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ORIGINAL ARTICLE

Fine needle aspiration cytology findings of thyroid swellings

Pankaj Tripathi

Assistant Professor, Department of Pathology, Sardar Rajas Medical College Hospital & Research Centre, Odisha, India

ABSTRACT:

Background: Among all the endocrine disorders, thyroid disorders are the most common in India. The present study was conducted to assess FNAC findings of thyroid swellings. **Materials & Methods:** 78 patients with thyroid swellings was recorded. All underwent ultrasonography. USG findings were recorded in which ever patients they were available. FNAC was done as per standard protocols. **Results:** Out of 78 patients, males were 40 and females were 38. Thyroid swelling were colloid nodular/adenomatous goiter in 22, lymphocytic thyroiditis in 10, papillary carcinoma in 8, follicular neoplasm in 15, simple colloid cyst in 11, toxic goitre in 6 and insufficient material in 5 patients. The difference was significant (P< 0.05). **Conclusion:** FNAC is effective in diagnosis of thyroid swelling.

Key words: FNAC, thyroid swelling, USG.

Corresponding author: Dr. Pankaj Tripathi, Assistant Professor, Department of Pathology, Sardar Rajas Medical College Hospital & Research Centre, Odisha, India

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INTRODUCTION

Among all the endocrine disorders, thyroid disorders are the most common in India. Thyroid lesions may be developmental, inflammatory, hyperplastic and neoplastic.[1] Diseases of the thyroid gland are common and comprise a spectrum of entities causing systemic disease (Grave's disease) or a localized or diffuse enlargement of the thyroid gland such as nodular enlargement (goitre) or a tumor mass.[2]

The prevalence of goitre differs according to the geographical region, age and sex. Lesions affecting the thyroid can be accurately diagnosed by a careful histopathological examination of thyroidectomy specimens.[3] Enlargement of thyroid account for the significant number of cases. It becomes a challenge to come out with a proper diagnosis and management when the swelling is not due to thyroid. Besides, cosmetic deformity, neck swelling may also cause various pressure symptoms related to trachea and esophagus and major blood vessels according to size and histopathological type. Sometimes, to rule out malignancy, biopsy may be required especially in adenoma cases.[4]

Thyroid nodules in FNAC are classified as benign, malignant, suspicious, and insufficient for diagnosis. By considering this classification, clinicians will be able to decide if the thyroid nodule should be removed by surgery or not. In fact, introduction of FNAC into the field of thyroid diagnostic tests has reduced thyroid surgeries considerably.[5] The present study was conducted to assess FNAC findings of thyroid swellings.

MATERIALS & METHODS

The present study was conducted among 78 patients with thyroid swellings. All patients were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc. was recorded. A thorough clinical examination was performed. All underwent ultrasonography. USG findings were recorded in which ever patients they were available. FNAC was done as per standard protocols. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 78		
Gender	**Males**	**Females**
Number	40	38

