

INCREASED INCIDENCE OF THYROIDITIS IN RECENT YEARS

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ABSTRACT

A prospective study was carried out on 123 patients with enlarged thyroid swelling between 16-65 years age group, attending Department of Surgery, Sree Gokulam Medical College and research foundation, Venjaramoodu, Trivandrum during the period of November 2011 to February 2013. All patients were examined clinically after taking a detailed history. Then, they were investigated by TFT, USG, X-ray neck, X-ray chest, Indirect Laryngoscopy, FNAC and anti-thyroid antibody tests and all the patients were subjected to surgery and histopathological examination (HPE) of the specimen obtained. Finally, all the reports were analysed and the age distribution, sex distribution and the incidence of thyroiditis in study population was obtained. During the study period 123 cases of enlarged thyroid underwent surgery, out of which 115 were females and 8 male patients. The age of the patient in the study ranged from 16- 65 years, the youngest being 16 years old and oldest being 65 years. Maximum cases being in between 30-50 with mean age of 42.3 years. The study showed a female predominance. The incidence of thyroiditis in the present study was 38.21% (47 cases).

KEYWORDS:

Thyroiditis, Hashimotos Thyroiditis, Autoimmune Thyroiditis, Lymphocytic Thyroid.

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INTRODUCTION: Hashimoto's thyroiditis was first described in 1912 by Dr. Hakuru Hashimoto. Based on the histological findings, Hashimoto originally used the term "Struma Lymphomatosa." Over the years, this disease has been called by several names including Lymphocytic thyroiditis, Autoimmune thyroiditis, Chronic thyroiditis, and Lymph adenoid goiter.¹

The cause of Hashimoto's thyroiditis is thought to be a combination of genetic susceptibility and environmental factors.² The incidence of Hashimoto's thyroiditis is estimated to be 10-15 times higher in females; its annual incidence worldwide is estimated to be 0.3-1.5 cases per 1000 individual.³ Though it may occur at any age, including in children, it is most often observed in women between 30 and 60 years of age. It is more common in regions of high iodine dietary intake, and among people who are genetically susceptible.²

Autoimmune thyroid disease known as Hashimoto thyroiditis (HT) is one of special forms of chronic thyroiditis and the most common non-iatrogenic cause of hypothyroidism. The condition is definitely more prevalent in female population (M/F ratio of 1:10, 1:20), is seen in each age group and may also affect children and adolescents. Its unclear etiopathogenesis strongly indicates an autoimmune

background, associated with T-helper lymphocyte (CD4+) activation by class II human leukocyte antigen system cells (MHC class II: HLA-DR3, HLA-DR4, HLA-DR5).

On the one hand, the cells recruit cytotoxic lymphocytes (Tc, CD8+), thus facilitating a release of cytokines that damage thyroid follicular cells and, on the other hand, activating B lymphocytes; they facilitate production of specific antimicrobial, anti-thyroglobulin, or anti-TSH receptor antibodies. Described for the first time in 1912, the disease may have two distinct histological forms: atrophic and nodular. Clinically, in the majority of cases, it is characterized by hypothyroidism, although in a small number of patients, it may be preceded by symptoms of hyperthyroidism. The association between coexistence of Hashimoto thyroiditis and papillary thyroid cancer (PTC) was first described by Dailey et al in 1955. Since that time, attempts have been made at elucidation of this phenomenon.^{4,5}

The objective of the present paper was to demonstrate increased incidence of thyroiditis in present years. An early detection of lesions, a careful selection of a surgical strategy in a referral centre, and treatment monitoring may have a significant impact on improvement of therapeutic outcomes and quality of life in patients with the disease.

MATERIALS AND METHODS: A prospective study was carried out on 123 patients with enlarged thyroid swelling between 16-65 years age group, attending Department of Surgery, Sree Gokulam Medical College and research foundation, Venjaramoodu, Trivandrum during the period of November 2011 to February 2013. Patients with features of

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toxicity and those treated conservatively are excluded from the study. All patients were examined clinically after taking a detailed history. Then, they were investigated by TFT, USG, X-ray neck, X-ray chest, Indirect Laryngoscopy, FNAC and anti-thyroid antibody tests. The results of FNAC were interpreted according to THY grading. The thyroid antibodies test results were interpreted according to radio immune assay test. Patients who were toxic and not willing for surgery were excluded from the study. Then, all the patients were subjected to surgery and histopathological examination (HPE) of the specimen obtained. Finally, all the reports were correlated and age distribution, sex distribution and incidence of thyroiditis was calculated. The statistical analysis used was kappa analysis.

