.12076. Epub 2013 Nov 20. (IF: 0.15)

Laparoscopic adrenalectomy for metastatic adrenal tumor.

[Hirayama T](#)¹, [Fujita T](#), [Koguchi D](#), [Nishi M](#), [Kurosaka S](#), [Tsumura H](#), [Tabata K](#), [Iwamura M](#).

Author information**Abstract****INTRODUCTION:**

Treating adrenal metastases from primary malignancies with laparoscopic adrenalectomy (LA) remains controversial. The aim of this study was to evaluate the feasibility, effectiveness and efficiency of LA for solitary adrenal metastasis.

METHODS:

From November 2003 to September 2012, eight consecutive patients with adrenal metastasis were treated with LA. A retrospective study was conducted, and clinical and histological data were analyzed.

RESULTS:

All LA were successfully performed. There were no major complications, blood transfusions or conversions to open adrenalectomy. The patients included seven men and one woman with a median age of 59 years at the time of operation. Adrenal metastases were most commonly noted to be from non-small-cell lung cancer (four patients) and renal cell carcinoma (four patients). The majority of adrenal metastases were unilateral (right: one patient; left: seven patients). One patient had bilateral metastases. The median overall survival was 14 months. Four patients (two with non-small-cell lung cancer; two with renal cell carcinoma) were alive with no evidence of metastatic disease as of October 2013.

CONCLUSION:

LA is a safe and effective procedure for patients with isolated metastases. Surgical resection with LA for a solitary adrenal metastasis from primary malignancy can achieve a good prognosis.

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KEYWORDS:

Laparoscopic adrenalectomy, metastasis, survival

PMID: [24251723](https://pubmed.ncbi.nlm.nih.gov/24251723/)

<http://dx.doi.org/10.1111/ases.12076>

17. [Diagn Interv Radiol](#). 2014 Jan-Feb;20(1):65-71. doi: 10.5152/dir.2013.13144. (IF: 1.34)

Adrenal venous sampling for stratifying patients for surgery of adrenal nodules detected using dynamic contrast enhanced CT.

[Kim JY¹](#), [Kim SH](#), [Lee HJ](#), [Kim YH](#), [Kim MJ](#), [Cho SH](#).

Author information

Abstract

PURPOSE:

We aimed to assess the value of adrenal venous sampling (AVS) for diagnosing primary aldosteronism (PA) subtypes in patients with a unilateral nodule detected on adrenal computed tomography (CT) and scheduled for adrenalectomy.

MATERIALS AND METHODS:

This retrospective study included 80 consecutive patients with PA undergoing CT and AVS. Different lateralization indices were assessed, and a cutoff established using receiver operating characteristic curve analysis. The value of CT alone versus CT with AVS for differentiating PA subtypes was compared. The adrenalectomy outcome was assessed, and predictors of cure were determined using univariate analysis.

RESULTS:

AVS was successful in 68 patients. A cortisol-corrected aldosterone affected-to-unaffected ratio cutoff of 2.0 and affected-to-inferior vena cava ratio cutoff of 1.4 were the best lateralization indices, with accuracies of 82.5% and 80.4%, respectively. CT and AVS diagnosed 38 patients with aldosterone-producing adenomas, five patients with unilateral adrenal hyperplasia, and 25 patients with bilateral adrenal hyperplasia. Of the 52 patients with a nodule detected on CT, subsequent AVS diagnosed bilateral adrenal hyperplasia in 14 patients (27%). Compared to the results of combining CT with AVS, the accuracy of CT alone for diagnosing aldosterone-producing adenomas was 71.1% ($P < 0.001$). The cure rate for hypertension after adrenalectomy was 39.2%, with improvement in 53.5% of patients. On univariate analysis, predictors of persistent hypertension were male gender and preoperative systolic blood pressure.

CONCLUSION:

To avoid inappropriate surgery, AVS is necessary for diagnosing unilateral nodules with aldosterone hypersecretion detected by CT.

PMID: [24047720](#)

<http://dx.doi.org/10.5152/dir.2013.13144>

18. [Ann Surg Oncol](#). 2014 Jan;21(1):284-91. doi: 10.1245/s10434-013-3164-6. Epub 2013 Sep 18. (IF: 4.33)

Long-term survival after adrenalectomy for stage I/II adrenocortical carcinoma (ACC): a retrospective comparative cohort study of laparoscopic versus open approach.

[Donatini G¹](#), [Caiazzo R](#), [Do Cao C](#), [Aubert S](#), [Zerrweck C](#), [El-Kathib Z](#), [Gauthier T](#), [Leteurtre E](#), [Wemeau JL](#), [Vantghem MC](#), [Carnaille B](#), [Pattou F](#).

