

HASHIMOTO'S THYROIDITIS: NOT UNCOMMON IN SIMPLE BENIGN GOITER. A REVIEW OF 1102 THYROIDECTOMIES FOR SIMPLE BENIGN GOITER.

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ABSTRACT

OBJECTIVE: To see the frequency of Hashimotos Thyroiditis (HT) in patients operated with the diagnosis of simple goiter.

STUDY DESIGN: A retrospective multicenter study

PLACE AND DURATION: From 1st January 1999 to 31st March 2011 at three tertiary care hospitals.

METHODOLOGY: All patients with simple benign goiter irrespective of age and sex are included in the study. Patients already diagnosed for hashimotos thyroiditis, recurrent goiter, abnormal thyroid hormone profile, diagnosed congenital thyroid pathology or non availability of postoperative histopathology were excluded from the study. Histopathology of all patients reviewed to see the frequency of hashimotos thyroiditis in patients operated for benign simple goiter.

RESULTS: Among a total of 1102 patients, 91.28% (n=1006) were female and the majority were in 5th decade (35.48%, n=391) of life. Histopathology review of all patients operated for benign simple goiter showed that 2.81% (n=31) were having Hashimoto's thyroiditis and majority (87.09%, n=27) were female. Hashimoto's thyroiditis were common in patients who was in the 3rd decade of life followed by 4th decade, i.e. 35.48% (n=11) and 32.26% (n=10) respectively.

CONCLUSION: Hashimotos thyroiditis is not uncommon and due to its varied clinical presentation it should be ruled out in simple benign goiter before surgery.

KEY WORDS: Goiter, Thyroiditis, Hashimoto's thyroiditis, Surgery

INTRODUCTION

Thyroiditis is painful inflammation of thyroid gland. Gland is tender when inflammation is due to radiation, infection or trauma and autoimmune conditions, medications or idiopathic fibrotic process causes nontender enlargement. Thyroiditis comprises of about 20% of all thyroid diseases¹. Autoimmune thyroiditis (AIT), is the most common form of this disease. Among AIT, Hashimoto's Thyroiditis (or sub acute lymphocytic thyroiditis) is the commonest form. The less common forms of AIT comprises of postpartum thyroiditis, sub acute granulomatous (de Quervain's) thyroiditis, silent ("painless") thyroiditis and Riedel's Thyroiditis (invasive-sclerosing Thyroiditis). Non-autoimmune thyroiditis i.e. radiation induced Thyroiditis, acute suppurative thyroiditis, and drug-induced thyroiditis (caused by amiodarone, interferon-alfa, interleukin-2, or lithium) is very rare². Sub acute lymphocytic thyroiditis frequently occurs in the postpartum period¹. Symptoms of hyperthyroidism and decreased RAIU (Radio Active Iodine Uptake) prevail. Acute (suppurative) thyroiditis is caused by

bacteria and other microorganisms hence it is an infectious thyroid disorder although a rare occurrence. The invasive fibrous thyroiditis (Riedel's thyroiditis) is another rare disorder that presents with a gradually enlarging anterior neck mass which is often confused with malignancy^{2,3}.

Patients can be euthyroid, have hyperthyroidism or hypothyroidism, or the disease may progress from one condition to another. Diagnosis is confirmed by physical examination, raised ESR, increased thyroglobulin level and lowered RAIU. Diagnosis is made in accordance with the clinical context and findings which includes the presence or absence of pain and/or tenderness and auto-antibodies³. Furthermore, the amount of radioactive iodine uptake by the gland is decreased in most patients who have viral, autoimmune, traumatic, radiation-induced or drug-induced inflammation of the thyroid gland. Treatment is basically directed towards symptomatic relief and restoration of the euthyroid state⁴. Depending upon the clinical progression, thyroiditis is subdivided into acute, sub acute, and chronic forms.

Hashimotos Thyroiditis is one of the acquired causes of hypothyroidism in children and adolescents in iodine depleted areas. It is an organ specific autoimmune disease which is more prevalent in genetically predisposed individuals especially among females. Clinical manifestations at the time of presentation are variable from asymptomatic goiter to hypothyroidism or rarely hyperthyroidism. Occasionally, patients may present with extra thyroidal symptoms. HT is responsible in about 55-65% cases of euthyroid goiter and nearly all of these cases are of childhood or adolescents⁵.