RESULTS: During the study period, 123 cases of enlarged thyroid underwent surgery, out of which 115 were females and 8 male patients. These patients were evaluated by clinical examination, investigations and recorded in the proforma and following interpretations were made.

Age Distribution: The age of the patient in the study ranged from 16- 65 years, the youngest being 16years old and oldest being 65 years. Maximum cases being in between 30-50 with mean age of 42.3 years.

Age	Frequency	Percent
<30	14	11.4
30 – 39	40	32.5
40 – 49	36	29.3
50 – 59	20	16.3
>=60	13	10.6
Mean±SD	42.3±11.3	

Table 1: Age distribution

Sex Distribution: The study showed a female predominance.

Sex	Frequency	Percent
Female	115	93.5
Male	8	6.5

Table 2: Sex distribution

Percentage distribution of the sample according to Anti-TPO:

Anti-TPO	Frequency	Percent
Normal	63	51.2
Abnormal	60	48.8
Mean±SD	128.8±165.1	

Table 3: Percentage distribution of the sample according to Anti-TPO

Percentage distribution of the sample according to Anti Tg:

Anti Tg	Frequency	Percent
Negative	53	43.1
Positive	70	56.9
Mean±SD	601.1±854.1	

Table 4: Percentage distribution of the sample according to Anti Tg

Percentage distribution of the sample according to FNAC: After clinical examination and laboratory tests, patients were subjected to FNAC and based on FNAC criteria for individual disease. Colloid goitre accounted for 70 cases. Hashimoto and lymphocytic were reported separately both together accounted for 38 cases. 11 cases were reported as follicular neoplasm Only 4 cases were reported as papillary carcinoma. The sensitivity of FNAC in the study ranged between 65 – 96% while the specificity was above 95%. The accuracy of FNAC was above 80%. There was a substantial agreement between FNAC and HPR results taking HPR as gold standard.

FNAC	Frequency	Percent
Colloid Goitre	70	56.9
Lymphocytic thyroiditis	24	19.5
Hashimoto's thyroiditis	14	11.4
Follicular neoplasm	11	8.9
Papillary carcinoma	4	3.3

Table 5: Percentage distribution of the sample according to FNAC

Percentage distribution of the sample according to HPR:

HPR	Frequency	Percentage
Colloid goitre	47	38.21
Colloid goitre + lymphocytic thyroiditis	3	0.02
Colloid goitre + follicular adenoma	1	0.01
Follicular adenoma	10	0.08
Lymphocytic thyroiditis	25	20.32
Hashimoto's thyroiditis	13	10.56
Papillary carcinoma	13	10.56
Papillary carcinoma + Hashimoto's thyroiditis	4	0.03
Papillary carcinoma + lymphocytic thyroiditis	1	0.01
Papillary carcinoma + colloid goitre	1	0.01
Hurthle cell neoplasm	3	0.02
Lymphocytic thyroiditis + follicular adenoma	1	0.01
Follicular adenoma + Hurthle cell neoplasm	1	0.01

Table 6: Percentage distribution of sample according to HPR

Incidence of Thyroiditis:

- Number of thyroiditis cases by HPR- 47.
- Total number of cases in study- 123.
- Incidence- $47/123 \times 100 = 38.21\%$.
- Out of the total 123 cases, 47 were thyroiditis accounting for an incidence of 38.21%.

DISCUSSION: The age of the patients in the study group ranged from 16- 65 years with the youngest being 16 years and the oldest being 65 years. Majority of the cases fall in the age group 30- 50 years with a median age of 42 years. The present study showed similar results to Jose R J et al,⁶ Afroze N et al,⁷ Mitra R B et al⁸ ie 36, 40 & 40 respectively with similar range of age groups.

