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A Study on Fnac Findings of Thyroid Lesions in a Tertiary Care Hospital of Jharkhand

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Introduction: *Fine needle aspiration cytology is a very helpful and relatively non invasive techniques in the diagnosis of various thyroid lesions. The main aim of thyroid FNAC is to distinguish benign from malignant lesion and to determine the cases that require surgery. We did a retrospective study from October 2017 to september 2018 on patients who came for FNA of thyroid lesion in pathology department of RIMS, Ranchi. FNA cytology was done, smear were made and stained using Leishman/Giemsa and Haematoxylin/Eosin stain and they were examined under microscope for cytological diagnosis.*

Results: *Among 452 cases, 400 were females and 52 were males. 403 were benign lesion whereas 49 were cases of malignancy. The most common age group that presented with thyroid lesion was 21-30 years. The incidence of malignancy seemed to increase with age. Among the benign conditions, the most common was colloid goiter, I.e 240 cases and among the malignancies follicular neoplasm,ie.35 cases.*

Conclusions: *Thyroid disorders are one of the very common health problems that we come across. Benign lesion are far more common. Due to introduction of this technique, the incidence of surgery in thyroid has been reduced considerably. The endocrine surgeon have widely accepted FNAC of thyroid.*

Keywords: *Thyroid,papillary,cytology,colloid etc*

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I. Introduction:

In the past five or six decades, fine needle aspiration cytology of thyroid has been increasingly utilized for the investigation of thyroid lesions[1]. Martin and Ellis in New York in 1930 first time reported the usefulness of FNAC of thyroid [2]. The main indication of FNA in thyroid lesions are as follows:

1. Evaluation of solitary thyroid nodule.
2. Evaluation of diffused thyroid lesions.
3. Confirmation and categorization of clinically obvious thyroid malignancy.
4. To obtain material for ancillary tests/prognostic parameters.
5. Evaluation of lesions detected initially by imaging, measuring 1-1.5 cm in diameters with features of malignancy[3].

In India the nation wide relative frequency of thyroid cancer among all the cancer cases was 0.1-0.2%. The age adjusted incidence ratio of thyroid cancer per 100,000 are about 1 for male and 1.8 for females as per the Mumbai cancer registry which covered the population of 9.81 million subjects[ ].

II. Materials and methods:

A one year retrospective study was done from October 2017 to September 2018 in all patients (both males and females)who presented with thyroid swelling, in pathology department of RIMS,Ranchi. Detailed medical history along with thorough physical examination and relevant biochemical and radiological investigations were taken into consideration.

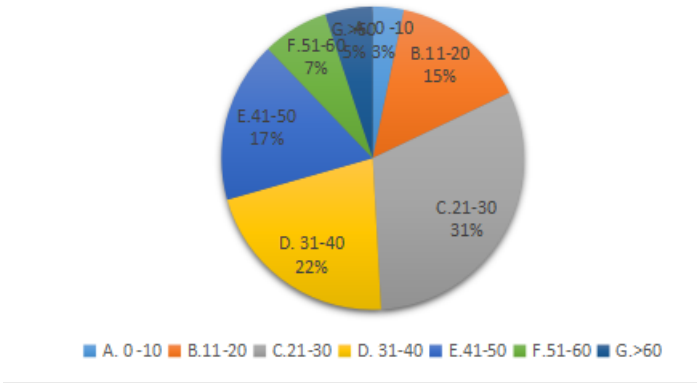
While performing The FNA individual patients were kept in a supine position with a small pillow under their neck to make the thyroid prominent. After cleaning the area of thyroid the gland was hold between the two fingers so that the thyroid become more prominent. FNAC was performed using a 23gauge needle along with 10ml syringe. The needle was gently withdrawn and the syringe was attached with the hub.The material on the needle was immediately spread on the slide. The smear was stained using Leishman/Giemsa and Haematoxylin/Eosin stain. The smear were observed under a microscope and the cytological diagnosis was given.

III. Results:

Total number of cases were 452 among which females with thyroid lesion were 400 (88.49%) and males 52(11.5%).The relative frequency of benign and malignant thyroid lesion were:Benign 403 cases(89.15%) and malignant 49 cases(11.52%).The most common age group that present with thyroid lesion was 21-30 years .ie141 out of 452 cases(31.19%) in which colloid goiter dominates the picture.We got total 259 cases of colloid goitre among which 19 were with hurthle cell changes.We came across 4 rare cases of thyroid malignancy .Two cases were of anaplastic carcinoma which were both in male patients above 60 years of age. Two cases of metastasis, one in a 58 years male with metastasis to supraclavicular region and fore head and the other a 11 years old boy with metastasis to lymph node in anterior triangle of right neck.

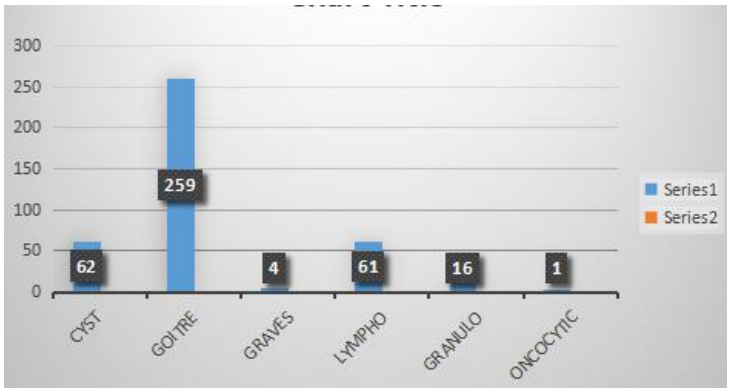
The table and pie chart given below shows the age wise distribution of the thyroid lesion.

