



A STUDY OF THE EFFICACY OF TRIPLE ASSESSMENT IN THE DIAGNOSIS OF THYROID NODULE.

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ABSTRACT A thyroid nodule is a discrete lesion located within the thyroid gland. It may be detected with palpation or characterized by ultrasound. Thyroid nodules are a prevalent clinical observation. An estimated prevalence based on palpation ranging from 3% to 7%. The incidence of clinically inconspicuous thyroid nodules is estimated via ultrasound to be between 20% and 76% in the general population.

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

INTRODUCTION

Isolated thyroid nodule is the sole palpable nodule in an otherwise non-palpable thyroid gland. Multinodular goiter is predominantly a degenerative condition, pre-valent in regions where the soil lacks iodine. The multinodular goiter is the most prevalent enlargement of the thyroid gland for which people pursue cancer.

History and clinical examination alone are insufficient to distinguish between benign and malignant causes of thyroid enlargement, particularly differentiated thyroid cancers. Thus, the necessity for a threefold assessment arises.

TRIPLE ASSESSMENT

Triple assessment means:

- I. Medical history and physical assessment, including malignancy risk evaluation.
- II. Imaging, typically the ultrasonographic assessment of the thyroid and cervical region.
- III. Image-guided FNAC for confirmation; FNAC without image guidance has a false positive rate of 40%, which can be mitigated with guided FNAC.

AIMS AND OBJECTIVES

- 1) To conduct a clinical evaluation, a total of 64 individuals exhibiting swelling in the front neck were assessed.
- 2) Subject all individuals to neck ultrasonography to verify the presence of thyroid nodules.
- 3) To examine the concordance and discordance between the clinical diagnosis and the findings from ultrasound scans, fine needle aspiration cytology (FNAC), and histopathology where applicable.

MATERIALS AND METHODS

This is a prospective study undertaken on patients presenting to the Department of General Surgery at Santhiram Medical College and Hospital, Nandyal, with nodular thyroid enlargement to evaluate the efficacy of the triple examination of thyroid nodules.

Inclusion Criteria:

All patients admitted to the surgical ward of Santhiram Medical College and Hospital, Nandyal, have thyroid nodules, regardless of age or sex.

Exclusion Criteria:

1. Significant underlying medical issues that limit diagnostic testing or treatment, including renal failure, congestive heart failure, or active concurrent non-thyroid cancer.
2. Patients who are incapable or reluctant to provide 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	26.53
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

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 51-60 years.

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 Symptom

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

DISCUSSION

The effectiveness of triple examination in managing thyroid nodules is analyzed for clinical, radiological, cytological, and demographic variables. This study encompassed merely 64 prospective cases. 50 of 64 thyroid nodules examined were benign, whereas 14 were cancerous according to histopathological evaluation. The diagnosis of cancer has always posed significant challenges.

Fine needle aspiration cytology is commonly utilized in the assessment of the thyroid. (FNAC) is beneficial for diagnosing thyroid disorders. FNAC is increasingly employed to diagnose thyroid carcinoma during the initial consultation. A more comprehensive evaluation and preoperative strategizing are feasible.

This study examines thyroid nodule clinical presentations and image guided FNAC's ability to diagnose malignancy. The 64 patients in this study were 18–72 years old. Thyroid nodules were most prevalent among 41–50-year-olds. Benign lesions occurred in 18–64-year-olds. Malignant lesions occurred in 31–72-year-olds. The most common age group for benign lesions was 41–50.

In this study, 42.85% of malignant lesions occurred in 51–60-year-olds. Another peak was 28.57% of malignant cases in people over 61.

HeeNee Pang and ChungMing Chen found that benign nodular goiters presented at 47.9 years and malignant thyroid tumors at 49.25 years in another retrospective, sequential analysis.(1)

Edino ST et al. found that cancer patients ranged in age from 16 to 65, with a mean of 38.8 years.(2) Our malignancy patients were mostly older, thus this study does not match this. Younger generations may be more conscious of the condition and seek medical assistance earlier owing to cancer anxiety.

Female predominance in benign and malignant tumors was found in this investigation. In this study, 56 (87.5%) of 64 cases were female and 8 (12.5%) were male. It's 7:1 female to male. Female-to-male malignancy ratio was 1.33:1.

In women, 48 (85.71%) thyroid nodules were benign and 8 (14.29%) were malignant. Male thyroid nodules were: 2 (25% benign) and 6 (75% malignant). Females had 57.15% (8) of malignancies and males 42.85%(6). The majority of thyroid nodules are benign regardless of gender.

Male malignancy rates were somewhat greater than females. Mulandzi et al. found a 1:6 female prevalence in benign and malignant tumors in 2001 (3). The Bombay descriptive epidemiological study by Yeole BB et al. found that thyroid cancer is three times as common in women than men.(4) Other Luxembury statistics by Mark Keipes, et al. showed a 1:4 male-female ratio(5). According to Edino et al., 72% of malignant patients are women and 28% are men.(2). Thus, our analysis matches these values.

