Chronic Lymphocytic (Hashimoto's) Thyroiditis in Kuwait Diagnosed by Fine Needle Aspirates

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A retrospective analysis of 4185 consecutive fine needle aspirates (FNA) of the thyroid over an eight year period at a teaching hospital in Kuwait revealed that 14.3% of all the aspirates had features of chronic lymphocytic (Hashimoto's) thyroiditis (HT). The proportion of patients with HT showed a slight increase in the last two years but the pattern of clinical presentation has remained unchanged. Hashimoto's thyroiditis was most prevalent in the age group from 16 to 35 and the majority of young patients with Hashimoto's thyroiditis presented with diffuse goiter (DG) whereas multinodular goiter (MNG) and solitary thyroid nodule (STN) were more common in the older age group. Of patients who presented with STN, the most common abnormality on thyroid scan was a "cold nodule". Functional disturbances (hypo and hyperthyroidism) occurred less frequently in patients presenting as STN than in patients presenting with DG or MNG. We conclude that FNA is indicated in all young patients with diffuse goiter in this region in order to facilitate early detection and initiation of suppressive thyroxine therapy. Further, when young patients present with "cold" solitary nodules of the thyroid, HT is a more common cause than a thyroid carcinoma in Kuwait.*Ann Saudi Med 1995;15(4):*

It has been our impression over the last two years that in Kuwait, chronic lymphocytic (Hashimoto's) thyroiditis (HT) presents at an earlier age and that a relatively greater proportion of patients with this disorder present as solitary nodules. In order to verify these impressions, we performed a retrospective analysis of all the fine needle aspirate (FNA) reports and the relevant clinical information from January 1986 to December 1993. We felt that such an analysis would give us information on the spectrum of HT in Kuwait, whether it differs from the spectrum of HT in other parts of the world and whether it has changed over the years.

Methods

Mubarak Al Kabeer Hospital is a tertiary care university teaching hospital in Kuwait and one of the major centers for fine needle aspiration cytology in this country. Information on all thyroid FNAs performed in this hospital was available from January 1986. The relevant clinical information available in the request forms and in the cytology registry was collected and analyzed. On the basis of clinical examination, patients were diagnosed to have a) diffuse goiter; b) multinodular goiter; and c) solitary thyroid nodule. Fine needle aspirates on these patients were diagnosed as follicular neoplasm, carcinoma, Hashimoto's thyroiditis or other benign lesions of the thyroid. When the FNA smears showed moderate to abundant lymphoid infiltrate with a variable degree of Hurthle cell metaplasia and follicular destruction, the diagnosis of Hashimoto's thyroiditis was suggested. The diagnosis of a follicular neoplasm was made when numerous follicular cells were seen in a microfollicular pattern with scant colloid. FNA smears were categorized as carcinoma when cytologic features suggestive of a papillary or undifferentiated carcinoma were seen. When available, thyroid scan reports, results of thyroid function tests and thyroid antibodies were also collected and used for analyses.

Statistical Analysis: Statistical analysis was performed using a software program SPSS for Windows, Version 6.0.1. Pearson's modification of the chi-square test was used to detect differences in proportions and a P value of <0.05 was considered significant.

Results

A total of 4185 FNAs of the thyroid had been performed over the study period (Table 1). The year-wise distribution of the various diagnostic categories is shown in Table 1. The proportion of patients with HT showed a significant increase ($P<0.05$) in 1992 and '93 as compared to the previous years. Overall, HT accounted for 14.3% of all thyroid aspirates over the study period. The majority of patients (76.7%) presented to us between the ages of 16 to

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TABLE 1. *Classification of all fine needle thyroid aspirates* 1986-1993.*

Year	Follicular neoplasm	Benign thyroid nodule/others	Multinodular goiter	Carcinoma	Hashimoto's thyroiditis	Total
1986	51 (8.9)	244 (42.5)	198 (34.5)	14 (2.4)	67 (11.7)	574
1987	40 (8.7)	223 (48.8)	111 (24.3)	16 (3.5)	67 (14.7)	457
1988	24 (4.0)	407 (66.8)	86 (14.1)	14 (2.3)	78 (12.8)	609
1989	21 (3.2)	453 (68.8)	78 (11.9)	21 (3.2)	85 (12.9)	658
1990	24 (5.8)	306 (74.3)	11 (2.7)	14 (3.4)	57 (13.8)	412
1991	23 (8.1)	201 (70.0)	24 (8.4)	5 (1.7)	34 (11.8)	287
1992	12 (2.3)	360 (67.5)	51 (9.6)	15 (2.8)	95 (17.8)	533
1993	25 (3.8)	445 (67.9)	54 (8.3)	17 (2.6)	114 (17.4)	655
Total	220 (5.2)	2639 (63.1)	613 (14.6)	116 (2.8)	597 (14.3)	4185

Figures in parenthesis represent percentages out of total aspirates; *=cystic lesions such as thyroglossal cysts were excluded.