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METHODOLOGY

This retrospective, observational multicenter study was carried out in the Surgical Departments of Combined Military Hospital

Muzaffarabad, Fauji Foundation Hospital, Rawalpindi and Social Security Hospital, Islamabad from 1st January 1999 to 31st March 2011. The purpose of the study was to determine the

incidence of Hashimoto's thyroiditis in patients who were operated with the diagnosis of simple goiter. All the institutes are tertiary care teaching hospitals. Most of the patients treated

TABLE-I: AGE AND SEX DISTRIBUTION OF PATIENTS OPERATED FOR BENIGN GOITER AND FREQUENCY OF HASHIMOTOS'S THYROIDITIS AMONG THOSE PATIENTS AFTER REVIEWING POST OPERATIVE THYROID TISSUE HISTOPATHOLOGY SPECIMEN (n=1102)

AGE GROUP	SIMPLE GOITER		TOTAL	HASHIMOTO'S THYROIDITIS		TOTAL
	Male	Female		Male	Female	
11 - 20	9	64	73 (06.62%)	-	3	3 (09.67%)
21 - 30	16	119	135 (12.26%)	1	10	11 (35.48%)
31 - 40	27	312	339 (30.76%)	2	8	10 (32.26%)
41 - 50	26	365	391 (35.48%)	1	5	6 (19.36%)
51 - 60	15	103	118 (10.71%)	-	1	1 (03.23%)
> 60	3	43	46 (04.17%)	-	-	-
TOTAL	96	1006	1102	4	27	31
% within group	(08.72%)	(91.28%)	(100%)	(12.91%)	(87.09%)	(100%)
% of total						(02.81%)

in those hospitals belonged to the areas of Rawalpindi division, Jhelum, Chakwal, Abbottabad district, northern areas, northern and central Punjab, Azad Kashmir and NWFP. All patients with benign thyroid enlargement having a normal biochemical profile of thyroid hormone and diagnosed simple goiter, irrespective of age and sex were included in the study. Histopathology of all resected thyroid tissue showing Hashimoto thyroiditis was considered diagnostic in patients under study. Patients already diagnosed with Hashimoto thyroiditis, recurrent goiter, abnormal thyroid hormone profile or diagnosed congenital thyroid pathology were excluded from the study. Patients' demographic data, clinical examination and biochemical findings were recorded on a proforma. Histopathology of operated thyroid tissue was also evaluated and findings were recorded in a proforma. Histopathology was done or reviewed in all cases by an experienced histopathologist of the respective institutions. At the end of the study, the results were assessed and a statistical analysis was done.

RESULTS

The total patients operated for simple benign goiter, i.e. 1102, between January 1999 and March 2011, were included in the study. Among these patients a majority (91.28%, n=1006) were female and only 8.72% (n=96) were male with male to female ratio of 1:10.47. The majority of these patients were in the 5th (35.48%, n=391) decade followed by the 4th decade (30.76%, n=339) of life. Histopathology review of thyroid tissue removed showed that 2.81% (n=31) were having Hashimoto's thyroiditis. Among the patients diagnosed with Hashimoto's thyroiditis, 87.09% (n=27) were females and only 12.91% (n=4) were males. Hashimoto's thyroiditis was common in patients who were in the 3rd decade of life followed by the 4th decade i.e. 35.48% (n=11) and 32.26% (n=10), respectively (Table-I).

DISCUSSION

Autoimmune thyroiditis is a polygenic disease resulting from a combination of genetic and environmental factors and the exact role of both are not yet completely understood. Recent genetic studies helped to identify many susceptibility genes for autoimmune thyroiditis but none of these genes contribute to a significant increase in risk of developing this thyroiditis². The literature review shows that the relationship between the intake of vitamin D and the risk of Hashimoto's disease is under study and it is postulated that vitamin D also acts as an immunomodulatory factor, because the receptors for 1,25(OH)²D₃ (1,25 dihydroxycholecalciferol) have been found on T and B lymphocytes, dendritic cells and monocytes^{6,8}. In the United States, Hashimoto's thyroiditis (Chronic lymphocytic thyroiditis) was found to be the most common cause of hypothyroidism, and the euthyroid persons having Hashimoto's disease were discovered to develop hypothyroidism at a rate of 5 percent per year approximately⁷. Up to 95 percent of all the cases of Hashimoto's thyroiditis occur in women who are usually between the age of 30 to 50 years^{8,9}. Hashimoto's thyroiditis is also ruled out to be the most common cause of sporadic goiter among children^{2,9}. Over the past 50 years, the incidence of Hashimoto's disease has risen exponentially, and Slatosky and his colleagues relate this increase to increased iodine content in diet⁹. Another study conducted in Rochester, Minnesota shows that the average annual incidence per 100,000 for Hashimoto's thyroiditis for females increased from 6.5 (1935–1944) to 21.4 (1945–1954) to 67.0 (1955–1964) to 69.0 (1965–1967) and among them the average annual rate for females was 36.8/100,000/yr for all age groups; the rate was highest among women 20–39 yr old¹⁰. Due to lack of national data, it is not possible to analyze whether the incidence of Hashimoto's thyroiditis is increasing or decreasing in our country.