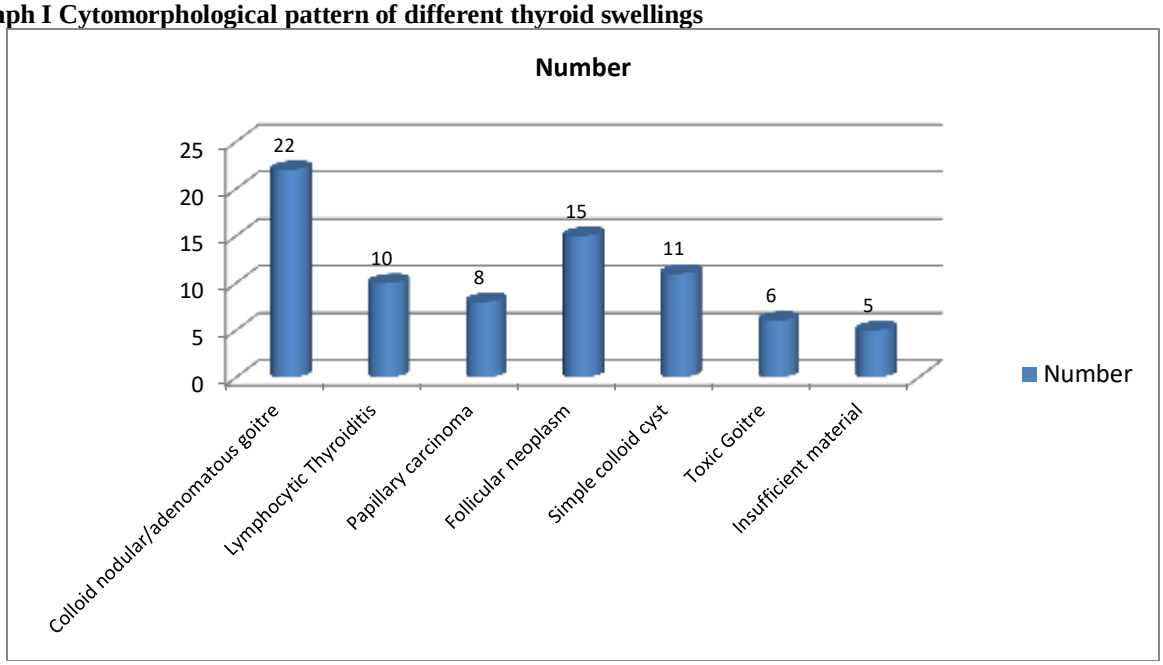
Table I shows that out of 78 patients, males were 40 and females were 38.

Table II Cytomorphological pattern of different thyroid swellings

Thyroid swelling	Number	P value
Colloid nodular/adenomatous goitre	22	0.02
Lymphocytic Thyroiditis	10	
Papillary carcinoma	8	
Follicular neoplasm	15	
Simple colloid cyst	11	
Toxic Goitre	6	
Insufficient material	5	

Table II, graph I shows that thyroid swelling were colloid nodular/adenomatous goiter in 22, lymphocytic thyroiditis in 10, papillary carcinoma in 8, follicular neoplasm in 15, simple colloid cyst in 11, toxic goiter in 6 and insufficient material in 5 patients. The difference was significant (P< 0.05).

Graph I Cytomorphological pattern of different thyroid swellings



DISCUSSION

Thyroid nodules are very frequent and it is estimated that 4–7% of adults have palpable enlargement of thyroid and ten times more have impalpable nodules. Thyroid nodules are more frequent among females, elderly people, history of irradiation to the head and neck, and a diet containing high amount of goitrogenes. Most of the thyroid nodules are benign and fewer than 5% of them are actually malignant. During the last two decades, FNAC has emerged as the most reliable and cost-effective method in the diagnosis and management of clinically important thyroid disorders.[6]

Thyroid fine-needle aspiration cytology (FNAC) was introduced in 1950 and became popular worldwide in 1980. Today, it is a well-established technique for preoperative diagnosis of thyroid pathologies. Thyroid lesions may cause sign and symptoms of hypothyroidism or hyperthyroidism and also have malignant potential.[7] Therefore, accurate evaluation of thyroid lesions is difficult. Fine needle aspiration cytology of the thyroid gland has radically changed the management of patients with thyroid disease. FNAC is widely accepted as the most accurate, sensitive, specific, and cost-effective diagnostic procedure in the preoperative assessment of thyroid nodules.[8] The present study was conducted to assess FNAC findings of thyroid swellings.

In present study, out of 78 patients, males were 40 and females were 38. Esmaili et al[9] determined the accuracy and reliability of FNAC. Only patients which had a solitary or multiple thyroid nodules were selected for FNA. The FNAC results are classified as benign, malignant, suspicious, and unsatisfactory. From above patients, 192 (11.7%) cases underwent surgery, and histopathologic examination was performed. By comparing the FNAC reports with the corresponding histopathologic results, the accuracy of thyroid FNAC was determined. According to FNAC diagnostic

criteria, there were 1054 (64.3%) benign cases, 128 (7.8%) malignant, 306 (18.66%) suspicious and 151 (9.2%) inadequate for diagnosis. In 192 cases, which underwent surgery, FNAC reports were compared with histopathologic results and statistical indices were calculated. The sensitivity, specificity, and accuracy were 91.6%, 100%, and 97%, respectively. These findings strongly support that FNAC as a useful technic for preoperative diagnosis of thyroid lesions.