35. There was no consistent change in the age at presentation observed over the last eight years (data not shown). The type of thyroid enlargement observed in different age groups is shown in Table 2. There was a progressive decrease in the proportion of patients presenting with diffuse goiter with advancing years (67.6% to 35.3%) with a *P* value of <0.001, whereas a steady increase in the prevalence of multinodular goiters (8.8% to 17.6%) and STN (23.6% to 47.1%) occurred with age (*P* <0.001). While diffuse goiter dominated the clinical presentation in younger patients (ages six to 25), MNG and STN were found more often in the older age group (ages 36 to 60, Table 2). The majority (97.7%) of patients were women and this proportion has remained relatively constant over the years (Table 3). Table 3 shows information on the type of thyroid enlargement encountered in these 597 patients. The majority of patients in each year presented with diffuse thyroid enlargement (47.7% to 63.5%); solitary thyroid nodules were found in 21.2% to 29.5% of patients and the thyroid enlargement was multinodular in 14% to 25.4% of patients. No consistent change was observed in the clinical pattern of presentation over the years.

The majority of our patients (53.8% to 91.3%) were euthyroid at presentation; the prevalence of hypothyroidism varied from 5.3% to 20.5% and that of hyperthyroidism varied from 1.7% to 11.8%. The overall prevalence of a euthyroid state was 79.3%, hypothyroid state was 10.1% and hyperthyroidism occurred in 6.9% of patients.

The relationship between the type of thyroid enlargement and the functional status is shown in Table 4. Functional disturbances (hypothyroidism and hyperthyroidism) were found more often in patients presenting with diffuse thyroid enlargement or multinodular goiter (20.3% and 17.7% respectively), whereas patients presenting with STN (9.3%) showed functional alterations less frequently. This difference was statistically significant (*P* <0.001).

Information on thyroid scan was available in 193 out of 597 (32.3%) patients. Solitary cold nodule was the most common observation (48.2%). Hot nodules were reported in 10 patients (5.2%), multinodular goiter in 11 patients (5.7%), generalized decrease in uptake in 31 patients (16.1%) and patchy diffuse uptake in 24.8%. Antimicrosomal antibodies were elevated in all 30 patients for whom this information was available.

Discussion

It is widely held that lymphocytic thyroiditis is most prevalent in women in the 40 to 50 year age group.[1,2] However, in the present study, among all patients who

TABLE 2. *Type of clinical presentation of Hashimoto's thyroiditis in different age groups (1986-1993).*

Age range (years)	Diffuse	MNG	STN	Total
6-15	23 (67.6)	3 (8.8)	8 (23.6)	34
16-25	107 (64.5)	28 (16.9)	31 (18.6)	166
26-35	101 (56.4)	30 (16.8)	48 (26.8)	179
36-45	58 (51.3)	23 (20.4)	32 (28.3)	113
46-55	21 (36.2)	17 (29.3)	20 (34.5)	58
>56	6 (35.3)*	3 (17.6)*	8 (47.1)*	17
Unknown	17 (56.6)	5 (16.7)	8 (26.1)	30
Total	333 (55.8)	109 (18.3)	155 (25.9)	597

Figures in parenthesis represent percentages out of total aspirates; *$P<0.001$ compared to proportion of patients presenting with diffuse goiter, multinodular goiter or STN in the 6-15 and 16-25 age groups.

TABLE 3. *Type of thyroid enlargement in Hashimoto's thyroiditis aspirates.*

Year	Total No.	Males	Diffuse	MNG	STN
1986	67	1 (1.5)	36 (53.7)	13 (19.4)	18 (26.9)
1987	67	2 (3.0)	32 (47.7)	17 (25.4)	18 (26.9)
1988	78	2 (2.6)	38 (48.7)	17 (21.8)	23 (29.5)
1989	85	2 (2.4)	54 (63.5)	13 (15.3)	18 (21.2)
1990	57	0	31 (54.4)	11 (19.3)	15 (26.3)
1991	34	1 (2.9)	18 (53.4)	6 (17.6)	10 (29.4)
1992	95	3 (3.2)	56 (59.0)	16 (16.8)	23 (24.2)
1993	114	3 (2.6)	68 (59.7)	16 (14.0)	30 (26.3)
Total	597	14 (2.3)	333 (55.8)	109 (18.3)	155 (25.9)

Figures in parenthesis represent percentages out of total aspirates.