Author information

Abstract

BACKGROUND:

Laparoscopic adrenalectomy (LA) is the standard treatment for benign adrenal lesions. The laparoscopic approach has also been increasingly accepted for adrenal metastases but remains controversial for adrenocortical carcinoma (ACC). In a retrospective cohort study we compared the outcome of LA versus open adrenalectomy (OA) in the treatment of stage I and II ACC.

METHODS:

This was a double cohort study comparing the outcome of patients with stage I/II ACC and a tumor size <10 cm submitted to LA or OA at Lille University Hospital referral center from 1985 to 2011. Main outcomes analyzed were: postoperative morbidity, overall survival, and disease-free survival.

RESULTS:

Among 111 consecutive patients operated on for ACC, 34 met the inclusion criteria. LA and OA were performed in 13 and 21 patients, respectively. Baseline patient characteristics (gender, age, tumor size, hormonal secretion) were similar between groups. There was no difference in postoperative morbidity, but patients in LA group were discharged earlier ($p < 0.02$). After a similar follow-up (66 ± 52 for LA and 51 ± 43 months for OA), Kaplan-Meier estimates of disease-specific survival and disease-free survival were identical in both groups ($p = 0.65$, $p = 0.96$, respectively).

CONCLUSIONS:

LA was associated with a shorter length of stay and did not compromise the long-term oncological outcome of patients operated on for stage I/II ACC ≤ 10 cm ACC. Our results suggest that LA can be safely proposed to patients with potentially malignant adrenal lesions smaller than 10 cm and without evidence of extra-adrenal extension.

PMID: [24046101](https://pubmed.ncbi.nlm.nih.gov/24046101/)

<http://dx.doi.org/10.1245/s10434-013-3164-6>

19. [J Endourol](#). 2014 Feb;28(2):178-83. doi: 10.1089/end.2013.0488. Epub 2013 Nov 9. (IF: 2.36)

Retroperitoneal laparoendoscopic single-site adrenalectomy for pheochromocytoma: our single center experiences.

[Yuan X](#)¹, [Wang D](#), [Zhang X](#), [Cao X](#), [Bai T](#).

Author information

Abstract

OBJECTIVE:

To evaluate the feasibility and safety of retroperitoneal laparoendoscopic single-site adrenalectomy for pheochromocytoma (LESS-PHEO) and summarize our initial experience.

PATIENTS AND METHODS:

Between June 2009 and June 2013, 21 patients with adrenal pheochromocytoma underwent adrenalectomy by means of LESS-PHEO in our department. Fifty-three patients with pheochromocytoma underwent conventional retrolaparoscopic adrenalectomy (RLAP-PHEO) between March 2001 and June 2013, of whom 42 were selected as a control group for a retrospective serial case-control analysis (1:2 matched-pair cohort). In the operation, the retroperitoneal space was created and dilated by blunt finger dissection and the pneumoperitoneal pressure was maintained below 10 mm Hg. As the first step, ligation of the adrenal central vein was performed. Intraoperative hemodynamic parameters, operating time, estimated blood loss, transfusion requirement, incidence of perioperative complications, visual analog pain scale (VAPS) score, time to resumption of oral intake and ambulation, and postoperative hospitalization were compared between the groups.

RESULTS:

All the operations were technically successful, without reoperations or conversion to open procedures. The 24-hour postoperative VAPS score was lower in the LESS-PHEO group than in the control group (5 vs 7; $p < 0.001$). Despite a longer median operative time (167.4 minutes vs 125.5 minutes; $p < 0.001$), the patients in the LESS-PHEO group resumed oral intake sooner (1 day vs 2 days; $p < 0.001$), ambulated sooner (1 day vs 2 days; $p < 0.001$), and were discharged earlier (4 days vs 7 days; $p < 0.001$). No perioperative complications occurred in both the groups. No statistically significant differences in hemodynamic parameters or estimated blood loss were found between the groups.

CONCLUSION:

Although more training and practice are needed to shorten its operative time, LESS-PHEO, as performed by an experienced laparoscopic urologist, is a feasible and safe procedure associated with less postoperative pain and faster recovery.

PMID: [24004249](#)

<http://dx.doi.org/10.1089/end.2013.0488>

20. [J Endourol](#). 2014 Jan;28(1):112-6. doi: 10.1089/end.2013.0298. Epub 2013 Oct 23. (IF: 2.36)

Perioperative, functional, and oncologic outcomes of partial adrenalectomy for multiple ipsilateral pheochromocytomas.

