

Clinical and histopathological characteristics of patients with incidental and nonincidental thyroid cancer.

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Abstract

INTRODUCTION:

Thyroid nodules (TNs) are a common pathology. Their prevalence increases with age. Some of them are suspected of malignancy and qualified for surgery. Sometimes their malignant nature is detected incidentally after a surgical procedure. The aim of the study is to analyze clinical and histopathological characteristics of patients with incidental and nonincidental thyroid carcinoma (ITC vs. NITC).

MATERIAL AND METHODS:

The case records of 3,241 patients with solitary and multiple TNs who were treated consecutively between 2008 and 2014 were analyzed retrospectively. After the final selection 235 (7.25%) patients were included in the study (202 females and 33 males, mean age: 52.9 +16.5 years). Seventy-five (31.91%) cases were incidentally diagnosed and 160 (68.09%) were diagnosed before surgery.

RESULTS:

We did not observe any differences in age, gender or stage of disease at the time of diagnosis between the patients with ITC and NITC ($p = 0.366$, $p = 0.850$, $p = 0.226$ respectively). The occurrence of solitary nodules in patients with NITC was significantly higher compared to patients with ITC ($p < 0.0001$). There were no differences in histopathological types of thyroid cancer (TC). The logistic regression analysis showed that solitary TC was an independent predictor of NITC ($p < 0.0001$).

CONCLUSIONS:

There are no differences in gender, age or histopathological type of cancer in patients with ITC and NITC. Papillary TC is the predominant type in both groups. Incidence of TC in a solitary nodule is significantly higher in NITC than ITC. Solitary type of TC is an independent predictor of NITC. The prevalence of ITC is associated with multifocal type of TC.

KEYWORDS:

incidental; non-incidental thyroid carcinoma; thyroid nodules

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Diagnosis and Management of Small Thyroid Nodules: A Comparative Study with Six Guidelines for Thyroid Nodules.

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Abstract

Purpose To investigate the diagnostic performances of six guidelines used to assess thyroid nodules and to determine whether any of these guidelines identify cancers of aggressive form in this population.

Materials and Methods From March 2007 to February 2010, 4696 thyroid nodules that were 1-2 cm in 4585 patients were diagnosed as benign or malignant on the basis of cytopathologic results. Ultrasonographic examinations of the thyroid nodules were retrospectively reviewed and categorized according to the categories defined by six previously published guidelines for thyroid nodules. Diagnostic performances of each guideline for diagnosing thyroid cancer were calculated and compared by using the generalized estimating equation method for logistic regression. Multivariate regression analysis was used to analyze predictors for distant metastasis and recurrence and persistence in patients with small thyroid cancer. **Results** Of the 4696 thyroid nodules, 3652 (77.8%) were benign and 1044 (22.2%) were malignant. Followed were 873 patients who were diagnosed with small thyroid cancer, of whom 12 had distant metastasis and 66 had recurrence or persistence of disease. Specificity, positive predictive value, and accuracy were highest with criteria developed by Kim et al (83.1%, 59.6%, and 84.0%, respectively), while sensitivity and negative predictive value were highest with Thyroid Imaging Reporting and Data System developed by Kwak et al (98.8% and 98.6%, respectively; $P < .001$). Positive findings that indicated fine-needle aspiration in the guidelines did not show significant association with distant metastasis or recurrence or persistence ($P > .05$), but the study power was low to detect a difference. **Conclusion** With its high specificity and accuracy, criteria from Kim et al may be an effective guideline to use in the management of small thyroid nodules. © RSNA, 2016 Online supplemental material is available for this article.

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Thyroid imaging reporting and data system for US features of nodules: a step in establishing better stratification of cancer risk.

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Abstract

PURPOSE:

To develop a practical thyroid imaging reporting and data system (TIRADS) with which to categorize thyroid nodules and stratify their malignant risk.

