



Original Research Article

Non neoplastic lesions of thyroid– Histopathological study

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ABSTRACT

Introduction: Thyroid swellings are routinely encountered cases in clinical practice particularly among Asian countries as iodine deficiency plays a crucial etiological role in predominant cases of non neoplastic lesions. Thyroid swelling creates a major socioeconomic and health problem as they present as asymptomatic nodules many a times as firm swellings or as soft cystic in consistency masses. Thyroid gland lesions presents a large variety of pathological lesions. Incidence of non neoplastic lesions are more common than neoplastic lesions. Present study aims to know the spectrum of presentation of these non neoplastic lesions of thyroid.

Materials and Methods: In the present study the data was analysed and a total of 209 cases of non neoplastic lesions of thyroid were studied. The study was carried out in the Department of Pathology of an Autonomous institute Government Medical college and hospital (RIMS), Raichur, India, for a period of 3 years with 2 years of retrospective and 1 year of prospective study respectively.

Results: In the present study results collected were analysed and portrayed that out of 209 cases, higher incidence of Non neoplastic lesions were noted in 3rd decade and 4th decade of life, predominant number of the patients were diagnosed in females with 68.8% and when data was analysed, which showed that the female to male ratio was 2.3:1. Colloid goiter formed the major non neoplastic lesions having a total of 110 cases with 52.63% indicating more than half of the cases were colloid goitre, and was the most common non neoplastic lesion diagnosed histopathologically, next in line was multinodular goitre which was diagnosed in 82 cases having 39.23% of share, hashimoto's thyroiditis was diagnosed in 10 individuals which constituted 4.79% of the total cases. Study also tabulated adenomatous hyperplasia with 3.35% of population which were associated with colloid goiter and multinodular goiter.

Conclusion: Non neoplastic lesions of thyroid have varied clinical presentation and confirmation of these thyroid lesions can be done by histopathological study in correlation with clinical presentation. Present study is intended to evaluate the incidence and categorise histopathologically the types of non neoplastic lesions of the thyroid in this region.

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1. Introduction

Lesions of thyroid are most common among all endocrine organs. Most of these thyroid lesions presents as a solitary or diffuse or nodular swellings. Thyroid gland enlargement poses a major health concern and affect individuals creating a socioeconomic burden. Thyroid gland swellings can give rise to a large variety of pathological lesions, at one end there may be developmental and inflammatory swellings

and at other end there are neoplastic entities. Thyroid nodules are more commonly seen in females than in males with various etiological factors and most of thyroid lesions are non neoplastic in nature than neoplastic.¹

Diffuse thyroid lesions like hyperplasia and thyroiditis affect entire gland. Among the non-neoplastic thyroid lesions goitre has a major share among non neoplastic lesions. Goitre may be colloid or nodular goitre or simple goitre or toxic and non toxic goitre. Non neoplastic thyroid lesions may manifest as hyperthyroidism or hypothyroidism. Grave's disease is one of the common

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cause of hyperthyroidism.²

Goiter becomes a common lesions particularly in endemic areas due to deficiency of iodine in the soil, water or food. Government is making every effort in reducing the incidence of goitre by providing iodised salt. Sporadic thyroid swellings are caused due to variety of etiological factors and are mostly benign in nature, but still can simulate malignancy clinically, cytologically or radiologically.¹

A panel of diagnostic tools like thyroid function test (TFT), fine needle aspiration cytology (FNAC), ultrasonography and thyroid nuclear scan, are effectively utilized by physicians and surgeons as primary mode of investigations for evaluation of non neoplastic thyroid lesions and Thyroid antibodies evaluation form secondary line of investigations particularly in inflammatory thyroid lesions. However, in most of the cases macroscopic evaluation of excised thyroidectomy specimen and histopathological examination forms a confirmatory test in establishing a final diagnosis.³

The present study is undertaken to know the incidence and various spectrum of benign thyroid lesions through histopathological examination in this region.