Clinical Profile:

The current study indicates a symptom duration ranging from 2 months to 20 years prior to obtaining medical intervention. A majority of individuals with benign illnesses reported symptoms lasting from 2 months to 5 years. Most individuals with malignant illnesses displayed symptoms for 5 to 20 years. All patients exhibited thyroid enlargement, with 34% presenting no further symptoms. The majority of thyroid nodules enlarged without symptoms. Furthermore, 21.87% experienced toxic symptoms, while 28.12% reported neck ache. Symptoms of pressure included dysphagia (12.5%), respiratory difficulties (4.68%), and voice changes (4.68%).

Current study shows 79.68% of patients have right and left thyroid lobe involvement. The right thyroid nodule was 10.93% and the left 9.37%. In 92.18% of patients, the trachea was central. The trachea was deviated right in 6.25% of patients and left in 1.56%. Swallowing raised all thyroid enlargements. Ultrasonography is most effective in thyroid cancer evaluation.

This study found ultrasonographic signs of thyroid carcinoma in 18.75% of firmness patients. The following are microcalcification aspects. 15.62 percent hypoechogenicity, 14.06 percent elongation, and 12.5% microlobulated margins. This study found 15.62% of patients have several characteristics. Ultrasonography identified ten malignant individuals in this investigation.

L. Solbiati et al. found in 1985 that the margin was irregular and ill defined in 69.7% of cases and well-defined in 30.3%. Benign thyroid lesions have well-defined boundaries.(6) However, this study's findings are unambiguous.

FNAC has proven to be highly beneficial in the assessment of thyroid nodules. In most instances where the FNAC was benign, it was confirmed as a benign thyroid nodule during postoperative histological evaluation. 79.68% of the thyroid lesions were classified as benign by fine needle aspiration cytology (FNAC), while 20.31% were identified as malignant. The current study reports FNAC in accordance with the Bethesda system. In all instances, samples were obtained by FNAC. 78.12% of patients fall under Bethesda System category II, 20.31% in category VI, 1.56% in category I, and 0% in categories III, IV, and V.

All malignant lesions were classified as Bethesda category VI on fine needle aspiration cytology. One patient received a diagnosis of category I. Benign nodules constituted the predominant diagnosis identified by FNAC, accounting for 78.12%. The inconclusive FNAC results were reiterated. Histopathological analysis revealed that 50 out of 64 individuals, representing 78.12%, exhibited benign thyroid lesions. Fourteen individuals, constituting 21.87%, were diagnosed with cancer. Thyroid nodule [93.18%] was the predominant histological diagnosis among benign conditions.

Gandolfi et al. reported that out of 58 goitre cases, 8 were diagnosed as cancer, or 13.7%. The histopathological type of cancer most commonly associated with thyroid nodules was identified as papillary (62.5%) (3).

Fine needle aspiration cytology indicated benign results in 50 individuals, worrisome findings in 1 patient, and malignant results in 13 patients. Thirteen of the fourteen malignant patients were identified with FNAC. A case classified as Bethesda category VI was inaccurately identified as Bethesda category I by FNAC, resulting in a false negative report.

The total sensitivity of fine needle aspiration cytology in goiter in this study was 92.8%, specificity was 100%, positive predictive value was 100%, negative predictive value was 98.03%, and diagnostic accuracy was 98.43%. Consequently, FNAC is an essential diagnostic tool complementing meticulous clinical examination and assessment of patients with goiter. FNAC is a dependable diagnostic procedure for preoperative malignancy assessment in goiter, owing to its excellent accuracy, specificity, and sensitivity.

CONCLUSION

A prospective study of 64 cases of Thyroid nodules patients were admitted to Santhiram Medical College, Nandyal was done.

1. The incidence of thyroid cancer among patients with thyroid nodules at our hospital is 21.87%.
2. There is a higher incidence of benign lesions in comparison to malignant tumors.
3. Regarding age incidence, benign lesions commonly presented in the fifth decades

Sex profile of benign lesions showed high female preponderance.

1. The predominant ultrasonographic characteristic of malignant tumors was a solid nodule.
2. FNAC demonstrated great sensitivity, indicating that its prediction for benign lesion is favorable, hence it is recommended as the primary investigative procedure.
3. The sex incidence of malignant lesions demonstrated a predominance in females.

Ultrasound assisted FNAC Effective initial diagnostic procedure for malignant thyroid lesions due to its high sensitivity. Image-guided plays a crucial role in the detection of thyroid nodules, as it is a safe, minimally invasive, and cost-effective diagnostic method for the preoperative evaluation of patients, assisting surgeons in the management of these nodules.

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