MATERIALS AND METHODS:

The institutional review board approved this retrospective study, and the requirement to obtain informed consent for the review of images and records was waived. From May to December 2008, ultrasonographically (US)-guided fine-needle aspiration biopsy (FNAB) was performed in 3674 focal thyroid nodules in 3414 consecutive patients. The study included the 1658 thyroid nodules (≥ 1 cm in maximum diameter at US) in 1638 patients (1373 women, 265 men) for which pathologic diagnosis or follow-up findings were available. Univariate and multivariate analyses with generalized estimating equations were performed to investigate the relationship between suspicious US features and thyroid cancer. A score for each significant factor was assigned and multiplied by the β coefficient obtained for each significant factor from multivariate logistic regression analysis. Scores for each significant factor were then added, resulting in an equation that fitted the probability of malignancy in thyroid nodules. The authors evaluated the fitted probability by using a regression equation; the risk of malignancy was determined according to the number of suspicious US features.

RESULTS:

The following US features showed a significant association with malignancy: solid component, hypoechoogenicity, marked hypoechoogenicity, microlobulated or irregular margins, microcalcifications, and taller-than-wide shape. As the number of suspicious US features increased, the fitted probability and risk of malignancy also increased. Positive predictive values according to the number of suspicious US features were significantly different ($P < .001$).

CONCLUSION:

Risk stratification of thyroid malignancy by using the number of suspicious US features allows for a practical and convenient TIRADS.

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2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer.

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Abstract

BACKGROUND:

Thyroid nodules are a common clinical problem, and differentiated thyroid cancer is becoming increasingly prevalent. Since the American Thyroid Association's (ATA's) guidelines for the management of these disorders were revised in 2009, significant scientific advances have occurred in the field. The aim of these guidelines is to inform clinicians, patients, researchers, and health policy makers on published evidence relating to the diagnosis and management of thyroid nodules and differentiated thyroid cancer.

METHODS:

The specific clinical questions addressed in these guidelines were based on prior versions of the guidelines, stakeholder input, and input of task force members. Task force panel members were educated on knowledge synthesis methods, including electronic database searching, review and selection of relevant citations, and critical appraisal of selected studies. Published English language articles on adults were eligible for inclusion. The American College of Physicians Guideline Grading System was used for critical appraisal of evidence and grading strength of recommendations for therapeutic interventions. We developed a similarly formatted system to appraise the quality of such studies and resultant recommendations. The guideline panel had complete editorial independence from the ATA. Competing interests of guideline task force members were regularly updated, managed, and communicated to the ATA and task force members.

RESULTS:

The revised guidelines for the management of thyroid nodules include recommendations regarding initial evaluation, clinical and ultrasound criteria for fine-needle aspiration biopsy, interpretation of fine-needle aspiration biopsy results, use of molecular markers, and management of benign thyroid nodules. Recommendations regarding the initial management of thyroid cancer include those relating to screening for thyroid cancer, staging and risk assessment, surgical management, radioiodine remnant ablation and therapy, and thyrotropin suppression therapy using levothyroxine. Recommendations related to long-term management of differentiated thyroid cancer include those related to surveillance for recurrent disease using imaging and serum thyroglobulin, thyroid hormone therapy, management of recurrent and metastatic disease, consideration for clinical trials and targeted therapy, as well as directions for future research.

CONCLUSIONS:

We have developed evidence-based recommendations to inform clinical decision-making in the management of thyroid nodules and differentiated thyroid cancer. They represent, in our opinion, contemporary optimal care for patients with these disorders.

Risk factors for malignancy in patients with solitary thyroid nodules and their impact on the management.

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Abstract

BACKGROUND:

Presently it is difficult to differentiate malignancy for thyroid nodules by palpation, ultrasonography and fine-needle aspiration cytology (FNAC) at the outpatient department, especially for solitary thyroid nodule (STN). So a great emphasis should be placed on the STN.

AIMS:

The objective of this study was to investigate the predictive clinicopathological risk factors for malignancy in patients with STN and further to provide an appropriate clinical management.

MATERIALS AND METHODS:

The records were reviewed from 265 patients with STN who had undergone thyroidectomy in our hospital. All cases were classified as two independent groups in terms of the final pathological results to assess the independent risk factors using a multinomial logistic regression analysis.

RESULTS:

A multinomial logistic analysis revealed that the male gender, microcalcification and cervical lymphadenopathy were independent risk factors related to malignancy in patients with STN. The incidence of malignancy in patients with 0,1,2,3 risks was 10.71%, 26.6%, 61.43%, and 100%, respectively.

