

Euthyroid Graves' Ophthalmopathy in a Child

S Peter

Graves' ophthalmopathy occurs in 25% – 50% of patients with Graves' Hyperthyroidism. Euthyroid Graves' ophthalmopathy is much less common, occurring in approximately 10% of patients with Graves' ophthalmopathy (1). Review of the literature revealed no reports of euthyroid Graves' ophthalmopathy in children. The case of an eight-year old female with euthyroid Graves' ophthalmopathy is reported.

CASE REPORT

The patient was born in Haiti on September 3, 1990 and migrated to The Bahamas at age seven years. She presented to the Princess Margaret Hospital in 1998 with a one-year history of bulging eyes. At that time, there was no history suggestive of hyperthyroidism. The positive physical findings were bilateral proptosis, diffuse enlargement of the thyroid gland to one and a half to twice the normal size and there was no dermopathy. Thyroid function studies at that time were normal [T4 118.6 nmol/l (64 – 161), total T3 2.3 nmol/l (1.23–2.76), TSH 1.0 miu/l (0.4–4.0)]. Total T3 and TSH were measured by microparticle enzyme immunoassay, and total T4 by fluorescence polarization immunoassay.

Three months later, the patient was seen by an ophthalmologist – proptosis was greater in the right than the left. Visual acuity on the right was 20/40 and 20/30 on the left. Intraocular pressure on the right was 18 and 16 on the left. A computed tomography scan of the orbit was suggested but was not done because of financial constraints. No therapy was given. Thyroid stimulating immunoglobulin done at this time was negative (Labcorp, USA) (2).

The patient was seen by the author in January 2002 when he started the first endocrine clinic in The Bahamas. At that time, there was no symptoms suggestive of hyperthyroidism. The mother denied any family history of thyroid diseases. There was bilateral proptosis, diffuse goitre about twice the size of the normal thyroid, and no dermopathy. A diagnosis of euthyroid Graves' ophthalmopathy was made. Blood was taken for thyroid function studies and thyroid peroxidase antibody.

The patient was started on prednisone 40 mg daily, which was tapered to a maintenance dose of 10 mg after six weeks.

Thyroid function test at that time were TSH 0.9 miu/l, T4 86.4 nmol/l, T3 2.1/l nmol/l. With steroid therapy, proptosis has improved, but it is still present. In the most recent visit – February 2004 – the thyroid was one and a quarter times normal in size. The recent thyroid profile is: TSH 0.99 miu/ml, T4 98.6 nmol/l, T3 1.89 nmol/l.

Thyroid peroxidase was 63 miu/ml (normal 0–34 miu/ml). This was measured by chemiluminescent enzyme immunometric assay.

DISCUSSION

Proptosis, the forward displacement of the globe, results from an increase in the volume of the orbital fatty connective tissues and the extra-ocular muscle bodies (3). Histological examination shows an accumulation of glycosaminoglycans in these tissues. Euthyroid Graves' ophthalmopathy, maybe a separate but closely related autoimmune disease to Graves' hyperthyroidism (4); however, the search for a candidate orbital auto-antigen continues. This patient most likely has euthyroid Graves' ophthalmopathy in association with autoimmune thyroiditis, despite the relatively mild elevation of thyroid peroxidase antibody.

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