

Review Article

Epidemiological and Pathological Profile of Thyroid Carcinoma at the Department of Pathological Anatomy: About 159 Cases with a Review of the Literature

I. Boujguenna¹, S. Amouzoune¹, N. Mansouri¹, H. Nouri², A. Raji², N.CH. Ganouni³, FE. Hazmiri¹, H. Rais¹

¹Department of Pathological Anatomy, FMPM-UCAM-CHU Mohamed VI, Marrakech, Morocco

²Department of Otolaryngology, FMPM-UCAM-CHU Mohamed VI, Marrakech, Morocco

³Department of Radiology, FMPM-UCA-CHU Mohamed VI, Marrakech, Morocco

***Corresponding author:** Imane Boujguenna, Pathology Anatomy Service, FMPM-UCAM-CHU Mohamed VI, Marrakech, Morocco. Email: imane.boujguenna1992@gmail.com

Citation: Boujguenna I, Amouzoune S, Mansouri N, Nouri H, Raji A, et al. (2018) Epidemiological and Pathological Profile of Thyroid Carcinoma at the Department of Pathological Anatomy: About 159 Cases with a Review of the Literature. Ann med clin Oncol: AMCO-104. DOI: 10.29011/AMCO-103.000104

Received Date: 19 November, 2018; **Accepted Date:** 26 November, 2018; **Published Date:** 03 December, 2018

Abstract

Thyroid carcinomas are rare malignant tumors, representing 1% of the malignant pathology. They are generally of good prognosis, and have clinical and evolutionary aspects varied according to their histological origin. The purpose of our work is to describe the epidemiological and pathological profiles of thyroid carcinomas. This is a retrospective study of 159 cases of thyroid carcinoma diagnosed at the Pathology Anatomy Unit of the MOHAMED VI CHU of MARRAKECH over a period of 13 years from 2004 to 2017. There were 130 women and 29 men, the average age was 42.1 years with extremes ranging from 16 to 90 years, a cervical mass was the main reason for consultation. Total thyroidectomy was performed in 107 cases, while lobectomies and lobectomy were performed in 52 cases. The right lobe was the most frequent site in 84 cases, the tumor was encapsulated in 121 cases with membrane crossing in 83 cases. The extemporaneous examination was performed in 16 cases of which 11 were in favor of papillary carcinoma of the thyroid confirmed after inclusion in paraffin, suspicious lesions of malignancy in 4 cases whereas it was negative in a case of microvesicular adenoma. The histological study based on the classification of thyroid tumors proposed by the WHO (2016) revealed the presence of papillary carcinoma in 101 cases, vesicular carcinoma in 48 cases, carcinoma poorly differentiated in 4 cases, 3 cases of anaplastic carcinoma and 3 cases of medullary carcinoma. Thyroid carcinomas are rare malignant tumors account for 1% of cancers. During the last twenty years, the development of diagnostic means and changes in the management of thyroid diseases have led to an increase in these cancers, especially papillary micro carcinomas. The correct attitude requires a good correlation anatomoclinic to ensure proper care of patients.

Keywords: Anatomopathology; Thyroid Carcinomas

Introduction

Thyroid carcinomas are rare malignant tumors of epithelial origin they represent 1% of the cancers, on the other hand they are the most frequent endocrine tumors. Thyroid carcinomas are classically of good prognosis, they are most often fortuitous finding, represented in the majority of cases in the form of anterior cervical nodule. Their diagnosis is based on the anatomopathological examination of the operative specimen based on the histological classification of thyroid tumors proposed by the World Health

Organization (WHO 2017) They are the subject of increasing attention justified by: The Chernobyl accident which gave to this cancer a dramatic image maintained by the media, and Recent advances in diagnostic and surveillance tools As well as, Current advances in molecular biology enabling the establishment of the identity card of these tumors. In practical terms, five major entities are described: papillary carcinoma, vesicular carcinoma, medullary carcinoma, poorly differentiated carcinoma and anaplastic carcinoma. The purpose of our work is to describe the epidemiological and pathological profiles of thyroid carcinomas.

Material and methods

We carried out a retrospective study carried out at the Mohammed VI University Hospital of Marrakech, within the pathology department on 159 cases and spread over a period of 10 years from January 2004 to December 2017. Were included in our study, all patients with thyroid carcinoma, confirmed by the anatomic-pathological study of the operative specimen, based on the histological classification of thyroid tumors proposed by the WHO World Health Organization 2004 and 2017. Secondary malignancies of thyroid localization, primary malignant tumors invading the thyroid gland, primary malignant tumors of the thyroid, non-epithelial origin and benign thyroid tumors were excluded.