2. Materials and Methods

The duration of study period is three(3) years study with two (2) years of retrospective and one (1) year prospective study carried out at department of Pathology of an Autonomous institute Government Medical college and hospital (RIMS), Raichur. Clinical details for the retrospective study were obtained from the old archives in the medical record department. Paraffin blocks of sections diagnosed as non neoplastic lesions were sorted out separately and sections were cut and stained with hematoxylin and eosin for histopathological study. For prospective study on receiving the specimens, the macroscopic features were noted, and the diseased tissue is dissected and processed to have serial sections and these sections were stained with hematoxylin and eosin for histopathological examination. A detailed microscopic examination of the non neoplastic lesions were done to arrive at an accurate diagnosis. Special stains were used wherever necessary.

2.1. Inclusion criteria

All types of surgical excision of thyroid swellings were considered with clinical diagnosis as non neoplastic swellings of thyroid were included.

2.2. Exclusion criteria

All lesions diagnosed as neoplastic were excluded from the study.

3. Results

A total of 209 cases of thyroid swellings of non neoplastic lesions were studied and analysed. The youngest patient age was 12 years and the oldest patient age was 66 years, with mean being 39 years. Peak age of incidence was seen between 3rd and 4th decade of life. Females were more commonly affected than males, with female to male ratio of 2.3:1. Colloid goitre was diagnosed in 110 cases (52.63%) and constituted a major share among non neoplastic lesion encountered in the study followed by multinodular goitre with 82 cases (39.23%).

Colloid goitre with 110 cases Figure 1 (52.63%) was most common in age group of 3rd and 4th decade of life, females being more commonly affected than males with female to male ratio of 2.5 : 1. In present study we observed that out of 82 cases Figures 2 and 3 (40.6%) of multinodular goitre, there were 56 cases (26.7%) seen in females and 26 (12.4%) seen in males. Peak age of incidence was seen in 3rd decade. Other cases include 10 patients of Hashimoto's thyroiditis with 4.83% Figure 4 adenomatous hyperplasia constituted 7 cases with 3.34% Figure 5 with female preponderance.

Data categorised showed that between 11 to 20 years of age, 6 cases of colloid goitre were analysed and 1 case of multinodular goitre was reported and a total of 7 cases with 3.4% of lesions were reported between 11-20 years.

Between 21 to 30 years of age a total of 48 cases were reported as colloid goitre and 51 cases of multinodular goitre were diagnosed and 7 cases were histopathologically reported as Hashimoto's thyroiditis and 2 cases as adenomatous hyperplasia. A total of 108 cases (51.6%) were studied between 21 to 30 years of age indicating common age of incidence.

Data among Individuals between 31 to 40 years of age showed total of 41 cases of colloid goitre were reported on histopathological examination along with 26 cases of multinodular goitre, 2 cases of Hashimoto's thyroiditis and 4 cases of adenomatous hyperplasia were diagnosed. A total of 73 cases with 35% of non neoplastic lesions were reported between 31 to 40 years of age.

Between 41 to 50 years of age 12 cases of colloid goitre were histopathologically reported along with 2 cases of multinodular goitre, 1 each case of Hashimoto's thyroiditis and adenomatous hyperplasia respectively. A total of 16 cases with 7.7% of share in non neoplastic lesions were reported between 41 to 50 years of age.

Between 51 to 60 years of age 2 cases of colloid goitre were histopathologically reported along with 1 case of multinodular goitre were histopathologically reported A total of 3 cases with 1.4% of non neoplastic lesions were tabulated.

From the data analysed the incidence of non neoplastic lesions were reduced as the age of the patient increased indicating that there is inverse proportion between age and

non neoplastic lesions

According to the data analysed predominant non neoplastic lesions were found between 21 to 30 years with 108 cases with 51.6 % and between 31 to 40 years of age with 73 cases of non neoplastic lesions forming 35% of total studied samples.

