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Hashimoto's thyroiditis in school girls in the United Arab Emirates

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Autoimmune diseases are common that up to 20% of the population in Western societies is estimated to suffer from one or another autoimmune disease.[1] Hashimoto's thyroiditis is an example of an organ specific autoimmune disease. This chronic inflammatory glandular autoimmune disease develops when the immune system attacks self protein expressed on the surface of the thyroid gland. It is characterized by infiltration of the thyroid gland by lymphocytes causing gradual destruction of the gland. Hashimoto's thyroiditis is the most common cause of thyroiditis, and as in the case with other autoimmune disorders, more common among women. Enlargement of the thyroid gland, local tenderness and thyroid function disorder are the common clinical features of the disease. It accounts for many of the enlarged thyroids formerly designated as adolescent or simple goiter. This study was undertaken to examine the clinical and laboratory profile of girls with Hashimoto's thyroiditis diagnosed in the Pediatric clinic of the School Health Department in Al Ain, United Arab Emirates (UAE).

The study was conducted as part of an established screening program for all the school children attending government schools in Al Ain, UAE. During the academic year 2001-2002, 10,549 girls attending the 36 government secondary schools were screened for thyroid problems. Goiter is a common finding detected by school health doctors during the routine medical examination carried out as part of the screening program. During the study period, 110 girls were identified to have enlargement of the thyroid gland. Most of these cases were diagnosed as having simple or adolescent goiter and referred to the pediatrician in the central clinic for further evaluation. For all these patients, thyroid function tests such as thyroxine (T_4) and thyroid stimulating hormone (TSH) were carried out. For those found to have diffuse thyroid enlargement, symptoms and signs of thyroid disease or abnormal thyroid function tests, further investigations including thyroid peroxidase and thyroglobulin antibodies were performed. A diagnosis of Hashimoto's thyroiditis was made when the thyroid antibody test was positive.

Of the 110 female students referred for goiter, 11 (10%) were diagnosed as having Hashimoto's thyroiditis, on the basis of thyroid antibody tests. The age range was 12-19 years. Four were UAE nationals, in addition to 3 Palestinians, 2 Somalians, one Syrian and one Sudanese national. **Table 1** shows the clinical characteristics and thyroid profile of these patients. Thyroid function tests revealed 3 of these girls has euthyroid, 3 with subclinical hypothyroidism, 4 hypothyroid and one with subclinical hyperthyroidism. Thyroid scans showed abnormalities in uptake in 6 patients with the uptake of the radioisotope being heterogeneous, patchy or increased. The uptake was normal in the remaining 5 patients. One patient with subclinical hypothyroidism had history of thyrotoxicosis for which thyroidectomy was performed and in another patient hypothyroidism was associated with polyglandular autoimmune syndrome. The latter patient also had hypoparathyroidism, pernicious anemia and secondary amenorrhea, and gave family history of the same syndrome in a 19-year-old sister and neurofibromatosis type 1 in another sister aged 9-year-old. Yet another patient gave history of treatment with thyroxine for hypothyroidism 5 years ago but had discontinued the treatment. Four patients gave family history of thyroid disease. Another 4 patients had learning difficulties resulting in poor school performance. The height of these patients were below the fifth centile. On mental state examination, 6 patients showed features of depression and these patients were further evaluated using Hamilton depression rating scale. The scores suggested the severity of depression to be mild in 3, moderate in 2 and severe in one. The patient with severe depression started on treatment using a selective serotonin reuptake inhibitor. Our findings suggest that Hashimoto's thyroiditis should be suspected in all young people referred for evaluation of diffuse goiter. Mood changes and in particular depression when present should raise the suspicion of Hashimoto's thyroiditis, as affective symptoms are known to be associated with autoimmune

Table 1 - Hashimoto's thyroiditis - thyroid status.

n	Age (yrs)	T_4 (0.7-1.9 ng/d)	TSH (0.47-5.0mu/l)	Thyroglobulin antibodies (225u/m)	Thyroid peroxidase antibodies (35u/ml)	Thyroid scan Tc99m uptake = 0.4-4.1%	Symptoms and signs
1	14	1.17 ↔	1.16↔	1664↑↑	530 ↑	Diffuse goiter heterogeneous uptake. Uptake=1.2%. Suggest early Hashimoto's.	Diffuse goiter
2	14	1.16 ↔	1.19 ↔	476 ↑	271 ↑	Diffuse goiter. Uptake=1.5%.	Diffuse goiter
3	10	1.11 ↔	3.13 ↔	173 ↑	577↑	Diffuse goiter. Uptake=3.75%	Diffuse goiter
4	17	0.89 ↔	17.86 ↑	Negative	2168 ↑	Irregular Rt lower lobe; patchy uptake. Lt lobe previous hemithyroidectoy Uptake=3.1%.	Diffuse goiter. Depression. Thyroidectomy for hyperthyroidism in 1997
5	22	0.93 ↔	20.53 ↑	334 ↑	559 ↑	Patchy heterogeneous uptake: Rt lobe↓ uptake. Lt lobe ↑ uptake. Total uptake=5.7%(↑). Suggest Hashimoto's thyroiditis.	Diffuse goiter. Depression. Oligo-menorrhea.
6	15	1.19 ↔	8.68 ↑	5000 ↑↑	323 ↑	Diffuse goiter. Uptake=2.4%	Diffuse goiter
7	15	0.39 ↓	51.40 ↑	358 ↑	2157 ↑↑↑	Diffuse goiter. Uptake=10%(↑)	Diffuse goiter. Depression on treatment. Aches and pains
8	10	0.64 ↓	42.93 ↑	172 ↑	1503 ↑↑	Diffuse goiter. Uptake=7%(↑).	Diffuse goiter
9	15	0.54 ↓	40.20 ↑	434 ↑	1248 ↑↑	Diffuse goiter. Uptake=5%(↑).	Diffuse goiter. Aches and pains. ↓ concentration. Depression. Hoarse voice.
10	17	0.65 ↓	20.43 ↑	Negative	250 ↑	Diffuse goiter. Uptake=3.5%.	Polyglandular syndrome type 1: Hashimoto's hypothyroidism, Hypoparathyroidism, secondary amenorrhea. Depression
11	22	1.35 ↔	0.3 ↓	818 ↑	422 ↑	Diffuse uniform uptake. Uptake=3.7%	Diffuse goiter. Depression. History of hypothyroidism. Treated with thyroxine in 1995.