The frequency of Hashimoto's thyroiditis in multinodular goiter is 28.7% as reported by Zosin et al¹¹. In Pakistan, a study published in 1997, shows the overall frequency of thyroiditis to be about 10.47% and among them the Hashimoto's thyroiditis was about 27.4%¹². In our study, only 2.81% patients were diagnosed as Hashimoto's thyroiditis when their thyroid tissues were reviewed after being operated with the diagnosis of simple benign goiter. This shows that the initial diagnosis of Hashimoto's thyroiditis was missed in those patients and they were operated for benign simple goiter instead of the indications of Hashimoto's thyroiditis for surgery.

Demirbilek et al reported that Hashimoto's thyroiditis is common in the younger age group and females. They reported that 86.4% of patients are female in his study and among all these patients, 43.2% are euthyroid¹⁵. Furszyfer et al, reported the frequency of Hashimoto's thyroiditis to be 36.8/100,000/yr for all age groups; the rate being highest among women between 20–39 years of age¹⁰. In our study, 87.09% of patients are females who were diagnosed as Hashimoto's thyroiditis. Among all patients in our study, the majority (35.48%) were in the third decade of life which is inconsistent with the other studies^{5,7,10-12}.

Surgery for Hashimoto's thyroiditis is mainly indicated if associated pathologies such as dominant nodule, painful thyroiditis, pressure symptoms, persistent goiter, suspicious or proven malignancy and rarely for Hashimoto's thyroiditis per se are present. A cohort study conducted in Taiwan determines that patients of Hashimoto's thyroiditis are at higher risk of developing thyroid and colorectal malignancy¹³. Zosin et al have reported that about 31.5% patients who were operated and had Hashimoto's thyroiditis also had differentiated thyroid cancer¹¹. The percentage of surgery for Hashimoto's thyroiditis associated goiter seems to be more in iodine sufficient areas, the cause of which needs to be further evaluated. Bhargava and his colleagues from India reported that 59% of patients with Hashimoto's thyroiditis had multinodular goiter¹⁴. Moreover, surgery can be difficult to perform in Hashimoto's thyroiditis due to the presence of the dense inflammatory process around the thyroid gland. Patients with Hashimoto's thyroiditis may have an increased rate of complications after surgery, hence careful consideration must be made before pursuing operative treatment in patients with this disease¹⁵. In our study, 2.81% patients underwent surgery due to indications of simple goiter whereas these patients were having Hashimoto's thyroiditis as diagnosed on histopathology.

Literature review and our study shows that the frequency of presence of Hashimoto's thyroiditis is quite common and the diagnosis should be kept in mind while managing a goiter due to different indications and high postoperative morbidity of surgery for Hashimoto's thyroiditis as compared to simple goiter. Due to the increased incidence of malignancy in Hashimoto's thyroiditis, Chen and colleagues have also advised that the thyroid cancer prevention efforts should start as soon as possible after Hashimoto's thyroiditis is diagnosed for thyroid malignancy as well as a surgeon should be vigilant of colorectal cancer, the prevalence of which increases over time¹³. For preoperative diagnosis, the precision of fine needle aspiration biopsy diagnosis showed higher sensitivity (90.0%) and

specificity (61.5%) and can be used reliably as compared to sonographic criteria¹¹. Moreover, the Bethesda System for Reporting Thyroid Cytopathology (BSRTC) has standardized the diagnostic terminology for thyroid fine-needle aspiration, but still the mythological interpretation remains subjective, and interobserver discrepancies are expected. So Oslon and his colleagues have stressed over the need for a second review in cases of discrepancies to reach exact diagnosis especially in planning surgery¹⁶.

CONCLUSION

Hashimoto's thyroiditis is not uncommon and due to its varied clinical presentation its diagnosis should be kept in mind in simple benign goiter especially before surgery due to a higher rate of complications expected in these patients as reported in literature.

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