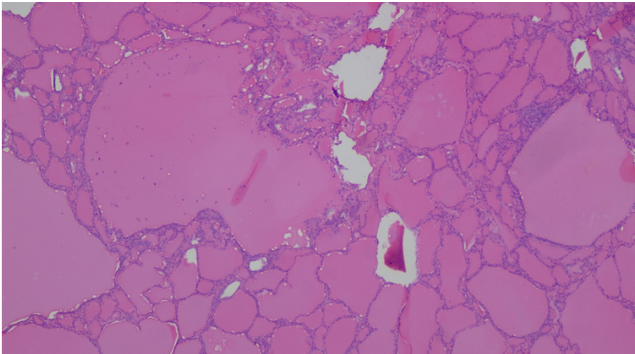


Fig. 1: Colloid goitre 10x view

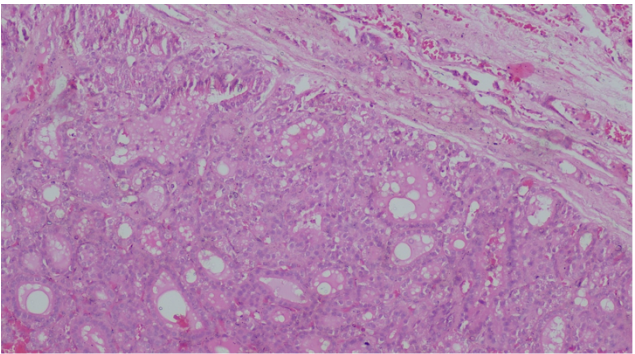


Fig. 2: Multinodular goitre 10x view

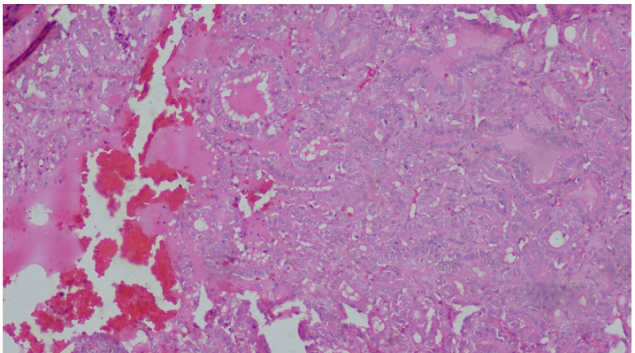


Fig. 3: Multinodular goitre 40x view

4. Discussion

The present study was analysed and tabulated in the Department of Pathology, in Government run autonomous

