



DIAGNOSTIC AND THERAPEUTIC STRATEGY IN THE MANAGEMENT OF DIFFERENTIATED THYROID CARCINOMAS: ABOUT 32 CASES

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ABSTRACT

The differentiated thyroid carcinoma is the most common endocrine cancer. Its incidence is increasing in most countries including Morocco. Our work was a retrospective study of 32 DTC's cases, gathered from 630 thyroid surgical gestures in the ENT department of Military Hospital Moulay Ismail of Meknes, over 8 years from January 2007 to December 2014. The aim of our study was to expose different epidemiological, diagnostic, therapeutic and evolutionary aspects of DTC. Our series included 21 women and 11 men. Thyroid nodule was the main reason of consultation (90.5%). On ultrasound, the nodules were respectively solid and hypoechoic in 78% and 82% of cases. We respectively performed a total and partial thyroidectomy totalized after final histological examination in 34.37% and 65.63 % of cases, which we respectively associated to central and lateral neck dissection in 62.62% and 21.87% of cases. The final histological examination respectively revealed papillary and vesicular carcinoma in 81.25% and 18.75% of cases. Lymph node involvement was found in 28.12% of cases. Radioiodine remnant ablation interested 66% patients. Three cases of lymph node recurrence were detected. There is a need of standardized diagnostic and therapeutic strategy with a view of an appropriate management of DTC.

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INTRODUCTION

The differentiated thyroid carcinoma (DTC) is the most common endocrine cancer, Although for the most part, It represents less than 1% of all malignant diseases [1]. The increase of the incidence of DTC observed over decades in several countries including Morocco (0.6 / 100 000) has been related to an improvement of the diagnosis of small papillary cancers, enabled by ameliorated practices [2]. Recent advances has been achieved in many disciplines as cytology, ultrasound, thyroglobulin dosage, and the use of recombinant human Thyroid Stimulating Hormone. New consensus has approached diagnostic and therapeutic guidelines to adopt and the importance of individualized attitude for each patient [1]. The aim of this study was to present the different epidemiological, diagnostic, therapeutic and evolutionary aspects of DTC in our country.

Patients and Methods

Type of study

Our work consisted of a retrospective study of 32 cases of DTC, gathered from a total number of 630 thyroid surgical

gestures, in the ENT department of the military Hospital Moulay Ismail of Meknes, over a period of 8 years, from January 2007 to December 2014.

Inclusion criteria

The study included patients with DTC of papillary or vesicular type confirmed by histological study and based on the histological classification of thyroid tumors proposed by The World Health Organization (WHO) in 2004.

Exclusion criteria

Our work excluded patients with other histological forms of thyroid cancer, regional cancers invading thyroid, secondary metastasis, benign tumors and patients whose medical records did not include the clinical, para-clinical and evolutionary information required for our study.

RESULTS

The population being studied included 21 women (66%) and 11 men (34%) with a sex ratio F / M of 1.9. The average age of our patients was 50 years with extremes from 20 to 70 years. The most affected range age was between the ages of 40 and 59 years (Table 1). In our series, 12.5% of patients had

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a family history of nodular goiter, and no personal history of thyroid surgery or cervical irradiation was noted.

Table 1 Patient's distribution according to range of age

Range of age (years)	Number of cases	Proportion in (%)
20-29	4	12.5
30-39	4	12.5
40-49	8	25
50-59	9	28.13
60-69	5	15.62
70-79	2	6.25
Total	32	100

Thyroid nodule was the main reason for consultation (90.5%) with an average timeline of consultation of 52 months. Clinical examination found nodule of firm consistency in 70% of the cases, a multi nodular goiter in 20% of the cases and a homogeneous goiter in 10% of the cases. It also revealed clinical signs of hyperthyroidism in 15.62% of cases, signs of compression in 18.75% of cases, palpable cervical lymphadenopathy in 12.5% of cases, bone metastases at the humeral and pelvic areas in 2 patients. Cervical ultrasound revealed multi nodular goiter in 66% of cases, a single nodule in 53% of cases. The nodules found were hypoechoic in 82% of cases, solid in 78% of the cases and less than 2 cm in 64% of the cases. Nodular contours have been explored only in 40% of cases, they were irregular in 40% of cases and unclear in 20% of cases. Microcalcifications were found in 15.6% of cases and nodular increased vascularity in 36% of cases. Suspicious cervical lymphadenopathy were found in 18.75% of cases. Cervical scanner was performed in 5 cases of large goiters with compression signs (Fig 1).



Figure 1 CT scan in axial sections showing a vesicular carcinoma with tracheal compression.