[Gupta GN¹](#), [Benson JS](#), [Ross MJ](#), [Sundaram VS](#), [Lin KY](#), [Pinto PA](#), [Linehan WM](#), [Bratslavsky G](#).
[Author information](#)

Abstract

OBJECTIVE:

Managing patients with multiple adrenal masses is technically challenging. We present our experience with minimally invasive partial adrenalectomy (PA) performed for synchronous multiple ipsilateral pheochromocytomas in a single setting.

MATERIALS AND METHODS:

We reviewed records of patients undergoing PA for pheochromocytoma at the National Cancer Institute between 1994 and 2010. Patients were included if multiple tumors were excised from the ipsilateral adrenal gland in the same operative setting. Perioperative, functional, and oncologic outcomes of PA for multiple pheochromocytomas are shown.

RESULTS:

Of 121 partial adrenalectomies performed, 10 procedures performed in eight patients for synchronous multiple ipsilateral pheochromocytomas were identified. All eight patients were symptomatic at presentation. The mean patient age was 30.6 years, median follow up was 12 months. The average surgical time was 228 minutes, average blood loss of 125 mL, and average number of tumors removed was 2.6 per adrenal. In total, 26 tumors were removed, 24 were pathologically confirmed pheochromocytomas, while two were adrenal cortical hyperplasia. After surgery, all patients had resolution of their symptoms, one patient required steroid replacement postoperatively. On postoperative imaging, one patient had evidence of ipsilateral adrenal nodule at the prior resection site 2 months postoperatively, which was consistent with incomplete resection.

CONCLUSIONS:

Minimally invasive surgical resection of synchronous multiple pheochromocytomas is feasible with acceptable perioperative, functional, and short-term oncologic outcomes.

PMID: [23998199](#)

<http://dx.doi.org/10.1089/end.2013.0298>

ADRENAL

VAKA SUNUMU

1. [Int J Surg Case Rep.](#) 2014;5(5):253-5. doi: 10.1016/j.ijscr.2014.03.004. Epub 2014 Mar 13. (IF: 0.29)

Case report: Large adrenal ganglioneuroma.

[Kacagan C](#)¹, [Basaran E](#)², [Erdem H](#)³, [Tekin A](#)², [Kavikci A](#)², [Cam K](#)².

Author information

Abstract

INTRODUCTION:

Ganglioneuromas are localized tumors derived from neural crest tissues. Characteristically, they originate in the posterior mediastinum. Pure adrenal gangliomas are extremely rare.

PRESENTATION OF CASE:

A left adrenal mass with the size of 68mm×50mm×86mm on magnetic resonance imaging was documented in a 53-year-old female patient. Endocrine tests revealed a non-functioning adrenal mass. The actual size of the mass was macroscopically measured to be 16cm×8.5cm×6cm after the surgery. Histopathological examination indicated ganglioneuroma.

DISCUSSION:

Most adrenal ganglioneuromas can incorrectly be diagnosed as other adrenal tumors, since they are rare neurogenic benign tumors with no specific imaging properties. They have a slow growth pattern and usually asymptomatic. Our case represents a huge adrenal ganglioneuroma in a female patient with nondiagnostic flank pain. Radiological imaging showed a large adrenal mass with no differentiation from other adrenal tumors. Endocrine evaluation should be performed for such adrenal masses. Since our case had a relatively large size, open surgery was preferred. Pathology revealed the definitive diagnosis.

CONCLUSION:

This case suggests that ganglioneuromas can wrongly be diagnosed as other adrenal tumors. It is significant that a proper differential diagnosis should be performed by using hormonal and imaging techniques. Nevertheless, pathological examination is usually required for definitive diagnosis.

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KEYWORDS:

Adrenal mass, Case report, Ganglioneuroma, Incidentaloma

PMID: [24709621](#)

<http://dx.doi.org/10.1016/j.ijscr.2014.03.004>

2. [Clin Nucl Med.](#) 2014 Mar 21. [Epub ahead of print] (IF: 0.86)

Preoperative FDG PET/CT in Adrenocortical Cancer Depicts Massive Venous Tumor Invasion.

[Lapa C](#)¹, [Werner RA](#), [Brumberg J](#), [Higuchi T](#).

Author information

Abstract

A 79-year-old woman presented with abdominal pain. Ultrasound revealed an intra-abdominal mass in the left renal region. Comprehensive endocrine workup was unremarkable. The patient was referred for further

diagnostic workup. FDG PET/CT revealed a hypermetabolic mass in the left adrenal region. In addition, pathologically increased tracer uptake of 2 renal veins (the upper vein crossing in front of the aorta the lower one crossing behind the aorta) and the inferior vena cava raised the concern for malignant venous infiltration. Adrenalectomy, nephrectomy, and thrombectomy were carefully planned and performed. Adrenocortical carcinoma with tumor thrombus and caval extension was proven by histopathology.