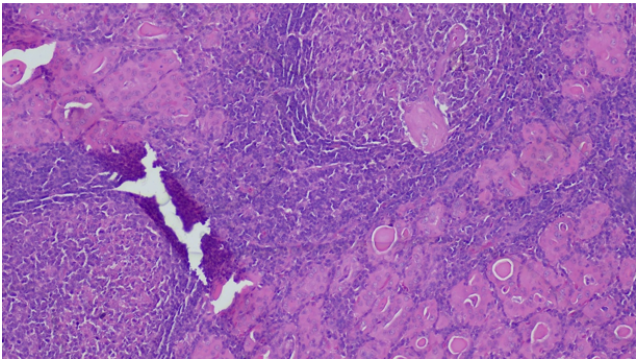


Fig. 4: Hashimoto's thyroiditis 10x

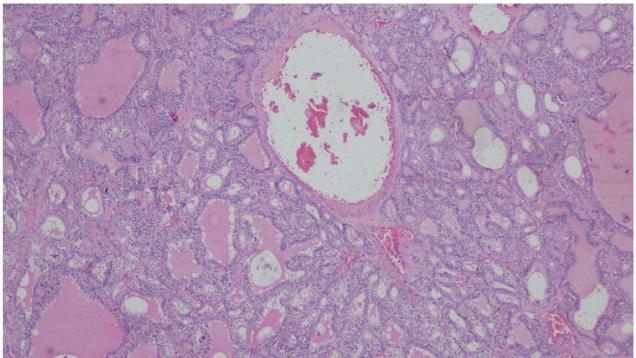
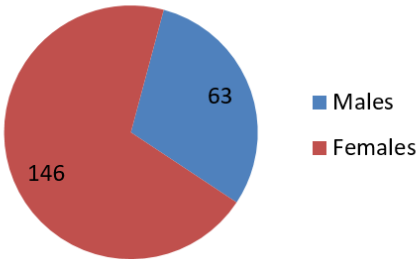
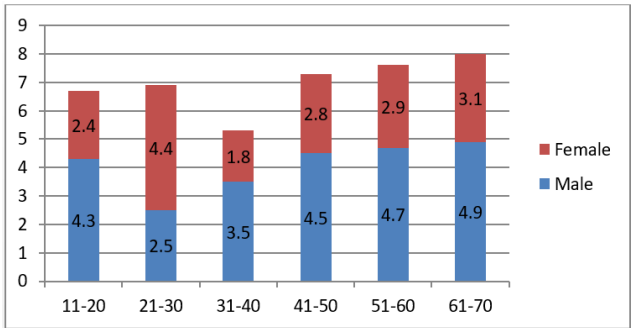


Fig. 5: Adenomatous hyperplasia 40x view

Gender distribution of non neoplastic lesions of thyroid



Graph 1: Sexdistribution of non neoplastic lesions of thyroid



Graph 2: Age and Sex distribution of non neoplastic lesions of thyroid

Table 1: The distribution of cases according to their age and nature of lesion

Age in years	Nature of lesion				Total
	Colloid Goitre	Multinodular goitre	Hashimotos thyroiditis	Adenomatous hyperplasia	
0-10	-	-	-	-	-
11-20	6	1	-	-	7(3.4%)
21-30	48	51	7	2	108(51.6%)
31-40	41	26	2	4	73(35.0%)
41-50	12	2	1	1	16(7.7%)
51-60	2	1	-	-	3(1.4%)
61-70	1	1	-	-	2(0.9%)
Total	110(52.63%)	82(39.23%)	10(4.79%)	7(3.35%)	209 (100%)

institute, RIMS, Raichur. A total of 209 cases of non neoplastic lesions of thyroid were studied. Peak age of incidence of non neoplastic thyroid lesions in the present study was 3rd and 4th decade of life, similar findings were observed in the study done by Rangaswamy M, et al,⁴ where they studied 585 cases and their age range was 11-70 years, mean age was 40.57 years. Similar findings were found in our study that showed the mean age as 39 years of age.

According to various studies done by Sengupta et al⁵ and Pradeep Kumar et al⁶ showed peak incidence of non neoplastic thyroid disorders is in the middle age group in 4th decade similar findings were seen in present study.

The data analysed in present study showed that colloid goitre with 110 cases (52.6%) was the most common non neoplastic lesion encountered followed by multinodular goitre with 82 cases(39.23%). Similar findings were observed in study done by Manpreet Singh Nanda⁷ they observed that most common lesion among non neoplastic lesion was diffuse colloid goiter (37%) Mirzakarimov *et al*⁸ (2012), in their study of 239 thyroid specimens found 172 cases (71.96%) of colloid goiter. In study carried out by Niazi et al⁹ showed that multinodular goiter formed the major lesion along with colloid goitre. Similar results were seen in studies conducted by Bisi et al¹⁰ and Ambreem et al.¹¹

Among inflammatory lesions hashimoto's thyroiditis was the commonest lesion with 10 cases (4.8%) and there was female preponderance these findings were in concordance with study done by Niazi et al¹² and Bindra A et al¹³

Present study diagnosed adenomatous hyperplasia in 7(3.4%) cases and most of these lesions were associated with multinodular goiter and colloid goiter. In study done by Mirzakarimov et al⁸ and Rehman et al¹⁴ adenomatous goitre formed the major non neoplastic thyroid lesion.

5. Conclusion

In the present study it is drafted that non neoplastic lesions of thyroid were more common when compared with neoplastic lesions it was also concluded that there was female preponderance. Spectrum of non neoplastic lesions have varied presentation clinically, and histopathological

examination plays important role in confirming the diagnosis.

6. Source of funding

None.

7. Conflict of interest

None.

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