



A STUDY OF THE EFFICACY OF TRIPLE ASSESSMENT IN THE MANAGEMENT OF THYROID NODULE

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ABSTRACT A thyroid nodule is a distinct lesion within the thyroid gland. It may be palpated or defined by US. Thyroid nodules are a common clinical finding. An estimated prevalence on the basis of palpation that ranges from 3% to 7%. The prevalence of clinically in-apparent thyroid nodules is estimated with US at 20% to 76% in the general population. 20% to 48% of patients with 1 palpable thyroid nodule are found to have additional nodules on US investigation.

KEYWORDS : FNAC Ultra sound scan, Multinodular goitre, Papillary thyroid carcinoma, Medullary thyroid carcinoma

INTRODUCTION

Solitary Thyroid nodule is the only palpable nodule in an otherwise nonpalpable thyroid gland. Multi nodular goiter is primarily a degenerative disease, endemic in areas where the soil is deficient in Iodine. The multinodular goiter is the commonest swelling of thyroid gland for which the patients seek medical attention.

History and clinical examination alone cannot adequately differentiate between the benign causes of thyroid enlargement and the malignant causes especially the differentiated thyroid malignancies. Hence the need for triple assessment.

Triple assessment

Triple assessment means:

- I. History and physical examination including malignancy risk stratification
- II. Imaging, usually the ultrasonographic evaluation of the thyroid and the neck.
- III. Image guided FNAC for confirmation, FNAC without image guidance has a false positive rate of 40% which can be avoided by guided FNAC.

AIMS AND OBJECTIVES

- 1) To evaluate Clinically, a total of 64 patients presenting with Swelling in front of neck .
- 2) Subject all of them to ultrasonography of the neck to confirm thyroid nodules .
- 3) To study the concordance and discordance of the clinical diagnosis with the US scan findings, FNAC findings and Histopathology findings where available.

MATERIALS AND METHODS

This is prospective study conducted on patients presenting to department of general surgery at Government General Hospital with nodular thyroid enlargement to evaluate the efficacy of triple assessment of thyroid nodules.

INCLUSION CRITERIA:

- All patients admitted to surgical ward of Government General Hospital, Kurnool with nodule of thyroid in all age group and both sexes.

EXCLUSION CRITERIA:

- Serious underlying medical conditions that restrict diagnostic testing or therapy such as renal failure, congestive cardiac failure or active coexisting non-thyroid carcinoma.
- Patients unable or unwilling to give informed consent.

OBSERVATIONS AND RESULTS

Table 1: Age wise Distribution (n=64)

Age in years	Number	Percentage %
<20	2	3.12
21-30	8	12.5

31-40	14	21.87
41-50	17	26.56
51-60	16	25
>61	7	10.93
Total	64	100

In this study, peak incidence is noted in the age group of 41 -50 years. In this study, youngest patient was 18yrs and eldest was 72yrs.

Table 2: Age wise distribution of benign and malignant thyroid nodules proved by HPE (n=64)

Age in years	Benign		Malignant	
	Number	Percentage	Number	Percentage
<20	2	3.12	0	0
21-30	8	12.5	0	0
31-40	12	18.75	2	3.12
41-50	15	23.43	2	3.12
51-60	10	15.62	6	9.37
>61	3	4.68	4	6.29
Total	50	78.1	14	21.9

In this study, benign nodule is noted in the all age groups, with peak incidence is noted in the age group of 41 -50 years and malignant nodule is noted in >30 years, with peak incidence is noted in the age group of 51-60years.

Table 3: Gender wise distribution [n=64]

Gender	Number	Percentage %
Female	56	87.5
Male	8	12.5
Total	64	100

In the present study, 56 (87%) were female and 8 (13%) patients are male. The study shows female predominance with 87%.