The sex distribution in the present study showed a female dominance with a ratio of 1: 14. Other series reports also showed a female dominance with Popivanov et al⁹ showing a ratio of 1:17 similar to the present study.

The commonest mode of presentation was swelling in front of neck and based on clinical examination multinodular goitre was the diagnosis in 75 cases.

After history taking and clinical examination, thyroid autoantibodies test were done and results noted. 60 cases showed raised anti TPO levels and 67 cases showed positive anti Tg levels. The sensitivity and specificity in predicting thyroiditis using anti TPO was 66 and 62 respectively. The accuracy of the test was 63. There was a fair agreement according to kappa analysis. The sensitivity and specificity in predicting thyroiditis using anti Tg was 64 and 48 respectively. The accuracy of the test was 54. There was a slight agreement according to kappa analysis. Thus anti TPO showed more accuracy in predicting thyroiditis. In a series by Hasabat et al the antibody positivity was 63%. In another series by Lakshmana Rao et al the antibody positivity was 83%.^{10,11}

Out of the 123 cases, FNAC results showed 70 cases as colloid goitre, 24 lymphocytic thyroiditis cases, 14 Hashimoto's thyroiditis and the remaining cases were follicular adenoma, papillary carcinoma, Hurthle cell neoplasm. The sensitivity and specificity of FNAC in predicting colloid goitre were 96 and 72 respectively & the accuracy of the test was 82. The sensitivity and specificity of FNAC in predicting Hashimoto's thyroiditis were 65 and 97 respectively & the accuracy of the test was 93. The sensitivity and specificity of FNAC in predicting lymphocytic thyroiditis were 70 and 97 respectively & the accuracy of the test was 90. According to kappa analysis there was substantial agreement in all three cases.

Numerous studies cited the following data. Sensitivity is 65% - 100% and specificity is 70% - 100%.^{12,13,14} Overall accuracy is estimated at 92% - 95%.^{15,16} One of the most recent and largest series was conducted by Amrikachi et al,¹⁷ who retrospectively reviewed 6226 consecutive FNA from 1982-1998. They reported a sensitivity and specificity of 93% and 96% respectively. The overall sensitivity of FNAC in Kamaljit Kaur et al¹⁸ series was 83.3%, while the overall specificity was 100% as all malignancies reported on FNAC were correctly confirmed by final HPE. The sensitivity and

specificity of FNAC were 71.43% and 100% respectively according to Altavilla et al. (1990),¹⁹ 98% and 99% according to Goellner et al (1987),²⁰ 93.5% and 75% according to Bouvet et al (1992).²¹

Out of the total 123 cases, 46 were thyroiditis accounting for an incidence of 38.21%. Population studies by Usha Menon et al have suggested that about 16.7% of adult subjects have anti-thyroid peroxidase (TPO) antibodies and about 12.1% have anti-thyroglobulin (Tg) antibodies. In this same study of 971 subjects, when subjects with abnormal thyroid function were excluded, the prevalence of anti-TPO and anti-TG antibodies was 9.5% and 8.5%.²² In a landmark study of Hashimoto's thyroiditis in India [Marwaha R K et al], 6283 schoolgirls from all over the country were screened. Among them, 1810 schoolgirls had a goitre. Among them 764 subjects underwent a fine needle aspiration cytology, and of these subjects, 58 (7.5%) had evidence of juvenile autoimmune thyroiditis (the term included both Hashimoto's thyroiditis and focal lymphocytic thyroiditis). Among fine needle aspiration cytology-confirmed cases of juvenile autoimmune thyroiditis, subclinical and overt hypothyroidism were seen in 15% and 6.5%, respectively.²³

CONCLUSION: The study showed a female dominance and 50% of cases were between 30-50 years. The incidence of thyroiditis was 38.21% (47 cases) in the present study.

