

SONOGRAPHIC CYTOLOGIC CORRELATION OF THYROID NODULES AT MULAGO HOSPITAL

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ABSTRACT

Introduction

Nodular thyroid disease accounts for 82.2% of all the patients referred with thyroid symptoms at Mulago Hospital. Ultrasound(US) is the most sensitive and specific radiologic detection method for thyroid nodules. Ultrasound guided Fine-needle aspiration biopsy(US-FNAB) is a reliable test for cytologic evaluation of thyroid nodules. Inadequate samples may occur with Fine-needle aspiration biopsy(FNAB) thus Fine Needle Non Aspiration(FNNA) technique has been recommended for a better diagnostic yield.

Objectives

The objectives of the study were to describe the sonographic patterns of thyroid nodules in patients undergoing thyroid US as seen at Mulago Hospital, to determine the sensitivity and specificity of Ultrasound in characterising thyroid nodules and to correlate sonographic characteristics of thyroid nodules to cytology findings.

Materials and Methods

This cross sectional study was done in Mulago Hospital, department of Radiology. Patients with clinical symptoms of thyroid disease were referred from the outpatient thyroid clinic. These were screened for thyroid nodules using ultrasound. Those with nodules above 5mm diameter underwent US-guided FNNA using a 23 gauge needle. The smears were stained using Diff quick and Papanicolaou staining methods. Cytological results and US categories were analyzed.

Results

A total of 181 participants were enrolled in whom 314 nodules underwent FNNA plus cytology; final diagnoses were per participant and these were concluded in 177 of the participants and thus analysed while 4 participants were excluded due to inadequate samples. The patients' age range was 19 to 83 years (mean age was 42 years)and 93% were females. Final cytology diagnosis was benign, suspicious for malignancy, malignant, and inadequate. Sonographic characteristics included AP diameter, margins, echopattern, vascularity, calcifications and cervical lymphadenopathy. The cytological diagnosis was 5% malignant (n=9), 18% suspicious(n=34)

while the rest were benign(n=134). The sonographic characteristics that were significantly correlated with final cytology diagnosis in our study were a taller than wide anteroposterior (AP) diameter and microcalcifications ($p < 0.005$). The heterogeneous(0.001) and hypoechoic(0.00) echopatterns were also significantly correlated with final cytology diagnosis ($p < 0.005$). The most sensitive sonographic characteristic in the diagnosis of malignancy were heterogeneous, hypoechoic and echocomplex echopatterns and presence of vascularity at 95% while anteroposterior diameter, microcalcifications and lymphadenopathy had significant specificity rates of 97%, 89% and 96% respectively in the diagnosis of malignancy.

Conclusion and Recommendations

Statistically significant predictors of malignancy were taller than wide anteroposterior diameter, hypoechoic, and microcalcifications. Hypoechoic, heterogeneous, and central vascularity had the highest sensitivity while wider than tall anteroposterior diameter and absence of associated lymphadenopathy had the highest specificity. Microcalcifications, taller than wide AP diameter, central vascularity and hypoechogenicity warrant FNNA. A bigger study correlating sonography with histological diagnosis is recommended.

Keywords: Thyroid nodule, thyroid ultrasound, Fine needle non aspiration, cytology.