We found that thyroid swelling were colloid nodular/adenomatous goiter in 22, lymphocytic thyroiditis in 10, papillary carcinoma in 8, follicular neoplasm in 15, simple colloid cyst in 11, toxic goitre in 6 and insufficient material in 5 patients. Sengupta et al[10] in a prospective study of preoperative FNAC carried out on 178 incidental thyroid swellings. Evidence-based surgical interventions were done, irrespective of FNAC findings and diagnosis was confirmed by histopathological examination (HPE) postoperatively in all the cases. In the FNAC, preponderance of the cases (75.84%) was colloid goitre followed by granulomatous thyroiditis; follicular carcinoma was noted in 7.30 percent and anaplastic carcinoma in 3.37 percent of cases. Histopathological examination showed colloid goiter.

In 1870 Rugu and his associate[11] have first advocated surgical biopsy as an essential diagnostic tool. Currently this technique is practiced worldwide and it is the investigation of choice in thyroid, lymphnodes and breast swellings. The limitation of FNAC includes false negative result and false positive results. Bloch[12] had done a comparison study between FNAC and histopathology and then found that the accuracy and FNAC was 91.6%.

CONCLUSION

FNAC is effective in diagnosis of thyroid swelling.

REFERENCES

1. Mackenzie EJ, Mortimer RH. Thyroid nodules and thyroid cancer. Med J Aust 2004;180:242-7.
2. Esmaili HA, Taghipour H. Fine-needle aspiration in the diagnosis of thyroid diseases: An appraisal in our institution. ISRN Pathology 2012. 2012 912728.
3. Caruso P, Muzzaferri EL. Fine needle aspiration biopsy in the management of thyroid nodules. Endocrinology 1991; 1: 194-202.
4. Elahi S, Manzoor-ul-Hassan A, Syed Z, Nazeer L, Nagra SA, Hyder SW. A study of goiter among female adolescents referred to centre for nuclear medicine, Lahore. Pak J Med Sci, 2005; 21: 56-61.
5. Liel Y, Ariad S, Barchana M. Long term follow up of patients with initially benign thyroid fine needle aspiration. Thyroid 2001;11:775-8.
6. Mundasad B, Mcallister I, Carson J, Pyper P. Accuracy of fine needle aspiration cytology in diagnosis of thyroid swellings. Internet J Endocrinol 2006;2.
7. Layfield LJ, Reichman A, Bottles K, Giuliano A. Clinical determinants for the management of thyroid nodules by fine needle aspiration cytology. Arch Otolaryngol Head Neck Surgery 1992;182:717-219.
8. Sikder MA, Rahman AM, Khair MA. Accuracy of fine needle aspiration cytology (FNAC) in the diagnosis of thyroid swellings. Journal of Dhaka National Medical College & Hospital. 2012;18(2):47-51.
9. Esmaili HA, Taghipour H. Fine-needle aspiration in the diagnosis of thyroid diseases: An appraisal in our institution. International Scholarly Research Notices. 2012;2012.
10. Sengupta A, Pal R, Kar S, Zaman FA, Sengupta S, Pal S. Fine needle aspiration cytology as the primary diagnostic tool in thyroid enlargement. Journal of natural science, biology, and medicine. 2011 Jan;2(1):113.
11. Rugu C. Needle Aspiration biopsy. Am J Pediatr 1970;62:565–568
12. Bloch M. Fine needle aspiration biopsy of head & neck masses. Otolaryngol Head Neck Surg. 1997;89:62–68