Fine-needle aspiration was performed for 13 patients, diagnosed as malignant or at least suspect in 69% of cases, noncontributory in 23% of cases and mislabelled as benign in 8% of cases. In the thyroid scintigraphy required for patients with hyperthyroidism, 14% of our patients had cold nodules and 2% had hot ones. Total thyroidectomy was performed for all patients according to two modalities: total thyroidectomy in 34.37% of the cases (Fig. 2), partial thyroidectomy totalized after final histological examination in favor of malignancy in 65.63% of the cases.

The final histological examination revealed 26 papillary carcinomas (81.25%) (Fig.3), including Papillary carcinomas with vesicular differentiation, and 6 vesicular carcinomas (18.75%).



Figure 2 Total thyroidectomy motivated by a suspicious Fine needle aspiration.

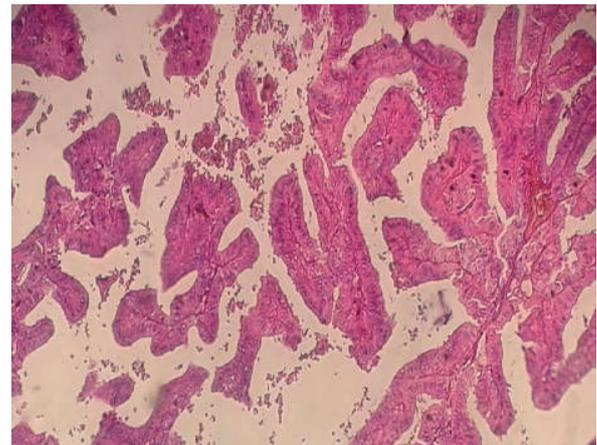


Figure 3 Histological appearance of papillary carcinoma of the thyroid.

The proportion of differentiated cancer in our series was 5%. Tumor size varied from microcarcinoma found in 13 cases (40.62%) to a size exceeding 4 cm for 3 patients (9.37%). The absence of local invasion was observed in 31.25% of the cases (10 patients). Its presence was primary found in 15.62% of the cases (3 cases of vesicular cancers and 2 cases of Papillary type). Central neck dissection was performed in 65.62% of cases. The lateral cervical dissection was performed in 21.87% of cases. Lymph node invasion was found in 9 patients (papillary cancer in 89% of cases, and vesicular cancer in 11% of cases). The postoperative follow-up was within normal limits, outsideof transient recurrent paralysis and a compressive hematoma requiring revision surgery. Radioiodine remnant ablation interested 66% patients. Thyroid hormone suppression therapy was prescribed for all our patients. A monitoring protocol based on clinical, ultrasonographic, biological and scintigraphic data was applied to all our patients and could detect 3 cases of lymph node recurrences treated with radioiodine therapy. No case of death by differentiated thyroid cancer was reported in our series.

DISCUSSION

The differentiated thyroid cancer is relatively rare, representing less than 1% of causes of death by cancer. Yet, recent decades have witnessed the often increase of their incidence in the world, including Morocco [2].The proportion of these cancers in our series (5%) is close to the one reported in the different African series estimated between 5.51% and 8.60% [3]. The papillary carcinomas had a frequency of

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81.25% in our study, placing it alongside recent worldwide series of Xiang (92.8%) [4] and Sassolas (86.5%) [5], which had in common a significant portion of microcarcinoma (40.62% in our study, 35.7% of Xiang [4] and 36% Sassolas) [5].

The average age in our series matched with the one in the literature between 45 and 50 years [2]. Female predominance has been clearly established but appears to be variable in Africa. The sex ratio F / M is 2.1 in Niger, 2.5 in Sudan and 3.7 in Madagascar [6]. In our series, there was a slight female predominance with a sex ratio of 1.9. The only known cause of CDT remains cervical irradiation in childhood. However, other factors may play a key role such as genetic susceptibility, constant iodine deficiency, or other hormonal factors [7]. In our series, no history of exposure to ionizing radiation was reported, there was no significant link between the risk of malignancy and a family history of cancer, only one of our patients had a family history of Thyroid cancer (3% of patients) in contrast several patients are native to endemic areas with iodine deficiency.

The thyroid nodule is the main circumstance of discovered thyroid-differentiated tumors. The seniority of nodules should not exclude their malignant potential, likewise, their stability or gradual evolution should not be comforting [8] as has been confirmed in our study (average of 52 months consultation). The hardness of the nodule at palpation is highly evocative of malignancy, with a various rate from 21 to 64% [9]. In our series, 95% of nodules had a firm consistency. Similarly, the fixity and the irregularity of the nodular contours orientate hardly towards their malignant nature [8], with a risk of 100% in our series for the fixed nature. The presence of dysphonia, dysphagia and/or dyspnea in relation to malignancy by compression or infiltration of the adjacent organs [10] was found in 18.75% of the cases. While in our series as in the literature, the presence of cervical lymph nodes found in 12.5% of patients is suspicious of malignancy [9] (Table 2).

