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ORIGINAL ARTICLE

Risk of malignancy in thyroid nodules with atypia of undetermined significance☆

Yolanda López Vázquez[a,*], Manuel Penín Álvarez[a], Pilar San Miguel Fraile[b], María Barragáns Pérez[a]

[a] *Servicio de Endocrinología y Nutrición, Complejo Hospitalario Universitario de Vigo (EOXI Vigo), Hospital Meixoeiro, Vigo, Pontevedra, Spain*
[b] *Servicio de Anatomía Patológica, Complejo Hospitalario Universitario de Vigo (EOXI Vigo), Hospital Meixoeiro, Vigo, Pontevedra, Spain*

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Fine-needle aspiration;
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Abstract
Introduction: Prevalence of malignancy among cytologies with atypia of undetermined significance (Bethesda category III) is variable, ranging from 5% to 37% in the different studies. There is thus no agreement on whether FNA should be repeated or surgery should be performed in these cases. The aim of this paper was to analyze the risk of malignancy in order to establish the most adequate clinical approach.
Material and methods: We analyzed 431 thyroid cytologies performed at our hospital since the introduction of Bethesda System (from January 2011 to September 2014), of which 32 (7.1%) were labeled as category III. The second FNA, when performed, and the histological results after surgery were reviewed.
Results: Twenty-three patients (82.1%) underwent thyroidectomy, while repeat FNA was performed in the remaining 5 patients (17.9%). Cytology was reported as benign (category II) in 3 (60%) and as unsatisfactory (category I) in 2 (40%), who underwent thyroidectomy. Thirteen of the 25 (52%) surgical thyroid specimens showed no malignancy, while differentiated thyroid carcinomas were found in 12 (48%): papillary cancer in 10 (83.3%), follicular cancer in 1 (8.3%), and papillary cancer with follicular areas in 1 (8.3%). The risk of malignancy of Bethesda category III in our patients was 42.9–48.0%.
Conclusion: We recommend thyroidectomy for all patients with cytological Bethesda category III.

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* Corresponding author.
E-mail address: yolili_84@hotmail.com (Y. López Vázquez).

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Riesgo de malignidad de los nódulos tiroideos con atipia de significado incierto

Resumen
Introducción: La atipia de significado incierto o lesión folicular de significado incierto (categoría III del sistema de Bethesda, 2007) tiene una prevalencia de malignidad variable en los distintos estudios (5–37%), y por tal motivo no existe en la actualidad un consenso sobre el manejo adecuado de este resultado: repetir PAAF o cirugía. El objetivo del siguiente trabajo es analizar el riesgo de malignidad en nuestro medio de dichos nódulos para determinar la actitud clínica más adecuada.
Material y métodos: Desde la implantación del sistema Bethesda en el Hospital Xeral de Vigo (enero de 2011) hasta septiembre de 2014 se analizaron 431 citologías, de las cuales el 7,1% (32/430) fueron etiquetadas de categoría III.

Se revisó el resultado de la segunda citología cuando se repitió la PAAF y el resultado histológico posquirúrgico de los operados.
Resultados: En 23 (82,1%) pacientes se indicó la realización de una tiroidectomía y en los 5 restantes (17,9%), la repetición de la PAAF. La citología resultó benigna (categoría II) en 3 de ellos (60%) e insatisfactoria (categoría I) en 2 (40%).

De los 25 pacientes tiroidectomizados, incluidos los 2 operados tras el resultado de la segunda PAAF, las piezas quirúrgicas de 13 (52%) fueron benignas y las de otros 12 (48%) demostraron un carcinoma diferenciado de tiroides: 10 (83,3%) con cáncer papilar de tiroides, uno (8,3%) con cáncer folicular de tiroides y uno (8,3%) con cáncer papilar con áreas de patrón folicular.

En nuestros pacientes el riesgo de malignidad de las citologías calificadas como categoría III está entre el 42,9 y el 48%.
Conclusión: Recomendamos que todos los pacientes con citologías categoría III de Bethesda se sometan a tiroidectomía.

Introduction

The estimated annual incidence of thyroid nodule in Spain is 0.1%. The essential procedure for thyroid nodule assessment is fine-needle aspiration (FNA), which allows for identifying as benign 60–70% of nodules and avoids unnecessary surgery.[1–3]

For the procedure to be cost-effective, the cytological report should be associated to a specific recommendation for clinical management.[2,4] The Bethesda System for Reporting Thyroid Cytopathology (2007) unifies the terminology and morphological criteria for thyroid nodules and standardizes FNA results into six categories.[2] Category III (atypia of undetermined significance or follicular lesion of undetermined significance) includes cytologies with features that are insufficient to suspect malignancy but prevent their classification as benign. Although conceived as a last resource stratum, which should not represent more than 7% of all cytological reports,[3,5] its prevalence has increased since this consensus was implemented[6].

Prevalence of malignancy associated to this category varies according to different studies,[4,5] which has caused controversy as to the adequate management of this cytological diagnosis. The Bethesda system, assuming a 5–15% prevalence of malignancy, recommends a repeat FNA in 2–3 months and surgery in the event of two consecutive results of atypia[2]; the American Thyroid Association (ATA) recommends surgery if Hürtle cells are found, and ^{18}FDG-PET in all other cases[7]; the American Association of Clinical Endocrinologists, the Associazione Medici Endocrinologi, and the European Thyroid Association (AACE/AME/ETA) group Bethesda categories III and IV in the same level and recommend surgery in most cases.[8]

A recent report estimates a risk of malignancy ranging from 26% and 37% in category III cytologies, similar to that shown in category IV cytologies (15–30%). If this prevalence is confirmed, surgery would be advised in all cases.

The purpose of this study was to assess the risk of malignancy of thyroid nodules classified as category III according to the Bethesda system.

Patients and methods

A review was conducted for all thyroid cytologies performed at the Complexo Hospitalario Universitario de Vigo from January 2011 (when the Bethesda system was implemented at the hospital) to September 2014, selecting those labeled as atypia of undetermined significance (category III). Pending results of a procedure (repeat FNA or surgery) at the time of analysis were excluded.

Variables collected from each patient included age, sex, nodule size, ultrasonographic characteristics, histological confirmation, and waiting time until surgery or repeat FNA. Age, sex, and ultrasonographic criteria for malignancy (hypoechogenicity, microcalcifications, irregular margins, increased intranodal vascularization, and absent halo) were compared between benign lesions and thyroid carcinoma.

Results are given in the text as mean ± standard deviation. Comparisons were made using SPSS version 17 statistical software, performing a Student's *t* test for quantitative variables and a Chi-square test for qualitative variables (significant $p < 0.05$).