Table 4: Distribution of patients according to Presenting symptoms [n=64]

Symptoms	Number	Percentage%
Swelling	64	100
Pain/discomfort	18	28.12
Dysphasia	8	12.5
Difficulty in breathing	3	4.68
Change in voice	3	4.68
Toxic symptoms	14	21.87

DISCUSSION

This study mainly attempts to analyze the efficacy of triple assessment in the management of thyroid nodules and it is discussed in relation to clinical, radiological, cytological and demographic compositions. This study included only prospective (64) cases. 64 cases of thyroid nodules who were admitted of which 50 cases confirmed to be benign and 14 cases were malignant on HPE.

Accurate diagnosis of cancer has been a diagnostic dilemma since long. Thyroid is an important and popular site for fine needle aspiration cytology. FNAC has been proven a very useful tool in diagnosis of various thyroid diseases. There is an increasing tendency to confirm the diagnosis of the thyroid cancer at first consultation by Image guided FNAC. This allows better investigation and wiser preoperative discussion and preparation.

The present study aims at assessing the various clinical presentation of thyroid nodule and assessing the validity of Image guided FNAC in diagnosis of the malignancy of thyroid nodule. In the 64 patients selected for the present study, the age ranged from 18 years to 72 years. The most common age group having thyroid nodule was 41-50 years.

The age incidence for the benign lesions ranged from 18 years to 64 years. The age incidence for the malignant lesions ranged from 31 to 72 years. The most common age group for benign lesions was between 41 to 50 years. The present study showed 2 peak incidences for malignant lesions, a greater peak for age group between 51 – 60 years with 42.85% of all cases of malignancy. Another peak for the age group >61 years was noted with 28.57% of all malignant cases. Another retrospective, consecutive analysis by Hee-Nee Pang and Chung-Ming Chen the mean age of presentation for benign nodular goiters was 47.9 years and the mean age of presentation for malignant thyroid tumours was 49.25 years.(1)

According to Edino ST et al the ages of the patients with carcinoma ranged from 16 to 65 years, with a mean age of 38.8 years.(2) Present study does not correlate with this, as majority of our patients with malignancy were of older age group. This may be due to better awareness amongst younger generation about the disease and early seeking of medical attention due to cancer phobia.

Sex: The present study observed female preponderance in both benign and Malignant tumor. It was observed in the current study out of 64 cases 56 (87.5%) were females and 8 (12.5%) were males. The female to male sex ratio is 7:1. The female to male ratio for malignancy was 1.33:1. In females, 48(85.71%) of the thyroid nodules were benign in nature and 8(14.29%) were malignant. In males thyroid nodules 2(25%) were benign and 6(75%) were malignant. 57.15%(8) of all malignancies were found in females and 42.85%(6) in males. Thus most of the thyroid nodule is of benign irrespective of the sex.

The malignancy rates were slightly higher in males as compared to females. Mulandzi et al., In his study in 2001, observed female preponderance in both benign and malignant tumor in the ratio of 1:6 (3)

Yeole BB et al., in his descriptive epidemiological study of thyroid cancer in Bombay stated that they are three times more frequent among women than men.(4). In another data report in Luxembourg by Mark Keipes, et al., the ratio of male to female was 1:4(5).

Edino et al states that 72% of malignant patients are females, and 28% are males(2). Thus our study correlates with these values.

Clinical Profile: Present study shows that the duration of symptom before seeking medical attention varies from 2 months to 20 years. Thus majority of the patients with benign disease had symptoms for 2 months to 5 years. Majority of the patient with malignant disease had duration of symptoms ranging from 5 years to 20year.

In the present study, all [100%] the patients presented with thyroid swelling, of which 34% did not have any symptoms other than swelling. Thus most of the thyroid nodules presented as asymptomatic swelling. Also 21.87% had toxic symptoms and 28.12% of the patients complained of pain or discomfort in the neck. Pressure symptoms like dysphagia was present in only 12.5% of the patients, difficulty in breathing, change of voice was present in 4.68% and 4.68% respectively.