PMID: [24662665](#)

3. [BMJ Case Rep.](#) 2014 Mar 18;2014. pii: bcr2014203794. doi: 10.1136/bcr-2014-203794. (IF: 3.71)

Adrenocortical carcinoma presenting as bilateral pitting leg oedema.

[Naffaa ME](#)¹, [Ilivitzki A](#), [Braun E](#).

Author information

Abstract

We report a case of a 54-year-old woman presented with bilateral pitting leg oedema. Initial workup for common aetiologies was unrevealing and diuretic therapy was ineffective. A CT scan of the abdomen demonstrated left adrenal mass with direct invasion of the adrenal vein and inferior vena cava with direct extension to the right atrium. Adrenocortical carcinoma was confirmed in biopsy and the patient was operated within several days. Fifteen months postoperation, the patient is doing well with good performance status and still in oncological treatment and follow-up. When the common causes of bilateral oedema have been ruled out, no delay should be experienced seeking abdominal mass with vascular invasion potential, as early diagnosis and treatment may be lifesaving.

PMID: [24642180](#)

<http://dx.doi.org/10.1136/bcr-2014-203794>

NET

DERLEME

1. [JOP](#). 2014 Mar 10;15(2):135-7. doi: 10.6092/1590-8577/2287. (IF: 1.52)

Gastroenteropancreatic neuroendocrine tumors: hormonal treatment updates.

[Khagi S¹](#), [Saif MW](#).

[Author information](#)

Abstract

Gastroenteropancreatic neuroendocrine tumors are a heterogeneous group of carcinomas that remain difficult to treat with conventional cytotoxic regimens. The 2014 American Society of Clinical Oncology (ASCO) Gastrointestinal Cancers Symposium brought us new insights into the management of gastroenteropancreatic neuroendocrine tumors. The focus of this review will serve to highlight specific Abstracts (#268 and #273) that help shed light on a novel, targeted means of treating gastroenteropancreatic neuroendocrine tumors.

PMID: [24618437](#)

<http://dx.doi.org/10.6092/1590-8577/2287>

NET

RETROSPEKTİF

1. [J Gastroenterol](#). 2014 Feb 6. [Epub ahead of print] (IF: 4.50)

Epidemiological trends of pancreatic and gastrointestinal neuroendocrine tumors in Japan: a nationwide survey analysis.

[Ito T](#)¹, [Igarashi H](#), [Nakamura K](#), [Sasano H](#), [Okusaka T](#), [Takano K](#), [Komoto I](#), [Tanaka M](#), [Imamura M](#), [Jensen RT](#), [Takayanagi R](#), [Shimatsu A](#).

Author information

Abstract

BACKGROUND:

Although neuroendocrine tumors (NETs) are rare, the number of patients with NET is increasing. However, in Japan, there have been no epidemiological studies on NET since 2005; thus, the prevalence of NET remains unknown.

METHODS:

We reported the epidemiology of gastroenteropancreatic neuroendocrine tumors (GEP-NETs) [pancreatic neuroendocrine tumors (PNETs) and gastrointestinal neuroendocrine tumors (GI-NETs)] in Japan in 2005. Here, we conducted the second nationwide survey on patients with GEP-NETs who received treatment in 2010.

RESULTS:

A total of 3,379 patients received treatment for PNETs in 2010, representing a 1.2-fold increase in the number of patients from 2005 to 2010. The prevalence was estimated to be 2.69/100,000, with an annual onset incidence of 1.27/100,000 in 2010. Non-functioning tumor (NF)-PNETs comprised 65.5 % of cases followed by insulinoma (20.9 %) and gastrinoma (8.2 %). Interestingly, the number of patients with NF-PNETs increased ~1.8 fold since 2005. A total of 19.9 % of patients exhibited distant metastasis at initial diagnosis; 4.3 % had complications with multiple endocrine neoplasia type 1 (MEN-1), and only 4.0 % had NF-PNETs associated with MEN-1. Meanwhile, an estimated 8,088 patients received treatment for GI-NETs, representing a ~1.8-fold increase since 2005. The prevalence was estimated to be 6.42/100,000, with an annual onset incidence of 3.51/100,000. The locations of GI-NETs varied: foregut, 26.1 %; midgut, 3.6 %; and hindgut, 70.3 %. Distant metastasis and complications with MEN-1 were observed in 6.0 and 0.42 % at initial diagnosis, respectively. The frequency of carcinoid syndrome in patients with GI-NETs was 3.2 %.

