

# Audit of Thyroid Ultrasound Incidental Findings Emerson's Green NHS Treatment Centre Bristol-UK

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## ABSTRACT

Incidental Thyroid nodules defined as nodules identified by cross sectional imaging in patients who have no thyroid related clinical symptoms, examination, or suspected thyroid disease.

This is a retrospective study over 18 month's period in a General ENT practice by a single Surgeon highlighting the importance of adopting the new Ultrasound classification system of Thyroid nodules to manage incidental thyroid pathology.

### Introduction

Ultrasound of the neck has long been used as a diagnostic tool of investigating Thyroid swellings that helps to identify malignant features of thyroid nodules. Which can present in 3-7% of adult's patients on clinical examination while between 30-70% on thyroid ultrasonography examination of asymptomatic patients?

Paolo C. et al. identified main features of malignant thyroid nodules: hypo echogenic nodules, micro calcifications, irregular Borders, intranodular vascularity, infiltrative margins and the presence of abnormal cervical lymph nodes, taller than wider nodule in addition to presence of solid\cystic feature [1].

Ultrasound guided Ultrasound Fine Needle Aspirate (FNA) of thyroid nodules remains the most important next step of investigating these abnormal thyroid nodules with a sensitivity that ranges from 68-95% and specificity of 70-100% and false positive rate for malignancy of 0-7% and a false negative rate of 1-10% [2].

In 2007 the British Society of Endocrine \Thyroid Surgeons classified THE FNA FINDINGS OF THYROID NODULES into 5 grades

THY1 non diagnostic NODULE

THY2 Non -neoplastic nodule

THY3A; Atypical features

THY3B follicular nodule

THY4 Suspicious for Malignancy

THY5 Malignant nodule

Following THY classification each patient FNA finding is stratified according to

the THY classification and MDT discussion for an appropriate management plan is discussed for each patient according the British Society guidelines.

In July 2014 The British Society of Endocrine \Thyroid Surgeons updated the guidelines with a similar Ultrasound classification -U1-U5- that needs to be adopted as a standard clinical practice in every thyroid ultrasound report.

### Aim of the Audit

The objective of this retrospective audit to find the number of incidental unexpected suspicious Thyroid nodules in patients who had Ultrasound neck requested by a single Surgeon practice from January 2015 -June 2016 highlighting;

Patient's main complaints, clinical examination, and incidental suspicious unexpected findings, in addition to adopting the 2014 British Thyroid Association Guidelines U-Grading system in the ultra- sonographic description of thyroid nodules.

### Materials

A total of 46 patients had an ultrasound of the Thyroid gland with an incidental suspicious Pathological thyroid nodule in 7 patients (15.2%) were found and hence these patients were referred for an urgent Fine needle aspirate of the thyroid gland to identify the nature of these pathological nodules and hence its appropriate management.

The main complaint of the 46 patient was a feeling of a neck lump in the region of the thyroid gland with no palpable Thyroid swellings on clinical examination

The **Demographic** of the 7 patients who had ultrasonographic suspicious Thyroid nodules as follows;

5 patients complained of feeling a Lump in the thyroid region, 1 patient complained of pain in the neck pointing at thyroid region, 1 patient felt tightness at the suprasternal notch region.

Only 1 male patient while the other 6 patients were Females, the age distribution of these patients varied from 39years old to 80 years old with a mean age of 58 years with no background History of Thyroid disease except 1 patient had a history of Hashimoto's Thyroiditis.

All the 7 patients had no palpable neck swellings on clinical examination with normal mobile vocal cords on Endoscopic examination of the Larynx.

### Discussion

Differentiated Thyroid Carcinomas (DTC) are relatively uncommon tumours with good prognosis with an estimated incidence of 1 to 10cases/100,000 patients /year representing 1% of all malignancies despite that the incidence of thyroid nodules varies from 19-67% of normal risk females and elderly patients [3].

Due to increased used of Ultrasonography and increased access to Ultrasound guided FNA the number of ultrasound incidenclatomas of small size 1 cm or less thyroid Carcinomas has increased [4].

Ultrasound FNA guided Biopsy is currently recommended for all Thyroid nodules greater than 1 cm in diameter or less than 1 cm if it has suspicious malignant features mentioned earlier in the introduction.

Low Risk Malignant Thyroid Nodules was found in female patients, age between 20-40years old, nodules less than 2cm in diameter, lack of multicentricity on Ultrasound, absence of a glandular capsule invasion in addition to the absence of a loco regional Lymphadenopathy.Thus it is important to select candidates for a Surgical intervention based on suspicious clinical, ultra sonographic features [5].

Maia et al. [6] evaluated the risk of Malignancy in 143 patients with Thyroid nodules and concluded through a multivariate model of analysis that nodules 2 cm or more in diameter, with irregular borders and a cut off age of 39 years old (lowest age in this audit) had 81% accuracy in predicting malignancy.

In a recent systematic and meta -analysis review of clinical and suspicious Ultrasound Thyroid nodules found that a prior history of neck irradiation ,male patients, family history of Thyroid cancer are highly predicted clinical factors for Thyroid Carcinomas while regarding Ultrasound Features are nodules taller than wider, absent halo signs, single nodule, solid consistency, and intra nodular vascularization highlighting the importance of Ultrasound examination as the most accurate tool to investigate Thyroid nodules[1].

Chaparro et al. in 2017 found in a group of 180 patients there was a strong concordance of 87.2% among group of patients with ultrasonographic features of TRIADS2(U2) and FNA classification of BETHESDA CYTOLOGY (THY2) [7].

### Conclusion

This audit of a single ENT surgeon practice at Emerson's Green NHS treatment highlights the incidence of unexpected findings (15.2%) on ultrasound examination of the thyroid gland in patients complaining of a feeling lump in the neck (5patients) which constitutes 71.2% of the total patients (7patients) with normal clinical and endoscopic examination.

Ultrasound of thyroid gland remains the most accurate tool of investigating thyroid nodules and adopting the 2014 British Thyroid Association Guidelines Ultrasound grading system of thyroid nodules U1-U5 is an important stratifying factor in an ultrasound report as a standard clinical practice.

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