Present study shows that in 79.68% of the patients both right & left lobes of thyroid were involved. Thyroid nodule in the right lobe was 10.93% & left lobe was 9.37%. In 92.18% of the patients, trachea was central in position. Trachea was deviated to right in 6.25% of the patients & to left in 1.56%. All thyroid swellings moved up with deglutition. Ultrasonography was found to be very useful in the evaluation of Thyroid malignancy. In the present

study, ultrasonographic features of thyroid malignancy are 18.75% of the patients presenting with solidity (calcification). Next features are microcalcification (15.62%), marked hypoechoogenicity (15.62%), longer than wide shape (14.06) and microlobulated margins (12.5%). 15.62% of patients have more than two features in this study. Ten patients having malignant features are found through ultrasonography in this study.

L. Solbiatiet al. in 1985 showed that margin was illdefined and irregular in 69.7% and well-defined in 30.3%. Thyroid lesion with well-defined margin suggests benign pathology.(6) However, results are unequivocal in the present study.

FNAC was found to be very useful in the evaluation of thyroid nodule. In majority of the cases where the FNAC was benign it proved to be benign thyroid nodule on postoperative histopathological examination. 79.68% of the thyroid lesions were diagnosed as benign by FNAC and 20.31% were diagnosed as malignant. In present study, FNAC is reported according to Bethesda system. In all cases sample collect from image guided FNAC. 78.12% of patients contain Bethesda system category-II, category-VI (20.31%), category-I (1.56%), category - III (0%), category-IV (0%) and category-V (0%).

All of malignant lesions were Bethesda category-VI on FNAC. One patient was diagnosed with category-I. Benign nodules was the most common diagnosis made by FNAC [78.12%]. Inconclusive FNAC results were repeated. Histopathology showed 50 [78.12%] out of 64 patients had benign thyroid lesion. Remaining 14 [21.87%] patients had malignancy. Thyroid nodule [93.18%] was the most common diagnosis histopathologically among benign disease. This correlates with the studies discussed below.

According to Gandolfi et al, in 58 cases of goiter, 8 cases of carcinoma were found (13.7%). Histopathological type of carcinoma more frequently associated to thyroid nodule was shown to be the papillary (62.5%).(3)

Fine needle aspiration cytology revealed benign in 50 patients, suspicious in 1 and malignant in 13 patients. 13 out of total 14 malignant cases were diagnosed by FNAC. One case of Bethesda category-VI was diagnosed as Bethesda category-I by FNAC, thus giving a false negative report.

The overall sensitivity of fine needle aspiration cytology in Goiter in the present study was 92.8%, specificity was 100%, positive predictive value of 100%, negative predictive value of 98.03% & diagnostic accuracy of 98.43%. Thus FNAC is a valuable investigation to careful clinical examination and evaluation of the patients with goiter. Due to its high accuracy, specificity and sensitivity, FNAC is a reliable investigation in preoperative diagnosis malignancy in Goiter.

CONCLUSION

A prospective study of 64 cases of Thyroid nodules patients were admitted to Government General Hospital was done.

- The incidence of thyroid cancer is 21.87% in our hospital among the patient with thyroid nodules.
- There is high incidence of benign lesions compared to malignant lesions.
- Regarding age incidence, benign lesions commonly presented in the fifth decade.

Sex profile of benign lesions showed high female preponderance.

- The most common ultrasonographic features of malignant lesions was solid nodule.
- FNAC revealed high sensitivity hence predictability of FNAC in benign lesions is good, recommended as first line investigation.
- Sex incidence of malignant lesions revealed female preponderance.

Ultrasound guided Fine Needle Aspiration Cytology is a useful first line investigation for malignant lesions of thyroid as it showed high sensitivity. Image guided FNAC has key role in diagnosis of thyroid nodule because it is safe, minimally invasive and cost effective diagnostic tool for preoperative assessment of patients with thyroid nodule to help the surgeon in management of these nodules.

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