Results

There were 130 women and 29 men, the average age was 42.1 years with extremes ranging from 16 to 90 years, a cervical mass was the main reason for consultation. Total thyroidectomy was performed in 107 cases while lobectomies and lobeisthmectomies were performed in 52 cases. The right lobe was the most frequent location in 84 cases. On gross examination (Figure 1).



Figure 1: Macroscopic image of a fleshy nodule, well limited and encapsulated with haemorrhagic changes [Iconography of the pathological anatomy service CHU Mohammed VI Marrakech].

The average collection weight was 151,32 g. The size of the neoplasm varied between 1 mm and 10 cm with an average of 35 mm the tumor was encapsulated in 121 cases with invasion of the nodular capsule in 83 cases, and crossing the thyroid capsule in 38%. In 71% of our cases the tumor was fleshy. FNA was performed in 59 patients, and papillary carcinoma was suspected

in all 59 cases. The extemporaneous examination was performed in 16 cases of which 11 were in favor of papillary carcinoma of the thyroid confirmed after inclusion in paraffin, suspicious lesions of malignancy in 4 cases whereas it was negative in a case of microvesicular adenoma. The histological study based on the classification of thyroid tumors proposed by WHO 2004 and 2017 (Table 1) revealed the presence of papillary carcinoma⁵ (Figure 2) in 101 cases, vesicular carcinoma (Figure 3) in 48 cases, poorly differentiated carcinoma (Figure 4) in 4 cases, 3 cases of anaplastic carcinoma and 3 cases of medullary carcinoma (Figure 5). The results of the analysis of the operative specimens of all patients in search of poor prognostic factors, namely capsular intrusion, vascular invasion (Figure 6) and lymph node involvement (Figure 7), are shown in the (Table 2).

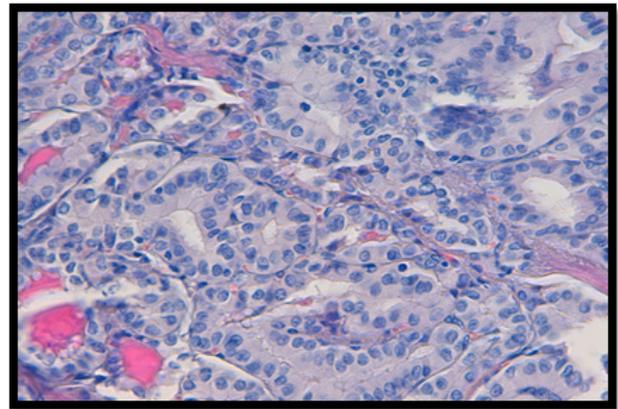


Figure 2: This histological section presents a non-encapsulated papillary microcarcinoma 0.4 cm in size at high magnification, the tumor cells are equipped with cores atypical sites of papillary carcinoma, type of overlap, grooves and incisures [HE × 40].

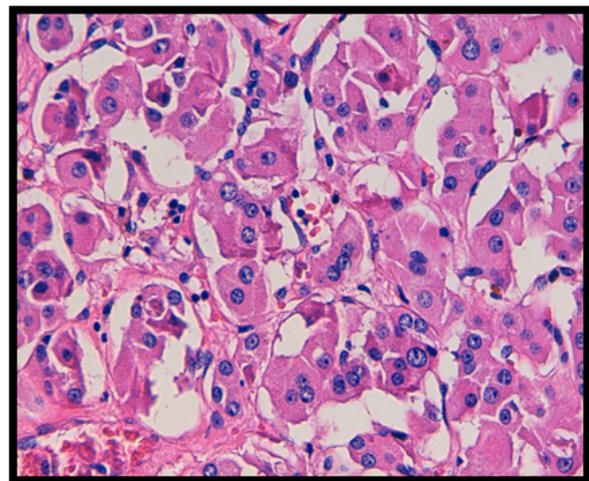


Figure 3: Vesicular carcinoma with abundant, eosinophilic and granular cytoplasm [HE × 40].