CONCLUSIONS:

Male gender, microcalcification and lymphadenopathy were independent risk factors for predicting the malignancy in patients with STN. Patients with more than two of those risk factors should be subjected to further examination or thyroidectomy. The findings may provide a simple and reasonable management for the STN.

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Study of Immunohistochemical Markers (CK-19, CD-56, Ki-67, p53) in Differentiating Benign and Malignant Solitary Thyroid Nodules with special Reference to Papillary Thyroid Carcinomas.

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Abstract

INTRODUCTION:

Solitary Thyroid Nodule (STN) has provoked increased concern owing to higher incidence of malignancy. The inter and intra observer variation in the histomorphological diagnosis of Papillary Thyroid Carcinomas (PTC) may sometimes pose a diagnostic difficulty.

AIM:

This study was undertaken to analyse immunohistochemical (IHC) markers (CK-19, CD-56, p53, Ki-67) to differentiate between benign and malignant surgically resected STN along with their utility in the identification of PTC.

MATERIALS AND METHODS:

The present cross sectional study was conducted over a period of 4 years. A technique of manual tissue array was employed for cases subjected to IHC. The primary antibodies used were CK-19, CD-56, p53 and Ki-67. Analysis of the expression of IHC markers (p53, Ki-67) to distinguish between benign and malignant STN was done. Evaluation and correlation of expression of IHC markers (CK-19, CD-56) to determine its utility in reaching definitive diagnosis and assessing prognosis of PTC was tried. Results were subjected to statistical analysis. The results were considered to be significant when the p-value <0.05.

RESULTS:

Out of the 160 cases of surgically resected STN specimens, 68 cases were non-neoplastic, 24 cases were benign and 68 cases were of malignant tumours (7 cases of follicular carcinoma (FCa), 61 cases of PTC). CK-19 was found to be a sensitive (83.61%) and a highly specific positive marker (100%) for the diagnosis of PTC. The difference in CD-56 expression between PTC and non-PTC group was found to be highly statistically significant. CD-56 was found to be a sensitive (85.86%) and specific (82.25%) negative marker in differentiating PTC from follicular lesions/neoplasms. The difference in p53 expression between the malignant and non-malignant STN cases was found to be highly statistically significant with a sensitivity and specificity 85.29% and 70.65% respectively. The statistical difference in mean Ki-67 Labeling Index (LI) was found to be significant between PTC versus FA, PTC versus non-neoplastic lesions, FA versus FCa and FVPTC versus FA.

CONCLUSION:

The panel of four IHC markers (CK-19, CD-56, p53, Ki-67) may be used for differentiating doubtful benign STN cases from malignant ones and also for definitive diagnosis of PTC along with histopathological examination.

KEYWORDS:

CD-56; CK-19; Follicular neoplasm; IHC; Ki-67; Papillary thyroid carcinoma; Thyroid neoplasm; p53

Incidence of malignancy in solitary thyroid nodules.

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Abstract

OBJECTIVES:

This study aimed to investigate the prevalence and clinical significance of solitary thyroid nodules in patients who underwent thyroid surgery.

METHODS:

A retrospective review was performed of the case notes of all adult patients who underwent thyroid surgery from January 2003 to December 2009. All patients with solitary thyroid nodules identified by ultrasonography were included.

RESULTS:

In total, 225 patients underwent thyroid surgery. The prevalence of solitary thyroid nodules was 27.1 per cent (61 out of 225 patients). Seventy-two per cent of patients were women and the mean age at presentation was 52 ± 16 years. In all, 75.4 per cent of solitary nodules had neoplastic pathology and the malignancy rate was 34.4 per cent. The sensitivity and specificity of fine needle aspiration cytology for neoplasm detection were 73.9 per cent and 80.0 per cent, respectively. There was no association between the various ultrasonography parameters and malignancy risk ($p > 0.05$).

CONCLUSION:

Solitary thyroid nodules should be investigated thoroughly with a high index of suspicion because there is a high probability (34.0 per cent) of malignancy.

KEYWORDS:

Cytology; Incidence; Neoplasms; Thyroid Gland; Ultrasonography

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