

# Diagnosis of Enlarged Thyroid – an analysis of 250 cases

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Thyroid enlargement is a common problem faced both by clinicians and histopathologists. In an effort to determine the incidence of its various causes in our population, 250 cases were analyzed. There was a marked female preponderance (M:F ratio 1:3.8). Multinodular goiter was the commonest final diagnosis whereas 4 cases showed malignant thyroid neoplasms. Microscopic examination remained the golden path to the final diagnosis. The results as well as the relative efficacy of the various diagnostic modalities are discussed.

**Key words:** Multinodular, medullary carcinoma, tuberculosis

Thyroid disease is comparatively prevalent<sup>1, 2</sup>. Most thyroid diseases present as either diffuse enlargement of the thyroid or appearance of one or more nodules. These need to be further categorized into inflammatory, hyperplastic, goitrous or benign and malignant neoplastic conditions<sup>3-5</sup>. Effective clinical management depends heavily on this categorization.

The methods currently used for assessing thyroid enlargement include FNA, TFT, thyroid scan, ultrasound and histopathology<sup>5-8</sup>. Genetic rearrangement studies hold great promise and may in future prove to be an indispensable tool in thyroid patients. But, since they require additional time, expense, equipment and expertise, they have limited utility in present clinical practice<sup>3, 9-11</sup>.

Only limited data is available regarding the local incidence and prevalence of thyroid disease, so the present study was planned to find out the pattern of thyroid disease in our setup.

## Material and methods:

A total of 250 specimens of thyroid origin were received for histopathology in PGMI from June 2001 to October 2004. These included thyroid nodules, lobectomy specimens as well as total thyroidectomy specimens.

Complete clinical data including age, gender, clinical findings, FNA report (where applicable) and clinical diagnosis was gathered in each case.

The specimens were weighed, measured and external appearance noted. These were then processed routinely and stained with H & E. The gross as well as microscopic features were recorded. These were also correlated with the available clinical data. The results were analyzed using mean and %age.

## Results:

The age of the patients ranged from 23-80 years. The mean age was 34±4.6 years. There were 31 males and 119 females with a M:F ratio of 1:3.8.

The findings on gross examination are given in Table 1, while the microscopic diagnoses are given in Table 2. These reveal multinodular goiter to be the commonest pathology followed closely by colloid goiter. The inflammatory conditions included Hashimoto's thyroiditis,

DeQuervain thyroiditis, lymphocytic thyroiditis, Riedel's thyroiditis, and tuberculous thyroiditis in the order of frequency. The case diagnosed as tuberculous thyroiditis showed classical morphology with numerous caseating granulomas. ZN staining revealed numerous AFB. Our clinical colleagues were contacted, the patient was worked up, and pulmonary tuberculosis diagnosed in that order.

Thyroid adenoma was the next most common diagnosis (5 cases). Four of these cases had undergone FNA, all being reported "follicular neoplasms". Here the M:F ratio was 1:1.5.

A total of 4 cases were diagnosed as harboring malignant growths. Two cases revealed Papillary Thyroid Carcinoma (PTC). One of these had presented by metastasis in cervical lymph node. Lymph node FNA revealed suspicious cells and that led to an investigation of the thyroid, which ended in the diagnosis of PTC. The other malignancies included follicular carcinoma and medullary carcinoma. The male to female ratio of malignant cases was 1:3.

Table 3 compares the final diagnoses with the ones made on clinical examination, gross examination, FNA report and microscopic examination. Clinical as well as gross examinations were found to furnish valuable information. The final diagnosis being the same as clinical diagnosis in 13.2% of cases while in another 9.2% it was the same as the one made on gross examination. FNA reports were echoed in the final diagnosis in 20.8% of the cases only. Here it should be mentioned that FNA biopsy reports were available for 31.2% cases only. The other cases either did not have their FNAs done or the reports were not provided. The vast majority (56.8% cases) had to wait for the report of microscopic examination to be meaningfully categorized.

Table 1: Gross appearance of specimens (n=250)

Feature	n=	%age
Nodularity	187	74.8
Haemorrhage	156	62.4
Fibrosis	78	31.2
Calcification	27	10.8
Accompanied by enlarged cervical lymph nodes	4	1.6
Invasion of capsule	2	0.8

Table 2: Incidence of various disease in thyroid (n=250)

Incidence	n=	%age
MNG	127	50.8
Colloid goiter	98	39.2
Hyperplasia	04	1.6
Hashimoto's thyroiditis	06	2.4
DeQuervain's thyroiditis	01	0.4
Riedel's thyroiditis	01	0.4
TB thyroiditis	01	0.4
Adenoma	05	2.0
Papillary carcinoma	02	0.8
Follicular carcinoma	01	0.4
Medullary carcinoma	01	0.4

Table 3: Comparison of diagnosis at various stages (n=250)

Comparison with final diagnosis	n=	%age
Final diagnosis same as clinical diagnosis	33	13.2
Final diagnosis same as the one in FNAC report	52	20.8
Final diagnosis same as the one made on gross examination	23	9.2
Final diagnosis established only after microscopic examination	142	56.8

### Discussion:

Thyroid disease is one of the very few areas of life where one encounters an established female dominance<sup>12-17</sup>. This was reconfirmed in our study as well. The females led in overall disease incidence as well as in incidence of malignancy.

Goitrous enlargement was found to be the commonest problem in keeping with the prevalent iodine deficiency in Pakistan<sup>12</sup>. This was followed by Hashimoto's thyroiditis, found exclusively in females in this study. Of the inflammatory conditions, the most surprising was the case diagnosed as tuberculous thyroiditis. This is said to be a rare disease<sup>18,19</sup>, but occasional cases are reported in literature<sup>20</sup>. The definitive diagnosis requires histological and bacteriological confirmation<sup>21</sup> and both criteria were fulfilled in this case.

Results of Table 3 reveal that gathering relevant clinical data and thorough gross examination are invaluable aides to the final diagnosis. Unfortunately these aspects are often neglected. FNA reports were available for 31.2% of cases only. The other cases either did not have the test done or the reports were not available for one reason or the other. In fact, of the four malignant cases only one had the diagnosis already made on FNA. The rest had to wait for the histopathology reports for the diagnosis.

So in the final analysis, histopathology was found to be the gold standard for accurate categorization. This has been suggested in earlier studies as well<sup>6, 7, 10</sup>.

### Conclusion:

The pathology of the thyroid gland presents the pathologists with a particular set of diagnostic problems and many aspects of diagnosis are unique to this area of histopathology. Though newer techniques like

immunohistochemistry and gene rearrangement studies can certainly be helpful in more difficult cases, but as in all areas of pathology, histological features take precedence and good communication with the relevant clinical colleagues is paramount.

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