TABLE 4. *Functional status in different clinical presentations of Hashimoto's thyroiditis (1988-1993).*

Type of thyroid enlargement	Total No.	Hypothyroid	Hyperthyroid	Euthyroid	Unknown
Diffuse	265	29 (10.9)	25 (9.4)	204 (77.0)	7 (2.7)
Multinodular goiter	79	9 (11.4)	5 (6.3)	61 (77.2)	4 (5.1)
Solitary thyroid nodule*	119	9 (7.6)	2 (1.7)	102 (85.7)	6 (5.0)
Total	463	47 (10.1)	32 (6.9)	367 (79.3)	17 (3.7)

Figures in parenthesis represent percentages out of total aspirates; *=functional disturbances (hypo and hyperthyroidism) occurred in a smaller proportion of patients ($p<0.001$). Note: Data on functional status was not available for the majority of patients in 1986 and 1987. Therefore they have been excluded.

underwent FNA of the thyroid over an eight year period in Kuwait, the highest prevalence of HT was found in women between the ages of 16 and 35. This shows that HT is more often encountered in the younger age group in Kuwait. Further, this pattern has not changed over the years (Table 3). Okayasu et al.[3] find that in Japanese women, the incidence of focal chronic autoimmune thyroiditis reaches a peak in the fourth decade in contrast to women in Britain, where the incidence shows a progressive increase from the sixth decade. Our observations and those of Okayasu et al.[3] suggest that there may be important geographical differences in the age-related prevalence and incidence of autoimmune thyroiditis.

We find that in Hashimoto's thyroiditis, with increasing age at presentation, the proportion of patients presenting with diffuse goiter significantly declines, whereas the proportion of patients presenting with MNG or STN increases. This may be because fibrosis and nodule formation in autoimmune thyroiditis may take several years.[4]

Classically, the thyroid enlargement in Hashimoto's thyroiditis is described as being firm and nodular.[1] However, we find that in Kuwait, Hashimoto's thyroiditis has increased slightly from 1986 to 1993 (Table 1), the proportion of patients with HT presenting with diffuse goiter, multinodular goiter or solitary thyroid nodule has remained more or less constant (Table 3). In view of the high prevalence of Hashimoto's thyroiditis in diffuse goiters in the 16 to 35 year age group (42%), we feel that such patients should have thyroid antibodies estimated. Patients in this category who do not have significant antithyroid antibody titers need to have FNA performed. A careful followup is necessary in those patients who are diagnosed to have HT on serologic or cytologic grounds. Some authors have reported that up to two-thirds of goiters in euthyroid adolescents are due to Hashimoto's thyroiditis[5-7] and that in this age group, thyroid antibodies are often negative.

The majority of our patients were euthyroid at presentation. Functional disturbances (hypo and hyper-thyroidism) were more often encountered in HT patients who presented with diffuse goiter (20.3%) or multinodular goiter (17.7%) than in patients who presented with solitary thyroid nodules (9.3%). This may be related to the diffuse nature of the disease in Hashimoto's thyroiditis patients presenting as STN.

On analysis of thyroid scan reports of our HT patients, we find that the most common abnormality is a "cold nodule". Further, in different age groups, presentation as a solitary thyroid nodule varied from 18.6% to 47% in our patients with HT. We also observed that among patients with STN, Hashimoto's thyroiditis was about four times more common than thyroid carcinoma (4.5%) in the 16 to 35 age group (Table 1). However, a careful followup of these patients is essential since carcinoma of the thyroid and HT have been reported to coexist in the same nodule.[8]

In conclusion, patients with Hashimoto's thyroiditis present at a younger age group with diffuse thyroid enlargement and the majority of patients are euthyroid. Hashimoto's thyroiditis is frequently diagnosed in solitary thyroid nodules; these nodules appear "cold" on scan and constitute an important differential diagnosis for carcinoma of the thyroid. We suggest that all patients under 35 who present with diffuse goiters and negative thyroid antibodies in this region would require FNA for early diagnosis of Hashimoto's thyroiditis. This may be important since patients with diffuse goiters and HT respond well to suppressive therapy with thyroxine.[9] Rieu et al.[10] report that in Hashimoto's thyroiditis, levothyroxine therapy decreases the titers of some circulating thyroid autoantibodies but long-term follow-up studies with thyroxine therapy would be required to see if decreasing antibody titers would lead to clinical benefit.

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