AGE GROUPS	NUMBERS
A. 0 -10	15
B.11-20	66
C.21-30	141
D. 31-40	97
E.41-50	78
F.51-60	32
G.>60	23



The following bar diagram shows the relative frequency of various benign thyroid lesion.

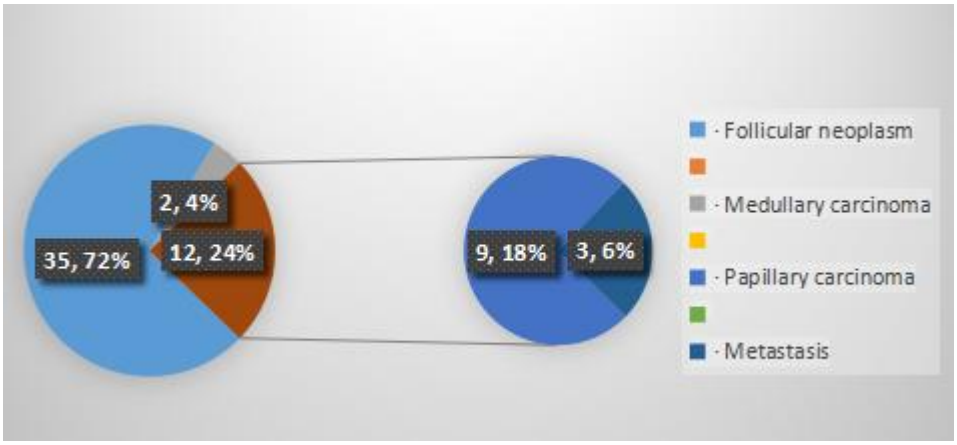
- Colloid cyst-62
- Colloid goiter-259
- Graves disease-4
- Lymphocytic thyroiditis-61
- Granulomatous-16
- Oncocytic adenoma 1



The following figure shows the relative frequency of various presentations of malignancy. Among 49 cases of malignancy:

- Follicular neoplasm- 35
- Medullary carcinoma-2
- Papillary carcinoma-9

- Metastasis - 3



IV. Discussion:

Thyroid diseases are arguably among the commonest endocrine disorders world wide. India too, is no exception. According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India suffer from thyroid diseases.[4].The thyroid disease are different from other diseases in term of their ease of diagnosis, accessibility of medical treatment and the relative visibility that even a small swelling of thyroid offers to the treating physician. Early diagnosis and treatment remains the cornerstone of management.[5]

The following other investigations are preferable before doing FNAC :

- Thyroid stimulating hormone (TSH) level
- Thyroid scan
- Ultrasonography findings[6]

Recently, USG localization of thyroid lesions followed by USG guided FNAC of palpable thyroid nodule has been advocated to reduced the rate of the non diagnostic material and subsequently reduced the false negative interpretation[7] .

It is difficult to assess the sensitivity and specificity of FNAC of thyroid, because majority of the benign lesions of thyroid do not have any surgical intervention and therefore no histological correlations are available. False negative rate of thyroid FNAC varies from 1-11% [8,9] which is mainly due to inadequate sampling. False positive rate is about 3% and it largely depends on the diagnostic category[10]. The error in FNAC of thyroid depends both on sampling error and interpretation. The inability to distinguish(FA) from follicular carcinoma (FC) has been debated atlength [11-13]and in turn has led to the use of ancillary techniquesto resolve this problem. Marked reduction in theincidence of FC (from 20% of thyroid cancers to less than2%) since the practice of iodide supplementation of foodsupplies [14]has, however, shifted the focus to other follicularlesions such as cellular nodular goiter (NG) and FV-PC.[15]In experienced hands, and in situations where the pathologist performs the needling, cytology can be a very sensitivetool with sensitivity and specificity ofFNA to distinguish follicular adenoma up to 94% and 98%for the diagnosis of malignant lesionsand nearly 90%accuracy rates for the identification of malignancy if follicularlesions are excluded.Cytologic diagnosis is generallyaccurate in thyroiditis, usual type of PC, medullary carcinoma(MC), anaplastic carcinoma (AC) and high-grade lymphoma.False negatives generally occur in cystic lesionsharboring malignancy, in low-grade or intermediate-gradelymphomas occurring in a background Hashimoto's thyroiditis(HT), in AC with necrosis, in focal involvement ofthe glandby thyroiditis and in cases with dual pathologywhere the dominant non-neoplastic lesion overlies orobscures a small carcinoma.

V. Conclusion:

Our study had similar findings as comapred to the previous study conducted by Dr Swati et al with maximum no of benign cases of colloid goitre and malignancies of follicular neoplasms [16].However their was relative increase in the no of cases of thyroid swelling.The reason for high prevalence of thyroid disorders inspite of iodine supplement should be looked on.Jharkhand being an iodine deficient state proper awareness and understanding along with upgradation of health facilities is required for reducing the disease burden.Prior to FNAC, the relevant biochemical tests and radiological examination should be carried out in order to help the clinician as well the surgeon for correct management of the cases.

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