BIBLIOGRAPHY:

1. Hashimoto H. "Zur kenntnis der lymphomatösen veränderung der schilddrüse (Struma lymphomatosa)." *Archiv für klinische Chirurgie (Berlin)* 1912;97:219-248.
2. Fabrizio Monaco. *Thyroid diseases*. Taylor and Francis. 2012;ISBN 9781439868393:78.
3. Available from: <http://www.ias.ac.in/currensci/oct252000/n%20kochu pillai>. PDF Last accessed on April 2 2011.
4. Dailey ME, Lindsay S, Skahen R. Relation of thyroid neoplasms to hashimoto's disease of the thyroid gland. *Arch Surg* 1955;70:291-297.
5. Singh B, Shaha AR, Trivedi H, et al. Coexistent hashimoto's thyroiditis with papillary thyroid carcinoma: impact on presentation, management, and outcome. *Surgery* 1999;126:1070-6.
6. Jose RM, Smile SR, Iyengar KR. The role of imprint cytology in intraoperative diagnosis of thyroid swelling. *Indian J Pathol Microbiol* 2002;45(4):393-396.
7. Afroze N, Kayam N, Hasan SH. Role of fine needle aspiration cytology in the diagnosis of palpable thyroid lesions. *Indian J Pathol Microbiol* 2002;45(3):241-246.
8. Mitra RB, Pathak S, Guha D, et al. Fine needle aspiration cytology of thyroid gland and histopathological correlation-revisited. *JIMA* 2002;100(6):382-384.

9. Cai XJ, Nixon P, Waghorn A, et al. USG guided fine needle aspiration cytology in the diagnosis and management of thyroid nodules. *Cytopathology* 2006;17(5):251-256.
10. Hasabat MA, Rumi MA, Alam MN, et al. "Status of antithyroid antibodies in Bangladesh." *Post graduate medical journal* 2000;76(896):345-9.
11. Lakshmana Rao KM, Reddy SS. "Hashimoto's disease – A clinicopathological study." *Indian journal of surgery* 1991;53(8-9):338-342.
12. Belfoire A, La Rosa GL. Fine needle aspiration biopsy of the thyroid. *Endocrinol Metab Clin N Am* 2001;30:361-400.
13. Boyd LA, Earnhardt RC, Dunn JT, et al. Preoperative evaluation and predictive value of fine needle aspiration and frozen section of thyroid nodules. *J Am Coll Surg* 1998;187:494-502.
14. Schmidt T, Riggs MW, Speights VO. Significance of non-diagnostic fine needle aspiration of the thyroid. *South Med J* 1997;90:1183-6.
15. Chehade JM, Silverberg AB, Kim J, et al. Role of repeated fine needle aspiration of thyroid nodules with benign cytologic features. *Endocr Pract* 2001;7:237-43.
16. Sabel MS, Staren ED, Gianakakes LM, et al. Use of fine needle aspiration biopsy and frozen section in the management of the solitary thyroid nodule. *Surgery* 1997;122:1021-7.
17. Amrikachi M, Ramzy I, Rubenfold S, et al. Accuracy of fine needle aspiration of thyroid: A Review of 6,226 cases and correlation with surgical or clinical outcome. *Arch Pathol Lab Med* 2001;125:484-8.
18. Kamaljit Kaur, Nishy Sonkhya, Bapna AS, et al. A comparative study of fine needle aspiration cytology, USG and radionuclide scan in the management of solitary thyroid nodule: A prospective analysis of 50 cases. *Indian Journal of Otolaryngology and Head and Neck surgery* 2002;54(2):96-101.
19. Altavilla G, Pascale M. FNAC of thyroid gland disease. *Acta Cytologica* 1990;34:251-256.
20. Goellner JR, Gharib H, Grant CS, et al. Fine needle aspiration cytology of the thyroid. *Acta Cytol* 1987;31:587-90.
21. Bouvet M, Fieldman JI. Surgical management of the thyroid nodule: Patient selection based on the results of FNAC. *Laryngoscope* 1992;102:1353-1356.
22. Usha menon V, Sundaram KR, Unnikrishnan AG, et al. High prevalence of undetected thyroid disorders in an iodine sufficient adult south Indian population. *J Indian Med Assoc* 2009;107:72-7.
23. Marwaha RK, Tandon N, Karak AK, et al. Hashimoto's thyroiditis: countrywide screening of goitrous healthy young girls in postiodization phase in India. *J Clin Endocrinol Metab* 2000;85:3798-802.