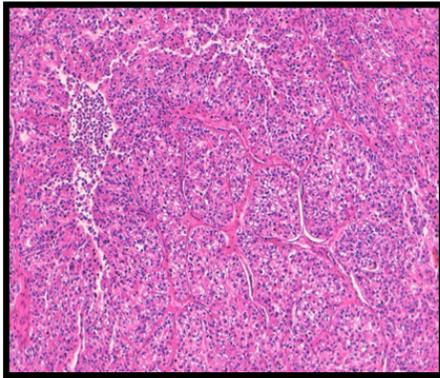


Figure 4: Histological aspect of an undifferentiated and infiltrating carcinoma of lobulated architecture (insular variant) [HE × 40].

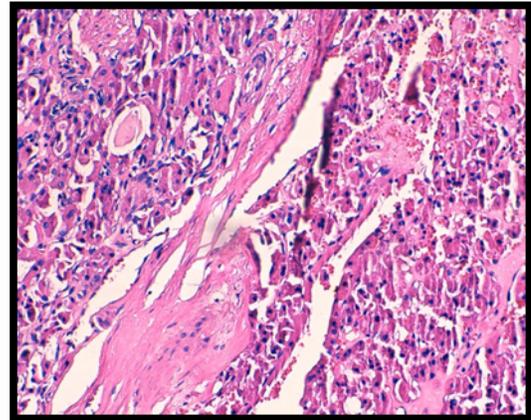


Figure 7: Presence of capsular intrusion in vesicular carcinoma [HE × 20].

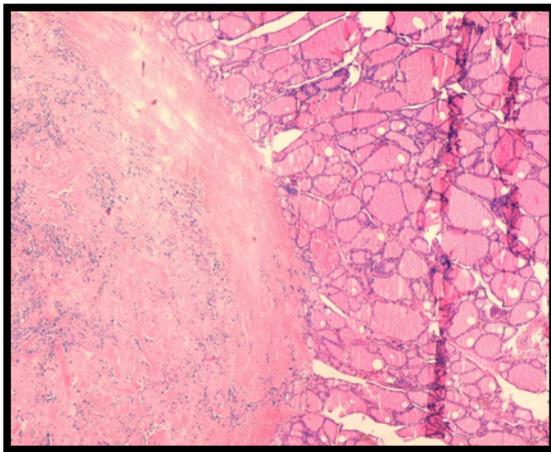


Figure 5: Histological section of a medullary carcinoma shows the junction between blue medullary carcinoma and healthy thyroid parenchyma. Red Arrow [HE × 40].

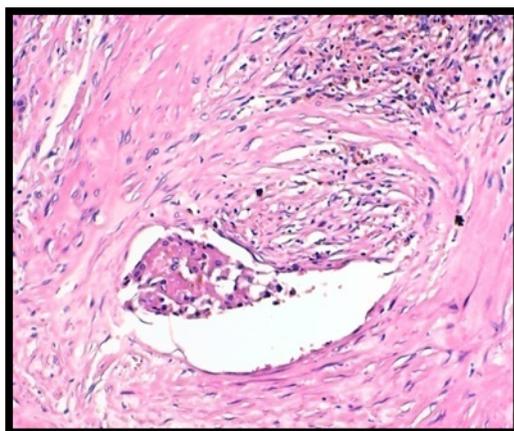


Figure 6: Presence of a capsular vascular embolus within a vesicular carcinoma [HE × 20].

Histological type	Histological variants	Number of patients	Total number
Papillary carcinoma	Microcarcinoma	30	101
	NIFT-P	2	
	Classic	35	
	With vesicular architecture	31	
	Diffuse sclerosant	2	
	Oncocytic cells	1	
Vesicular carcinoma	with minimal invasion	42	48
	Oncocytic cells	6	
Poorly differentiated		4	
Anaplastic		3	
Medullary		3	
Total		159	

Table 1: Histological Types of Thyroid Carcinomas in our Study.

Factors of poor prognosis	Nombre
Invasive vascular	36
Invasive ganglion	5
Capillary invasion	83

Table 2: Distribution of patients according to factors of poor histological prognosis.

At the end of this assessment, our patients were classified according to the TNM classification (tumor-node-metastasis) of the “International Union Against Cancer” (UICC) of 2010, the initial assessment has identified 2 pulmonary metastases and bone (Figures 8,9). The immunohistochemical study in our work

used the following antibodies: As Thyroid Tissue Markers: Anti-Thyroglobulin Antibody and Anti-TTF1 Antibody, As Malignancy Marker: Anti-HMBE1 Antibody and Anti-Thyrocalcitonin Antibody, the latter was positive in the 3 cases of medullary cancers and they were negative in the 3 other cases then the diagnosis of anaplastic carcinoma was posed. Two cases of papillary carcinoma benefited from a BRAF gene mutation search which was positive.

