A RARE CASE OF PEDIATRIC HYPERTHYROIDISM

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BACKGROUND: Hyperthyroidism is rare in childhood and adolescence and Graves' disease accounts for approximately 96% of pediatric cases of thyrotoxicosis.

CASE REPORT: A 12-year-old girl, with no relevant family or personal history, was examined for a thyroid mass noticed a few days before. She also reported excessive sweating of the hands and mild psychomotor agitation. Clinical examination revealed, in addition to the right thyroid mass, other signs of hyperthyroidism: tachycardia (115 bpm), hypertension (128/69 mmHg) and hand tremors. Weight was 43.7 kg (25-50th centile), height 163 cm (75-90th centile), BMI 16.4 kg/m² (10-25th centile). She was Tanner stage 4. She regularly used iodized salt. Laboratory evaluation showed elevated free thyroid hormones (table) and undetectable thyroid-stimulating hormone (TSH). Antithyroglobulin were positive while antithyroidperoxidase and TSH receptor antibodies were negative.

Thyroid ultrasonography demonstrated an enlarged right thyroid lobe with four nodules in its context; the largest, nonhomogenous one measured 3.5 cm and showed intense perinodular and intranodular vascularity. The left thyroid lobe was instead significantly smaller (0.1 ml volume).

Pretreatment with antithyroid drugs was then started (methimazole at a starting dose of 20 mg daily, about 0.5 mg/kg daily) to obtain at least subclinical hyperthyroidism preoperatively. Heart rate, blood pressure, FT3 and FT4 normalized in two weeks; methimazole dose was gradually reduced to a dose of 7.5 mg daily, about 0.2 mg/kg daily. A mild increase of alanine aminotransferase was observed (<3 x ULN), with a complete normalization within a few weeks. The patient has increased about 6 kg of weight in 45 days and menarche occurred. A hemithyroidectomy was then performed; histologic findings were consistent with a multinodular toxic goiter.

DISCUSSION: Hot thyroid nodules in children are rare, with about 130 case reports described and a higher malignancy rate than in adults (overall rate of cancer 26.4%). In children and adolescents, according to the joint guidelines of American Association of Clinical Endocrinologists, Associazione Medici Endocrinologi and European Thyroid Association, treatment of choice of both cold and hot suspected nodules appears to be surgery. In particular for hot nodules, considering the high frequency of non-definitive reports from cytologic evaluation (FNAC), a direct referral to surgery is suggested. In cases similar to ours, lobectomy with completion thyroidectomy, if necessary, is suggested as a practical option.