**Clinicopathological Study in Patients With Hashimoto’s Thyroiditis in Babylon**

Hussain Aouda\* Hadi M. Almosawi\*\* Mohsen N. Altae\*\*\*

\* Alhilla Teaching Hospital , Babylon, Iraq,Email: husainaouda@ yahoo.com

\*\* College of Medicine, Babylon University, Babylon, Iraq.

 E-mail: drhdialmosawi@yahoo.com

\*\*\* Alhilla Teaching Hospital , Babylon, Iraq.

****

**Received 23 February 2014**  **Accepted 27 May 2014**

**Abstract**

**Objective :** This study was performed to assess Hashimoto’s thyroiditis from clinicopathological aspect and thyroid function.

**Patients and methods:** A prospective study of 175 patients underwent thyroid surgery at the Hilla teaching general Hospitals were undertaken between Jan 2006 till Oct 2009 in order to study the percentages of Hashimoto’s thyroiditis to the total cases which were taken and also to know the correlation between thyroid function and histopathological status in those patients whom diagnosed as hashimotos thyroiditis.

**Results**: Of 175 patients underwent thyroid surgery, 18 cases diagnosed as hashimotos thyroiditis, 10 of them were in a hypothyroidism status and 4 cases in those patients more than 90% of thyroid follicles were destructed suffering from severe hypothyroidism, 3 cases presented with moderate hypothyroidism 70-90% of thyroid follicles were destructed,3 cases with mild hypothyroidism , the thyroid follicles lost about 50-70% of total thyroid follicles, 4 cases subclinical hypothyroidism <50% of follicles were damaged , 2 cases were euthyroid and the last one the histopathological finding was hashotoxicosis and functionally the patient was thyrotoxic.

**Conclusions** In recent years, the incidence of Hashimoto’s thyroiditis is on the rise.Most cases diagnosed as hashimotos thyroiditis were in a hypothyroidism status There are strong correlation between histopathological assessment of the destruction of the thyroid follicles and thyroid status.

**Key word:** H.T hashimotos thyroiditis, TFT thyroid function test, FNA Fin needle Aspiration

**دراسة العلاقة السريرية – المرضية للمرضى المصابين بالتهاب الغدة الدرقية نوع هاشموتو في بابل**

 **الخلاصة**

هدف الدراسة : هذه الدراسة انجزت لكي تقيم التهاب الغدة الدرقية نوع هاشموتو من الناحية السريرية والباثولوجية وعلاقتها بمستوى افراز الغدة الدرقية

طريقة العمل :انجزت هذه الدراسة في مستشفى الحلة التعليمي والمستشفيات الخاصة تضمنت مائة وخمسة وسبعون مريض تعرضوا الى جراحة الغدة الدرقية والمختبرات الخاصة خلال فترة 2006- 2009 وتم سحب مصل الدم من المرضى قبل العملية وإجراء فحص T3,T4,TSH)) باستخدام جهاز minividas))

 وارسلت الى الفحص النسيجي باستخدام صبغة الايوسين والهيماتوكسلين وتشخيص حالت التهاب الغدة الدرقية نوع هاشموتو

 النتائج: من مائة وخمسة وسبعون مريض اجريت لهم عملية رفع الغدة الدرقية ‘ ثمانية عشر حالة شخصت من خلال الفحص النسيجي بالتهاب الغدة الدرقية نوع هاشموتو ، عشر حالات مصابة بخمول إفراز الغدة الدرقية ، اربع حالات مصابة بالخمول الحاد ، ثلاث حالات مصابة بخمول متوسط ، وثلاث حالات مصابة بخمول بسيط ، ثلاث حالات بإفراز طبيعيي اربع حالات مصابة بالخمول الغير سريري وحالة واحدة مصابة بزيادة افراز الغدة

التهاب الغدة الدرقية نوع حشما تو **مفاتيح الكلمات** :

ـــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ

**Introduction**

H

ashimoto’s thyroiditis was first described in 1912 by Dr. Hakuru Hashimoto. Based on the histological findings, Hashimoto originally used the term “Struma Lymphomatosa.” Overthe years, this disease has been called by several names including lymphocytic thyroiditis,

autoimmune thyroiditis, chronic thyroiditis, and lymph adenoid goiter.

