

Study of Clinicopathological Profile of Patients With Multinodular Goiter In A Tertiary Care Center



MEDICAL SCIENCES

KEYWORDS : Multinodular goiter, FNAC, Histopathology, efficacy.

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ABSTRACT

Multinodular goiter is a common disorder characterized by a nodular enlargement of the thyroid gland a problem commonly encountered in medical practice. It is a condition occurring in about 12% of the adults characterized by nodules that grow slowly with in the thyroid. There are different diagnostic modalities like Fine needle aspiration cytology (FNAC), ultrasound examination and biochemical analysis. However histopathology remains the gold standard. The study was conducted at our institution to find the clinicopathological profile of the patients with multinodular goiter, and to study the diagnostic sensitivity and specificity of FNAC in diagnosing multinodular goiter. Our study showed that multinodular goiter is common in females than in males and in frequent in 3rd decade of life. Majority of the patients had euthyroid status in thyroid profile. Non neoplastic lesions were more common than neoplastic lesions. FNAC was found to be a safe and effective diagnostic modality with specificity of 100% and efficacy of 98%.

Introduction:

Multinodular goiter is a common disorder characterized by a nodular enlargement of the thyroid gland a problem commonly encountered in medical practice. It is a condition occurring in about 12% of the adults characterized by nodules that grow slowly with in the thyroid. It is a disorder which causes cosmetic disfiguration and can also result in pain and breathlessness. There are different diagnostic modalities like Fine needle aspiration cytology (FNAC), ultrasound examination and biochemical analysis. However histopathology remains the gold standard in making the final diagnosis and aids in the definitive management. The study was conducted at our institution to find the clinicopathological profile of the patients with multinodular goiter, and study the diagnostic sensitivity and specificity of fine needle aspiration cytology in diagnosing multinodular goiter.

Materials and Methods :

The total of fifty patients presenting with multinodular goiter of thyroid were evaluated between June 2006 and June 2008, with the aim of assessing the various clinical factors of the patient like age incidence, sex incidence, clinical presentation, investigations with FNAC and ultrasound and correlate it with histopathological examination following. Data was collected from the patients admitted with thyroid enlargement. An informed written consent was taken before carrying out any diagnostic or therapeutic procedure. FNAC, thyroid function tests and Ultrasonography were done in all cases. Patients diagnosed as having multinodular goiter with age group of 20 to 60 years both sexes are included in this study. All cases that are below 20 years and above 60 years were excluded from the study. All cases of solitary thyroid nodule and graves disease were excluded in the study.

Observations:

The peak age incidence was found in 3rd decade of life. The number of cases found in different age groups are as shown in table 1. (TABLE 1 ABOUT HERE)

All 50 cases presented with the history of swelling in front of the neck , 5cases (10%) presented with pain in the swelling , 4 case (8%) presented with change in voice , 3 cases (6%) presented with pressure symptoms , 9 cases (18%) presented with toxic symptoms. The thyroid function tests of the patients showed that 44(88%) patients were euthyroid and 6 (12%) had hyperthyroid status.

On analyzing the FNAC reports, 16 cases(32%) were reported as nodular goiter, 24 cases(48%)reported as colloid goiter, 5

cases(10%)were reported as papillary carcinoma, 4 cases(8%) reported as follicular neoplasm and 1 case(2%)was reported as cystic changes.

All patients underwent ultrasound examination before surgery which showed multiple nodules with solid and cystic areas in thyroid.

All fifty patients underwent surgery following which histopathological examinations of the thyroid specimen were made. The Histopathological reports suggested that 40 cases (80%) were Multinodular goiter, 4 cases (8%) were follicular adenoma with Multinodular goiter, 5 cases(10%) were papillary carcinoma and 1 case(2%) was medullary carcinoma. Of the 5 cases (10%) which were suspicious of papillary carcinoma on FNAC, proved to be the same on histopathological examination. Of the 23 cases (46%) which were reported to be multi nodular goiter, 1case (2%) was medullary carcinoma. The correlation of FNAC and histopathology findings are as shown in table 2. (TABLE 2 ABOUT HERE)

The correlation of FNAC with histopathology showed that sensitivity of FNAC is 90% and specificity is 100%. The efficacy of FNAC was 98%.