CONCLUSION:

We clarified the epidemiological changes in GEP-NETs from 2005 to 2010 in Japan.

PMID: [24499825](#)

2. [World J Surg.](#) 2014 Feb 4. [Epub ahead of print] (IF: 2.47)

Role of Ki-67 Proliferation Index in the Assessment of Patients with Neuroendocrine Neoplasias Regarding the Stage of Disease.

[Miller HC¹](#), [Drymoussis P](#), [Flora R](#), [Goldin R](#), [Spalding D](#), [Frilling A](#).

Author information

Abstract

BACKGROUND:

Neuroendocrine neoplasias (NEN) of the gastroenteropancreatic (GEP) system frequently present with metastatic deposits. The proliferation marker Ki-67 is used for diagnosis and to assess the prognosis of disease. The aim of our study was to evaluate the usefulness of Ki-67 % in the assessment of NEN patients with regard to their disease stage in clinical practice. Additionally, a comparative analysis of Ki-67 levels among different sites of disease was performed.

METHODS:

This retrospective study included patients with GEP NEN referred to our center from 2010 to 2012. The NEN diagnosis was confirmed by standard histopathology. Ki-67 immunohistochemistry was done on paraffin-embedded sections using an automated Leica immunohistochemistry machine. NEN grading was carried out according to European Neuroendocrine Tumor Society recommendations (low grade [G1] to intermediate grade [G2], well to moderately differentiated neuroendocrine neoplasms; high-grade [G3], moderately to poorly differentiated neuroendocrine neoplasms). Results of tumor staging and grading were correlated. In a subgroup of cases, comparative analysis of Ki-67 levels in different sites of disease was carried out.

RESULTS:

One hundred sixty-one GEP NEN patients were included in the study. Metastatic disease was seen in 46.1 % (53/115) of G1 tumors, 77.8 % (28/36) of G2 tumors, and 100 % of (10/10) G3 tumors ($p = 0.0002$). When stratified according to primary tumor site, metastatic disease was documented in 42.9 % (36/84) of patients with pancreatic NEN and in 91.9 % (34/37) of those with small intestinal primary. Stage IV metastatic disease was present in 27.8 % (32/115) and 72.2 % (26/36) of the G1 and G2 tumors, respectively, and in 90 % (9/10) of the G3 tumors. Assessment of the Ki-67 index for a subset of cases at metastatic sites as well as the primary tumor site showed discrepancies in 35.3 % cases. In 7/9 (77.8 %) patients with liver metastases, Ki-67 % was higher in the liver lesions than in the primary tumor.

CONCLUSIONS:

Patients with GEP NEN exhibiting a high Ki-67 proliferation index present with metastatic disease in the vast majority of cases. Depending upon the primary tumor site, metastases are to be expected also in tumors with low Ki-67 %, although they are considered less aggressive. Different disease sites may express heterogeneous Ki-67 levels.

PMID: [24493070](#)

NET

VAKA SUNUMU

1. [Diagn Pathol](#). 2014 Mar 12;9:54. doi: 10.1186/1746-1596-9-54. (IF: 1.99)

Duodenal gangliocytic paraganglioma, a rare entity among GEP-NET: a case report with immunohistochemical and molecular study.

[Tatangelo F](#), [Cantile M¹](#), [Pelella A](#), [Losito NS](#), [Scognamiglio G](#), [Bianco F](#), [Belli A](#), [Botti G](#).

Author information

Abstract

Gastroenteropancreatic neuroendocrine tumors are the most incident neuroendocrine tumors. In the new WHO classification (2010) the embryological derivation of each neoplastic entity is one of the most important parameters. Gangliocytic Paraganglioma is a tumor originating in the hindgut, a rare neoplasm, generally affecting the second portion of the duodenum, the majority of which are benign. Cases of gangliocytic paraganglioma with local metastasis or local recurrence have also been reported. We describe a GP in a 48-year-old caucasian male with an unusual site (4th portion of duodenum) and an interesting immunohistochemical and molecular pattern. In particular, we examined the expression of some neuroendocrinemarkers and a marker of neuronal differentiation, NeuroD1, whose expression can help to better understand the nature of this neoplasia.

VIRTUAL SLIDES:

The virtual slides for this article can be found here:

<http://www.diagnosticpathology.diagnomx.eu/vs/3720959161096807>.

PMID: [24621010](#)

<http://dx.doi.org/10.1186/1746-1596-9-54>