Hashimoto thyroiditis is an autoimmune disease in which the immune system reacts against a variety of thyroid antigens (1)

The incidence of hashimoto thyroiditis is roughly equal to that of graves' disease (0.3-1.5 cases per 1000 population per year)(2)

The disease is 15-20 times as frequent in women as in men . it occurs especially during the decades from 30-50 years , but may be seen in any age group(3)

Hashimoto thbyroiditis is often associated with types I diabetes and other autoimmune disorders such as celiac disease , type 2 and type 3 polyglandulear autoimmune disorders (2,4)

The name of hashimoto thyroiditis is derived from 1912 report by Hashimoto describing patients with goiter and intensely lymphocytic infiltration of the thyroid(5)

Clinically the patients with hashimoto s thyroiditis are usually asymptomatic and some patients develop goiters with or without hypothyroid(5,6)

Grossly the thyroid is often diffusely enlarged although more localized enlargement may be seen in some cases the capsule is intact and the glands is well demarcated from adjacent structure.(7)

The cut surface is pale , yellow –tan , firm and somewhat nodular(8)

Microscopic examination reveals extensive infiltration of parenchyma by mononeculear inflammatory infiltrate containing small lymphocytes ,plasma cells, and well-developed germinal centers. The thyroid follicles are atrophic and are lined in many areas by epithelial cells distinguished by the presence of abundant eosinophilic , granular cytoplasm , termed Hurthle cells( 9,10)

In the usual clinical course hypothyroidism develops gradually in some cases ,however it may be preceded by transit thyrotoxicosis caused by disruption of hormones (hashiotoxicosis) during this phase , free thyroxine and free triiodthyronine levels are elevated , TSHis diminished(11)

There is increased risk for the development of B-cell Non Hodgkin lymphoma and recently for papillary carcinoma of thyroid (12)

In the pathogenesis of Hashimoto thyroiditis multiple immunologic mechanism cause death of thyrocytes

CD8+ cytotoxic T-cell mediated cell death.

Cytokines –mediated cell death CD4+ T cell produce inflammatory cytokines such as IFN-8(13)

 the etiology of Hashiomato thyroiditis is considered to be multifactorial involving the interplay of various environmental and genetic factors the major histocompatability complex (MCH),cytotoxic T-lymphocyte association (CTLA-4) and the human leukocytes antigen (HLA) are the genetic factors which are purported to play a major role in the pathogenesis of Hashiomato thyroiditis, the common environmental factors which act as triggers to initiate the insulton on thyroid tissue include infections, cytokine therapy, selenium and iodine intake.(14)

Hashiomato thyroiditis have (serum) antibodies reacting with thyroglobulin and thyroid peroxidase these antibodies particularly antibodies against thyroid peroxidase are complement –fixing immunologlobulin and may be cytotoxic (14)

Fine needle aspiration(FNA) can be a useful diagnostic procedure but is in frequently required FNA typically reveals lymphocytes ,macrophages ,scant colloid and a few epithelial cells (15)

The clinical course of the disease has highly variable clinical presentation. Patients may either be hypothyroid, euthyroid or hyperthyroid , about 20% of patient exhibit signs and symptoms of mild hypothyroidism at the initial presentation , the severity of the symptoms increases with the progression of the disease this increase in the severity of symptoms is attributed to gradual destruction of thyroid follicles along with elevated thyroid antibody levels , (16)

**Patients and methods:**

A cross section study of 175 patients underwent thyroid surgery at the Hilla teaching general Hospitals and private laboratories were undertaken between Jan 2006 till Oct 2009,the thyroid biopsy putted in 10% formalin , paraffin block was done and H&E stains slide examined in order to study the percentages of Hashimoto’s thyroiditis to the total cases, serum collected from the patients to study the level of thyroid function tests by minividas technique which were taken and also to know the correlation between thyroid function and histopathological status in those patients whom diagnosed as hashimotos thyroiditis.

**Statistical analysis**

The study design is descriptive case series and the data been controlled and analyzed using computer soft ware statistical package of social science (spss) version 18means of continuous variable and proportions ofategorical variables have been analyzed using student test and chi-square test respectively and valueless than 0.5 as significant .

**Result**

One hundred seventy five(175) patients underwent thyroidectomy included in this study

Table (1) illustrated the sex distribution of patients with hashiomato thyroiditis where more commonly in female 14 ( 77.78% ) cases , only 4 ( 22.22% ) cases males, with a significant female preponderance compared with controls (P=0.002)

Eighteen ( 10.2% ) cases was diagnosized as

 Hashiomato thyroiditis by histopathological examination as explained in table (2)

Table (3) shows the thyroid function test assessments in Hasiomato thyroiditis patients , according to the results of TFT the patients divided into clinically obvious hypothyroidism , subclinical hypothyroidism, Euthyroid and hashiomato-toxicosis patients where hypothyroidism 10(55.5%)cases, subclinical hypothyroidism 4(22.2%)cases, euthyroid patients were 3(16.6%) and Hashiomatotoxicosis was 1(5.5%)

In table(4) return divided the clinically hypothyroidism into severe hypothyroidism 4(30%) cases, moderate hypothyroidism 3(30%) cases and mild hypothyroidism 3(40%) cases in correlation with hastiopathological assessment of thyroid follicles destructions where in severe hypothyroidism there are >90% loss of thyroid follicles, in moderate hypothyroidism

There are 70-90 % damage of thyroid follicles, while in mild hypothyroidism only 50-70% of thyroid follicles destructed and finally in subclinical hypothyroidism less than 50% of thyroid follicles damaged.