Discussion:

Multi nodular goiter is more common in females than males and it increases in prevalence with age. The age incidence in the present study ranged from 20 to 60 years. In the present study the youngest patient was 21 year old and the oldest was 60 year old. Average age in the present study was 40.5 years. Maximum cases were reported in the third (38%) decade of life and the least incidence was found in the fifth decade of life. In the study done by Hanumanthappa et al2 majority of the cases were found in the third decade. They also showed that the incidence of MNG is higher in 3rd decade of life. The present study is comparable to the above studies.

Female predominance is well established feature of thyroid disease. In the present study, the proportion of female and male patients is 88% and 12% respectively, with a female to male ratio of 7.3:1. Greig WR et al3 and Brix TH et al4 reported female preponderance with the ratio of 7:1 to 9:1. Nygaard B et al5 reported female to male ratio of 8.8 to 1. The study conducted by Hanumanthappa et al2 reported female to male ratio of 5.6:1. In all the above studies female preponderance was noted. Thus the present study is comparable to the above mentioned studies.

Most of the cases had nodular surface and was firm in consist-

ency in 86% of the cases. 8% of the cases were found to be hard in consistency, 6% of the cases were soft in consistency.

FNAC is a safe, simple and inexpensive technique that has emerged as a valuable and popular adjunct in the diagnosis and management of various thyroid disorders. FNAC was done in all fifty cases. 82% cases were reported as benign thyroid lesions. These include colloid, nodular goiter and cystic changes. 8% of the cases were reported as follicular neoplasm and 10% as papillary carcinoma. The overwhelming view is that confirmation of the diagnosis of the follicular carcinoma is dependent upon the visualization of the capsular and vascular invasion by the tumor in the histopathological examination of the lesion and cannot be described on FNAC. Al Sayer et al6 & Belfiore A et al7 , reported that an overall accuracy rate of greater than 90% can be achieved in the cytological study of thyroid nodules.

8% of the cases that were reported as follicular neoplasm on FNAC were proved to be Follicular adenoma on Histopathology. Of the 82% cases reported as benign thyroid lesions on FNAC, one case was proved as Medullary carcinoma on histopathology. 10% of Papillary carcinoma reported on FNAC were confirmed on histopathology.

The histopathological study of the resected thyroid specimens showed that out of 50 cases, 44 cases (88%) were reported as benign thyroid lesions and 6 cases (12%) were malignant thyroid lesions on histopathology. Out of 6 cases of malignancy 5 cases were Papillary and one was of Medullary carcinoma. Studies conducted by Kundsens et al8 showed a malignancy rate of 5%. Koh and Chang et al9 reported an incidence of 7.5% malignancy in clinically benign multinodular goiter. Pelizzo MR et al10 showed that the incidence of malignancy in multinodular goiter was 7.6%.

Stoffer et al11 reported that 13% of the thyroid glands resected in thyroid operations for any reason contained papillary carcinoma. In our study, papillary carcinoma accounted for 10% of the cases.

Specificity of fine needle aspiration cytology in detecting malignant lesions was 100%, sensitivity was 90% and efficacy was 98%. Can et al12 showed that sensitivity of FNA was 100%, specificity 94%.

Conclusion:

Our study showed that multinodular goiter is common in females than in males and in frequent in 3rd decade of life. Majority of the patients had euthyroid status in thyroid profile. Non neoplastic lesions were more common than neoplastic lesions. FNAC was found to be a safe and effective diagnostic modality with specificity of 100% and efficacy of 98%.

Table 1: Shows number of cases of multinodular goiter in males and females in different decades.

| AGE | female | male | Total |
|-------|--------|------|-------|
| 21-30 | 12 | 2 | 14 |
| 31-40 | 19 | 0 | 19 |
| 41-50 | 7 | 2 | 9 |
| 51-60 | 6 | 2 | 8 |
| Total | 44 | 6 | 50 |

Table 2: shows correlation between FNAC and histopathological diagnosis.

| FNAC | HPR | | | | Total |
|---------------------|----------------------|---------------------|-----------------------------|---------------------|-------|
| | Multi nodular goiter | medullary carcinoma | follicular adenoma with MNG | papillary carcinoma | |
| Nodular goiter | 16 | 0 | 0 | 0 | 16 |
| Colloid goiter | 23 | 1 | 0 | 0 | 24 |
| Papillary carcinoma | 0 | 0 | 0 | 5 | 5 |
| Cystic changes | 1 | 0 | 0 | 0 | 1 |
| Follicular adenoma | 0 | 0 | 4 | 0 | 4 |
| Total | 40 | 1 | 4 | 5 | 50 |

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