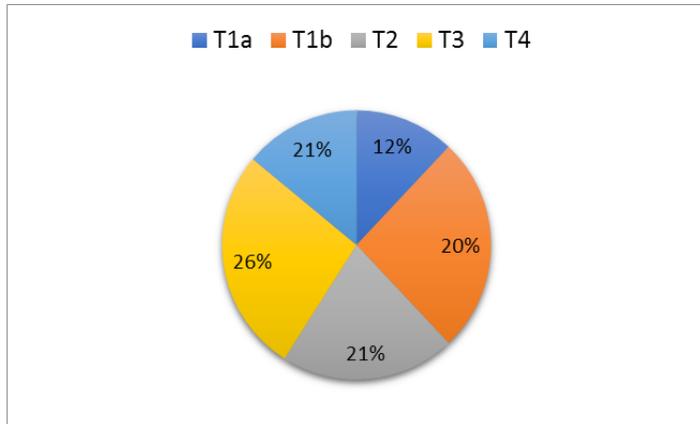


Figure 8: Distribution of patients according to the TNM (T) classification.

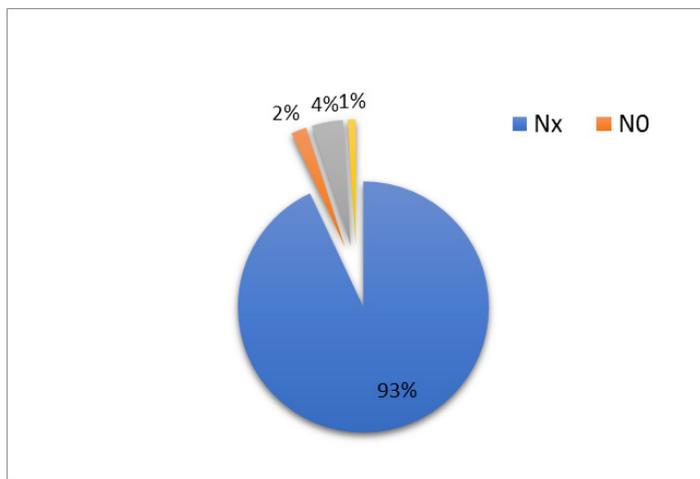


Figure 9: Distribution of patients according to the TNM (N) classification.

Discussion

Differentiated carcinomas of the thyroid follicular strain account for more than 90% of thyroid cancers. They are of good prognosis, and include: Papillary forms (80% of cases), vesicular forms (10% of cases) and rare histological forms that have a poorer prognosis, notably poorly differentiated cancer and cancer with massive angio-invasion [1-3]. Medullary carcinomas can be sporadic or occur in a family context including multiple endocrine

neoplasia type 2. These cancers require specific management because of their potentially hereditary and they remain of good prognosis. Anaplastic carcinomas are of poor prognosis requiring emergency management. The treatment depends on the anatomopathological type and changes according to different European and American consensus. Well differentiated papillary and follicular carcinomas, are treated by total thyroidectomy, irathérapie and a thyroid hormone therapy for life. Anaplastic carcinoma is treated by surgery, chemotherapy and radiotherapy [4]. Our study shows a predominance of women This result is consistent with that of Moroccan and world series. The average age also corresponds to that of the other studies [1,5,6], it is in the 4th decade for all histological types combined. The distribution of the histological classes, testifies to the very strong predominance in frequency of cancers differentiated > 93% of all the thyroid carcinomas and among them papillary carcinoma remains by far the most frequent, in the literature since it varies from 65 to 80% of all thyroid carcinomas. Vesicular carcinoma is, in order of frequency, the second carcinoma of the thyroid after carcinoma. papillary, with a frequency of about 30% of differentiated cancers, 1.8% of medullary carcinoma in our series and 4.4% for BOUGARAN. Anaplastic carcinoma of the thyroid, also referred to as undifferentiated carcinoma, is a rare variety of thyroid carcinomas. It represents in our series 1.8% of the cases. For CHOMETTE the frequency of anaplastic carcinoma was 7%. Indeed, the iodine deficiency, raging in Africa, is incriminated in the occurrence of this type of cancer [1,5]. Papillary carcinomas, meanwhile, had a frequency of 63% in our study, placing it alongside recent world series of Xiang [7] (92.8%) and Sassolas [8] (86.5%), which have all as a common point a large proportion of microcarcinomas (36% in our study, 35.7% in Xiang and 36% in Sassolas), revealed by the pathological examination on the occasion of thyroidectomies for benign pathologies. Virtually all our patients have the benefit of total thyroidectomy in one or two stages. The recommendations of the American Thyroid Association (ATA) [9,10] are in favor of this surgical practice, not only for tumors greater than 1 cm, but also for tumors smaller than 1 cm, given the presence of certain associated factors, which may encourage their recurrence; among them: age > 45 years, plurifocal microcarcinomas (16% in our study).