T_4 - thyroxine, TSH - thyroid stimulating hormone, yrs - years, Rt - right, Lt - left,
↑ – increased above the normal range, ↓ – decreased below the normal range, ↔ – equal to the normal range,
↑↑ – more than 2 fold increase, ↑↑↑ – more than 3 fold increase.

thyroiditis.[2] Hashimoto's thyroiditis is the most common cause of non endemic goiter and hypothyroidism in adolescence. In a recent study of Swedish school children, 7% of the 59 children screened had elevated anti thyroperoxidase antibodies.[3] In this regard it is to be noted that most patients with Hashimoto's thyroiditis have positive serum antibody titres to thyroperoxidase, while thyroglobulin antibodies are positive in approximately half of the patients. When both tests are used, approximately 95% of patients are detected with the disease.

Some environmental factors including hormones such as estrogen and prolactin, infections and drugs can trigger the development of the autoimmune process. Autoantibodies can cause tissue damage by binding the cell surface receptors thereby disturbing the organ's functions. In the case of Hashimoto's thyroiditis, the damage to the thyroid gland results in thyroid underactivity, or in some cases a phase of compensatory overactivity followed by underactivity. Therefore, clinically these patients may be symptomatic or asymptomatic and their thyroid function tests would show euthyroid, hypothyroid or hyperthyroid states. However, irrespective of the clinical and thyroid profile, a positive serum thyroid antibody test should confirm the diagnosis of Hashimoto's thyroiditis. A study of the clinical course of Hashimoto's thyroiditis in 46 children and adolescents in Thailand[4] found that after 6 years, 4 out of 8 patients with compensated hypothyroidism (normal T_4 and elevated TSH) had

normal thyroid function while the other 4 developed overt hypothyroidism. It is to be noted that all the 8 patients in this study were on thyroxine therapy. Thus, the need for regular monitoring of the thyroid function tests can hardly be overemphasized, as transition from one state to another is a recognized feature of the disease.

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The role of external cephalic version on the presentation at delivery

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A randomized control study was conducted in Wad Medani Teaching Hospital (WTH) in Sudan from January 1995 to December 2001. The study was designed to include 620 healthy women with uncomplicated pregnancy and having breech presentation between 36-38 weeks gestation. These patients were all attending the antenatal care clinic in WTH. The diagnosis of breech presentation was made clinically and was confirmed by ultrasound. This was also utilized to exclude from the study group, findings such as congenital malformation, oligohydramnios and placenta previa, confirmation of the fetal spine position, location and type of the breech, gestational age and the estimated fetal weight. All patients with uterine abnormality, previous cesarean section, hypertensive disorders with pregnancy, anti partum hemorrhage and intrauterine growth retardation was excluded from the study group.

Six hundred and twenty patients were then divided into 2 groups. The study group comprised of 310 patients and the control group, 310 patients. External cephalic version was attempted in all the study group once, twice or 3 times. The control group was left untreated. All women in the study group gave their informed consent before being randomly allocated to the study group or the control group. Due to the more frequent occurrence of spontaneous version on parous women than in the nulliparous women, nullipara and multipara were randomized separately in the 2 groups to obtain an equal distribution in both groups.

The study group includes 135 nullipara and 175 multipara. External cephalic version is performed throughout the study by the same physician using the classical forward roll technique with the patient relaxed and in slight Trendelenburg position. No tocolytic, analgesic or anesthetic agents are used. The procedure never took more than 5 minutes and was discontinued if not easily accomplished or if the patient indicated any discomfort. When the procedure failed or when reversion to breech occurred, the maneuver is repeated up to 3 times at subsequent antenatal visit, but never more than twice in the same week. The fetal heart rate was assessed by Binard fetal stescope before and 5 minutes after the procedure. The control group on the other hand, includes 125 nullipara and 185 multipara with breech presentation. No external cephalic version is attempted in this group. All patients with breech presentation at delivery were assessed by the attending obstetrician with regard to the mode of delivery. All neonates were assessed by Apgar score at 1, 5, 10 minutes and were weighed.

The significance or differences between relative values or frequencies was assessed by the mean X^2 analysis or by Fisher test. *P* value <0.05 was considered significant and 95% confidence interval (CI) were calculated where appropriate.

The mean age and the duration of gestation of all patients upon entering the study showed no significant differences between the 2 groups, with the exception that the parous women in the control group were older than those in the study group. The average gestational age at the time of the first attempt of external cephalic version was 36.45 weeks in the study group. Seven hundred and fifty attempts of external cephalic version were undertaken in the 310 patients. All attempts were 196 (26.1%) successful. In nullipara patients, successful attempts were 91/415 (21.9%) compared with 105/335 (31.3%) in multipara ($p>0.05$). Spontaneous reversion to breech after successful attempt of external cephalic version occurred in 3 nulliparous women and only 2 in multiparous patients. Definitive success was obtained before