Table 2 Lymph node's frequency and malignancy risk

Autors	Number of cases	Palpable lymph nodes	Malignancy risk
Cannoni	2862	3.5%	92.3%
Hughes	200	3.7%	33.5%
Mighri	282	7.5%	71.4%
Our series	32	18.75%	83.3%

Our study revealed several sonographic features of thyroid nodules predictive of malignancy. The hypoechoic nodules, highly suspected of malignancy [11] were found in 82% of the cases. The solid nodule is unquestionably the most frequent ultrasound profile (60% of the nodular formations) with a malignancy rate ranging from 20 to 60% in some studies [8], was found in 78% of the cases. Nodular contours were only explored in 40% of cases, 40% of them were irregular, and 20% of them were undefined. Microcalcifications were found in 15.6% of cases and nodular increased vascularity in 36% of cases. The discovery of suspected adenopathy evoked the malignancy of the thyroid nodule [12]. Ultrasound revealed 6 cases of suspicious lymph nodes 5 of which turned out to be metastatic in the final pathological examination which has also objectified 9 cases of lymph node metastasis. Currently, the nodules are classified according to a thyroid imaging and database system (TIRADS) allowing to evaluate the risk of malignancy and

thus to standardize the guidance to be maintained. Fine-needle aspiration has a sensitivity of 80-97% and a specificity of 70-80% according to the literature [13]. A "malignant" response is a pertinent argument of malignancy. In our series, only 46% of patients had benefited from this test, the answer was diagnosed as malignant or at least suspect in 69% of cases.

Currently, the terminology of Bethesda, correlated to TIRADS system offers the possibility of a standardized medical care of patients and the opportunity of a developmental evaluation of the diagnoses given [13]. Practically all patients benefited from a total or partial thyroidectomy. The recommendations of the American Thyroid Association (ATA) [14] are in favor of this surgical practice, not only for tumors above 1 cm but also for those under 1 cm the presence of certain associated factors, which may promote their recurrence: age > 45 years, plurifocal microcarcinomas.

A Lymph node dissection is contentious issue. In the case of papillary cancers, the ATA considers that an iodine 131 treatment may be an alternative to central neck dissection [14]. When suspicious cervical lymph nodes are identified preoperatively or intraoperatively, the European consensus recommends a central neck dissection, possibly supplemented by a lateral neck dissection, ipsilateral or bilateral according to the balance sheet data and intraoperative exploration, the position of the majority of experts is to propose systematic bilateral central neck dissection [15].

In our series, Radioiodine remnant ablation have not been over-emphasized since international recommendations recommend iodine-131 irradiation in the presence of thyroid residue and/or lymph node or distant metastatic extension [1]. In the absence of these risk factors, no "prophylactic" radioiodine treatment was performed because the studies made in this direction reported no benefit. In our series, radioiodine treatment at therapeutic dose (100mCi) was performed for 21 patients (66%). A blankboard was obtained in the end of an only cycle of radioiodine treatment with excepting 2 cases for whom a second cure was necessary.

All patients received thyroid hormone suppression therapy at dose of 2.5mg /Kg, considering that these dosages were adjusted later depending on the searched TSH rate.

Locoregional recurrences of CDT occur in 5 to 27% of patients with differentiated thyroid cancer. Recurrences are mostly located in the cervical lymph nodes (recurrent laryngeal and/or internal jugular chains) (60-75% of cases) in the thyroid corpses in 20% of cases and in the trachea or the surrounding muscles in 5% of cases [7].

Among our patients, three of them presented locoregional recurrence about a rate of 8.5% compared to the numbers reported in the literature (5 to 27%) [9]. The lymph node recurrence was diagnosed based on clinical arguments, ultrasound and especially rising thyroglobulin rate during long-term follow. All of these cases occurred in papillary cancers for which the risk of lymph node recurrence is well known. They all initially presented a lymph node invasion objectified by the microscopic examination of the adenopathies taken during lymph node dissection. These recurrences were treated with iodine-131 irradiation. No deaths from differentiated thyroid cancer were observed in

our series. The combination of the initial macroscopically completed surgery, radiiodine therapy and thyroxine suppression treatment controlled the CDT in almost all cases.

CONCLUSION

The incidence of thyroid cancer, specially differentiated, is the promptly increasing one among human cancers, particularly in Morocco. The papillary type is most frequent (nearly 80%). There is a need of standardized strategies for diagnosis and treatment of differentiated thyroid carcinoma (DTC), as this disease requires a multidisciplinary approach, including endocrine surgery, endocrinology, internal medicine, nuclear medicine and oncology.

Contribution of authors

- Hicham Attifi: Corresponding author
- Mohammed Sina: Co-author
- Mounir Hmidi: bibliographic research
- Ali Elboukhari: Iconography
- Karim Nadour: Iconography
- Mohammed Zalagh: Framing

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