Concurrent thyroid carcinoma is present only in one case of Hashiomato thyroiditis as papillary carcinoma.

**Table (1)** :sex distribution inpatients with Hashiomato thyroiditis

|  |  |
| --- | --- |
| **No. & %** | **SEX** |
| 4 (22.22 % ) | MALE |
| 14 (77.78 %) | FEMALE |
| 18 ( 100%)  | TOTAL |

**Table(2):** shows the number and percent of Hashiomato thyroiditis in thyroidiectomy patients

|  |  |
| --- | --- |
| **No. and %** | **Histopathgical diagnosis** |
| 157 (89.7%) | Non Hashimoto,s thyroiditis |
| 18 (10.2%) | Hashimoto,s thyroiditis |
| 175 (100%) | Total |

**Table (3)** appear the TFT of patients diagnosed as hashiomato thyroiditis

|  |  |
| --- | --- |
| **No.** | **TFT** |
| 10 | Hypothyroidism  |
| 4 | Sub clinical hypothyroidism |
| 3 | Euthyroid  |
| 1 | Toxic  |
| 18 | Total |

**Table (4):** the correlation between TFT level and Histopathological assessments

|  |  |  |
| --- | --- | --- |
| Level of hypothrodsim  | No. | Percent of thyroid follicles destruction |
| Severe hypothyroidism(TSH=>60 IU/ml | 4 | >90% of thyroid follicles damaged  |
| Moderate hypothyroidism(TSH=40-60IU/ml) | 3 | 70-90 % of thyroid follicles damaged |
| Mild hypothyroidism(TSH=40-15 IU/ml) | 3 | 50-70 % of thyroid folliclesDamaged |
| Subclinical hypothyroidism(TSH= 5-15 IU/ml) | 2 | <50% of thyroid follicles damaged |

**Discussion**

The incidence of Hashimoto thyroiditis seen is equal to that of graves' disease (0.3-1.5 cases per 1000 population per year).

Hashiomaotos thyroiditis appears to be increasing in prevalence and now more easily detected by sensitive laboratory tests and more invasive procedures such as fine needle aspiration. Hashimoto's thyroiditis is the second most common thyroid lesion next to goiter diagnosed on fine needle aspiration cytology (FNAC), It can accurately diagnose Hashimoto's thyroidits in most patients. However, a small percentage of cases may be missed due to the inherent limitations of this procedure and the varied cytomorphology of this lesion. Therefore thorough cytological evaluation and an integrated approach are necessary to pick up correct diagnosis and to avoid unnecessary surgery.(16)

The disease is 15-20 times as frequent in women as in men ( Bigos etal)(4) but in our study the frequency is 3.5 times ,

In the present study the hasiomato thyroiditios represent (10.2%) of all patients with goiter and this dissimilar to( ottj etal)(9) which is found (6.6%)(28/1426).but in series of (shinmel etal)(13) there is difference where the cases of Hashiomato thyroiditis (5.2%)(25/474)

There is similarity of our study with( stai etal)(15) the incidence of hashiomato thyroiditis (13.4%).

In our study the euthyroid or subclinical hypothyroid is 16.6% and this result is different from staii etal(15) where the euothyroid cases only 7.4%

The present of most our patients during research with hypothyroidism manifestations in compare with other patients in other studies the patients diagnosed by using immunological criteria like Antithyrogloublin Ab(TG) and thyroid peroxidase antibodies

In our work the hypothyroidism state in Hashiomato thyroiditis patients were 72.72% this result similar to, Piraino P etal(8) 81% the explanation of this difference in results with other studies we depend in diagnosis of hashiomato thyroiditis on clinical pictures of hypothyroidism while other studies depend on serological tests before the appearance of hypothyroidism ( Chehade JM etal)(14)

The number of hashiomato throiditis patients in euthyroid state are 3(16.6%) which is different from (RUSSELL FRASER etal)17 in which the cases of euthyroid Hashiomato thyroiditis patients (31%)

Hyperthyroidism is well recognized as an early phase. Typical symptoms and signs, including eye signs, have been described(17)

**Conclusion and Recommendations**

In recent years the incidence of hashiomato thyroiditis is increasing . Most cases diagnosed as hashiomato thyroiditis were in hypothyroidism status.

