

Short Communication

# Ultrasound and Histological Correlation in the Diagnosis of Thyroid Nodules

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The thyroid nodule is a common pathology; thyroid cancer is rare [1]. The difficulty in managing this pathology is linked to the risk of missing out the progressive cancer in the event of surgical abstention or, on the contrary, operating in excess of benign nodules [2].

## OBJECTIVES

Gather a body of more or less sufficient arguments to predict the risk of malignancy of the thyroid nodules before resorting to surgery for histological study, this will allow us to reduce the excessive recourse to unnecessary operations of benign nodules as well as the exposure of our patients to complications related to thyroid surgery. Our results have been compared to those of the world literatures.

## MATERIALS AND METHODS

We conducted a retrospective cross-sectional study from 2017 to 2018, concerning a sample of 172 patients. The study included all patients with an isolated thyroid nodule or within a multinodular goiter operated in the otolaryngology department of Moulay Ismail Military Hospital in Meknes. Our study was based on the evaluation of the degree of correlation between the ultrasound elements on the one hand and more specifically the Thyroid Imaging Reporting and Data System (TIRADS) and the results of the final pathology on the other hand.

## RESULTS

The average age of our patients was 50 years with a clear female predominance: sex ratio = 0.27. The percentage of cancer was 20.30%, its frequency was higher in men and extreme ages (Figure 1).

**Ultrasound:** the average size of nodules was 2.87 cm, the percentage of malignancy was higher in nodules > 4 cm (Table 1). In 172 cases, we noted 25 isolated nodules, for the rest of the cases the nodules were multiple. Seven nodules were irregular contours, 15 had irregular contours and 96 were heterogeneous, these three criteria were in favor of malignancy (Table 2). The pure cystic nodules were all benign, the malignant nature was found in the pure solid and solid cystic nodules predominant in the pure solid nodules of which 92 were hypoechoic. We also found 61 cases of nodules containing calcifications with a

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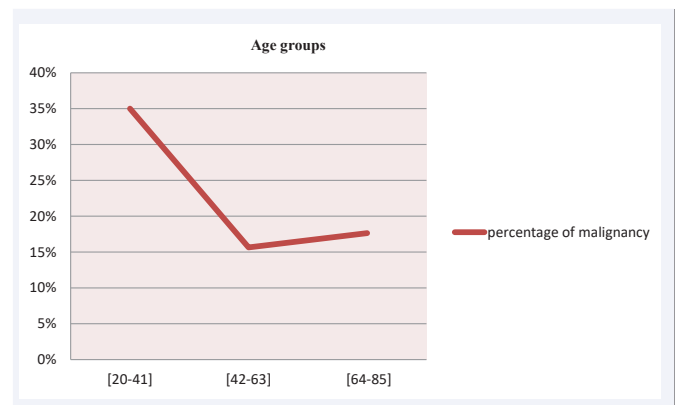


Figure 1 Age-malignancy ratio.

**Table 1:** Ratio of nodule size and risk of malignancy.

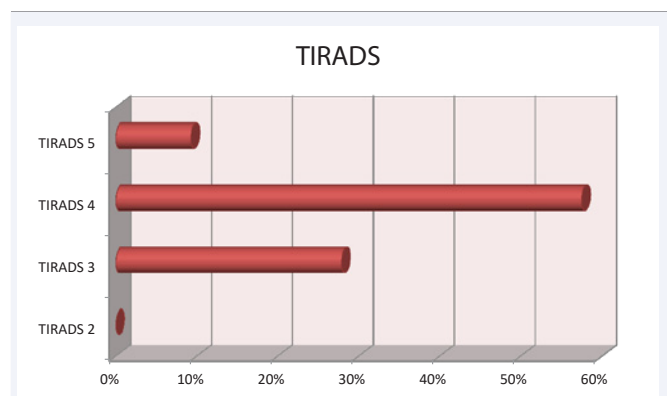
Cut	Total workforce nodules	Total Percentage	Percentage Of malignancy
< 1cm	19	11,04%	10,52%
1 - 4 cm	119	69,18%	18,48%
>4cm	34	19,76%	32,35%

significant percentage of malignancy 35% but with no proven significant relationship, 64 were vascularized: peripheral vascularization was the most dominant; malignancy was more frequent in nodules with central vascularization. In 172 cases, 40 patients had cervical lymphadenopathy on ultrasound. Regarding EU-TIRADS ultrasound staging, 4.04% of the nodules were classified as TIRADS 2, 27.90% TIRADS 3, 57.55% TIRADS 4 and 9.30% TIRADS 5. The percentages of malignancy were respectively: 10.41 %, 14.28%, 18.18% and 68.75% (Figure 2).

In total, the predictive Ultrasound elements of malignancy in our series were: The isolated nodules, the poorly limited nodule,

**Table 2:** Contour irregularity and malignancy ratio.

Outlines	Effectif total des cas /172	Total workforce cases / 172	Percentage Of malignancy
Regular	157	91,27%	14,01%
Irregular	15	8,88%	86,66%

**Figure 2** Percentage of nodules distributed according to EU-TIRADS stages.

the irregular contours, the solid component, the echo-resonant structure, the heterogeneous appearance, the presence of central vascularization, the presence of adenopathies, TIRADS stage 5. On pathological examination of the thyroid nodules studied in our series, 79.7% of the nodules were benign and 20.3% were malignant. Papillary carcinoma was the most common histological type.

## DISCUSSION

The thyroid nodule is a frequent affection, cancer remains rare. In front of any thyroid nodule the first question the clinician asks: is it malignant or benign?

However, all the investigations are oriented in this direction. The constraint which arises from the fact that only the definitive histological study allows confirm with certainty the malignant or benign nature of the nodule. But the routine surgery can lead to an excessive number of unnecessary surgeries benign nodules and if not, the decision to abstain from surgery may lead to not operating for an active cancer. Hence the interest of Ultrasound which is currently the benchmark examination thanks to the creation of the TIRADS system to better assess the risk of malignancy of thyroid nodules by analyzing their different parameters on ultrasound. Currently, the recommendations of the EU-TIRADS system classified according to the risk of malignancy have made it possible to rationalize the indications for fine needle aspiration. This review which occupies more and more an important place in terms of price does not charge thyroid nodules filter the number of nodules candidates for surgery, thus

the abusive use of the latter. As for the histological examination, its place remains irreplaceable until now and remains the means of certainty that confirms or rules out the presence of cancer thyroid.

At the end of our study and data from the literatures, we can conclude that the preoperative assessment of the risk of thyroid nodule malignancy is based on a bundle of clinical and Ultrasound arguments allowing a better therapeutic orientation. Fine needle aspiration indicated according to the results of Ultrasound is increasingly refining the care and reducing excessive surgeries.

## CONCLUSION

Ultrasound with the TIRADS system and recommendations made it possible to improve the validity indices and reduce the excessive recourse to surgery [3,4]. Pathology remains the most reliable way to retain or eliminate the malignant nature of the thyroid nodule [5-7]. Cytology is the subject of current recommendations and is beginning to occupy an increasingly important place after ultrasound in the area of thyroid nodule [8,9].

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