The existence of diagnostic difficulties justified the search for diagnostic aids in the use of immunohistochemistry, allowing. The diagnosis of malignancy, tumor aggressiveness and potential therapeutic efficacy. The demonstration of the responsibility for a single gene in the inheritance of clinical entities as different as isolated F-CMTs and CMTs associated with type IIa and IIb NMS was a big surprise. Indeed, the RET gene, located in the centromeric region of chromosome 10, was already known to be susceptible to major structural changes at the origin of genetic forms of Hirschsprung's disease or in the development of papillary differentiated thyroid carcinomas [8,10]. With regard to papillary

carcinoma, rearrangements of the RET gene were identified in the majority of radiation-induced CPs and less systematically in the other CPs. The recent discovery of BRAF gene mutations exclusively in CPs and some undifferentiated forms seems to open new avenues. The same was true for PAX8 PPAR gamma rearrangements in CVs or for certain RAS mutations in both papillary and vesicular cancers and in poorly differentiated cancers.

Conclusion

Most of our patients presented with an anterior cervical mass. The profile of the patients of our series, approaches the epidemiological profile of the patients studied in the literature with a clear female predominance. The prevalence of papillary microcarcinomas testifies to the sensitivity of the anatomopathological diagnostic means in our formation, and suggests that the frequency of thyroid cancer is underestimated in the general population. Their management involves multidisciplinary, but the general practitioner is particularly involved in the diagnosis and participates in surveillance. The establishment of a cancer registry in our region is recommended as a first step in the fight against cancer.

Reference

1. Aouad N, Ghfir I, Missoum F, Rahali J, Guerrouj H, et al. (2008) Aspects épidémiologiques du cancer différencié de la thyroïde (médullaire exclu) au Maroc. *MED NUCL* 32: 580-584.
2. Rakotoarisoa AH, Ralamboson SA, Rakotoarivelo RA, Raharisolo CV, Rakouth A, et al. (2010) Thyroid cancers in Madagascar. *Bull Soc Pathol Exot* 103: 233-237.
3. Leenhardt L, Grosclaude P (2011) Epidemiology of thyroid carcinoma over the world. *Ann Endocrinol (Paris)* 72: 136-148.
4. Peix JL, Lifante JC (2011) Cancer Thyroïdien. In: Morere JF, Mornex F, Soulieres D. *Thérapeutique du cancer*. Paris: Springer 2011: 655-669.
5. Gomez-Segovia I, Gallowitsch HJ, Kresnik E, Kumnig G, Igerc I, et al. (2004) Descriptive epidemiology of thyroid carcinoma in Carinthia, Austria: 1984-2001 Histopathologic features and tumor classification of 734 cases under elevated general iodination of table salt since 1990: population-based age-stratified analysis on thyroid carcinoma incidence. *Thyroid* 14: 277-286.
6. Rego-Iraeta A, Perez-Mendez LF, Mantinan B, Garcia-Mayor RV (2009) Time trends for thyroid cancer in northwestern Spain: true rise in the incidence of micro and larger forms of papillary thyroid carcinoma. *Thyroid* 19: 333-340.
7. Xiang J, Wu Y, Li DS, Shen Q, Wang ZY, et al. (2010) Actual epidemiology of thyroid cancer in eastern China Right. *J Chir* 147: 57-60.
8. Sassolas G, Hafdi-Nejjari Z, Remontet L, Bossard N, Belot A, et al. (2009) Thyroid cancer: is the incidence rise abating? *Eur J Endocrinol* 160: 71-79.
9. Merhy J, Driscoll HK, Leidy JW, Chertow BS (2001) Increasing incidence and characteristics of differentiated thyroid cancer in Huntington, West Virginia. *Thyroid* 11: 1063-1069.
10. Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, et al. (2009) Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid* 19: 1167-1214.