

Research Article

Comparative Study between Sonographic Finding, Fine Needle Aspiration Cytology and Surgical Pathology In Multi-nodular Goiter

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Abstract

Introduction: Thyroid nodules constitute a frequently seen clinical problem, and the incidence of thyroid nodules has increased with the recently increased use of thyroid ultrasonography (US). **Aim of the work:** Evaluation of validity and feasibility of different diagnostic tools in multi-nodular goiter. Also, evaluation of sensitivity, specificity and their impact on surgical decision. **Patients & Methods:** This study was conducted in Minia university hospital in prospective study including 90 patients with multi-nodular goiter thorough history and clinical examination. **Results:** In this prospective study of 90 cases with nodular goiter. **Conclusion:** In our study, it was found that USG and FNAC have a high specificity.

Keywords: Fine Needle Aspiration, Multi-nodular Goiter

Introduction

Thyroid nodules constitute a frequently seen clinical problem, and the incidence of thyroid nodules has increased with the recently increased use of thyroid ultrasonography (US).⁽¹⁾

Thyroid nodules are common, their prevalence being largely dependent on the identification method. The estimated prevalence by palpation alone ranges from 4% to 7%, whereas US detects nodules in 20% to 76% of the adult population, particularly with the current use of high-resolution US techniques. The reported frequencies detected by US correlate with the prevalence reported at surgery and autopsy with ranges between 50% and 65%.⁽²⁾

Increasing age, female gender, iodine deficiency, and a history of head and neck radiation seem to increase the risk of thyroid nodules.⁽³⁾

Thyroid nodules are clinically important for several reasons. They may cause thyroid dysfunction and rarely compressive symptoms, but they are primarily important because of the need to exclude thyroid cancer. The reported prevalence of malignancy in

thyroid nodules that was evaluated by biopsy ranges from 4.0% to 6.5% and is largely independent of the nodule size. Despite this, papillary micro-carcinomas (smaller than 1 cm) -incidentally found at the time of surgery- are much more common (up to 36%), but it is controversial whether or not a survival benefit exists with the diagnosis and treatment of such entities, giving their generally benign course.⁽⁴⁾

Although most thyroid nodules are benign and do not require treatment, some benign nodules may require treatment for associated symptoms and/or because of cosmetic problems.⁽⁵⁾

Aim of the work

Evaluation of validity and feasibility of different diagnostic tools in multi-nodular goiter. Also, evaluation of sensitivity, specificity and their impact on surgical decision.

Patients & Methods

This study was conducted in Minia university hospital in prospective study including 90 patients with multi-nodular goiter thorough history and clinical examination. Laboratory evaluation was done for assessing the TSH, free

T3 and free T4. For all patients, Ultrasound examination was done to evaluate the Size, Calcification, vascularity, echogenicity, solid or cystic nodule, extension outside capsule and LNs affection.

- FNAC was also done for all patients .All the patients were managed surgically and diagnosis was

confirmed from the histopathological examination reports.

- Histopathological diagnosis after thyroid-ectomy was taken as the gold standard and the FNAC and USS diagnoses were compared to it.

- Informed consent was obtained from all cases included in the study, after a careful explanation

of the nature of the intervention and possible management with its morbidity.

Inclusion criteria;

- 1-Both gender and ages above 18ys old
- 2. Nodular goiter
- 3. Solitary thyroid nodule

Exclusion criteria:

This study will exclude patients with:

- 1. Co- existing morbidity
- 2. Toxic goiter
- 3. Advanced malignancy

Results

In this prospective study of 90 cases with nodular goiter.

1-Age: the age of the patients ranged from 25 years to 60 years.(table 1).

Table (1): Showing age included in our study

	Minimum	Maximum	Mean	SD
Age	25	60	40.87	10.59

2- Gender: Out of these 90 patients 75 (83.33%) were female and 15 (16.67%) were male with ratio of 5:1(table 2).

Table (2):Showing gender

Sex	N	%
Female	75	83.33
Male	15	16.67
Total	90	100.00

Discussion

Thyroid nodule is a discrete lesion in the thyroid gland that is radiologically distinct from the surrounding thyroid parenchyma.⁽⁶⁾

Thyroid nodules are common and their prevalence in the general population is high, the percentages vary depending on the mode of discovery: 2–6% (palpation), 19–35% (ultrasound) and 8–65% (autopsy data).⁽⁷⁾

They are discovered either clinically on self-palpation by a patient, or during a physical examination by the clinician or incidentally during a radiologic procedure such as ultra-

sonography (US) imaging, computed tomography (CT) or magnetic resonance imaging (MRI) of the neck. With the increased use of sensitive imaging techniques, thyroid nodules are being diagnosed incidentally with increasing frequency in the recent years.⁽⁸⁾

Initial assessment of a patient found to have a thyroid nodule either clinically or incidentally should include a detailed and relevant history plus physical examination. Laboratory tests should begin with measurement of serum thyroid-stimulating hormone (TSH).⁽⁹⁾

The gold standard for diagnosis of thyroid pathologies is histopathology. However it is

important to correctly diagnose during initial investigations for management plans. The available investigations for diagnosis range from biochemical, cytological and imaging to histopathology.⁽¹⁰⁾

Ultrasonography (USG) is the single-most valuable imaging modality in the evaluation of the thyroid gland. Indications for thyroid USG include evaluation for a palpable thyroid nodule or suspected thyroid enlargement and workup of thyroid nodules discovered incidentally.⁽¹¹⁾

In patients with a thyroid nodule, gray-scale and colour Doppler USG are used to evaluate its sonographic features, including size, shape, echogenicity (hypoechoic or hyperechoic), and composition (cystic, solid, or mixed), and to determine the presence of coarse or fine calcifications, a halo and margins, and internal blood flow.⁽¹²⁾

Conclusion

In our study, it was found that USG and FNAC have a high specificity.

No investigation was found to be 100% accurate in diagnosing malignancy in nodular goiter but a combination of various diagnostic modalities (ultrasonography and FNAC) rather than any single modality will give optimal results and avoid unnecessary surgery in a great number of patients without missing any malignancy .

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