There are strong correlation between histopathologlical assessment of the destruction of thyroid follicles and thyroid status.

Antithyroglobulin Ab level and antiperoxiodase Ab measurement are recommended for early diagnosis of Hashiomato thyroiditis.

**Reference**

1. Takami HE,Miyabe R ,Kameyama K, Hashimotos thyroiditis, World J surg.2008 may;32:688-92
2. Nenkov R, Radev R, Khristozov K, Kuzmanov Ia,Kornovski,Kuzmanov S, Krasnaliev I,Nanev B, Hashimotos thyroiditis: indications for surgical treatment, Endocrinology 2007;61:562-568.
3. Paknys G, Kondrotas Aj,Kevelaitis E, Risk factors and pathogenesis of Hashimotos thyroiditis, clin Endocrinology.1990,33(6):687-689.
4. Flynn SD, Nishiyama RH,Bigos ST,Autoimmune thyroid disease :immunological ,pathological, and clinical aspects,Crit Rev Clin lab Sci,1998;26(1): 43-95 .
5. adims J,adewrd M, Effraimidis G, natural history of the transition from euthyroidism to overt autoimmune hypo or hyperthyroidism: a prospective study Eur J Endocrinol.2011 Jan;164(1): 107-113
6. Krumor K, fredr M, tummar F, Gul K, the association between thyroid carcinoma and hashimotos thyroiditis : the ultrasonographic and histopathologic characteristics of malignant nodules
7. Rumonek J, rubesh F, foster B, Fink H, Autoimmune thyroiditis (Hashimoto thyroiditis):current diagnostics and therapy , Medklin(munich).2010 Jul;:485-93
8. sergneo Y, pedero L, Piraino P, Hashimoto chronic thyroiditis.retrospective analysis of 228 patients Rev Med Chil.2010 Jul;138(7):827-31
9. Shouster G, Mechial N, norman D, Ott J The incidence of lymphocytic thyroid infiltration and Hashimotos thyroiditis increased in patients operated of benign goiter over a 31-year period Virchows Arch.2011sep;459(3):277-81 ,
10. stev M, IbrahamT, Tshemblen H, Seifman MA, Surgery in the setting of Hashimotos thyroiditis ANZ J Sur.2011 Jul-Aug;81(7-8) : 519-23
11. Surks MI,Ortiz E, Daniels GH, Sawin CT, Cobin RH, Franklyn JA, Hershman JM , Denke MA,Gorman C,cooper RS , Welssman NJ,subclinical thyroid disease: scientific review and guideline for diagnosis and management JAMA.2004 Jan 14; 29(2):228-38
12. Staii A, Mirocha S,Todorova K, Glinberg S,Jaume JC, Hashimoto thyroiditis is more frequent than expected when diagnosed by cytology which uncovers a pre-clinical state ,Thyroid Res.2010 Dec 20;3(1):11doi:10.1186
13. Shurma M, jude L, TurkakioC , shih ML , Thyroidectomy for Hashimoto s thyroiditis : complications and associated cancers , Thyroid :2008 jul,18(7):729-34.
14. Dernk M, Salmi U, Chehade JM etal: the incidence of hashiomato thyroioditis in nodular colloid goiter,Histopathology.2011 febr.21;3(2) 345-348

 15-Kollur SM, EI Sayed S, EI Hag IA. Follicular thyroid lesions coexisting with Hashiomotos thyroiditis: incidence and possible source of diagnostic errors. Diag Cytopathol. 2003;28: 35-38.

# 16-[BN Gayathri](http://www.ncbi.nlm.nih.gov/pubmed/?term=Gayathri%20B%5Bauth%5D), [R Kalyani](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kalyani%20R%5Bauth%5D), [Kumar ML Harendra](http://www.ncbi.nlm.nih.gov/pubmed/?term=Harendra%20KM%5Bauth%5D), and [Prasad K Krishna](http://www.ncbi.nlm.nih.gov/pubmed/?term=Krishna%20PK%5Bauth%5D) Fine needle aspiration cytology of Hashimoto's thyroiditis – A diagnostic pitfall with review of literature J Cytol. 2011 Oct-Dec; 28(4): 210–213

# 17-MT Russel, R jenver. Discussion on Hashiomato disease, diagnostic endocrionology. 1998(6):112-116