Graves’ Disease in a Patient With Ectopic Mediastinal Thyroid

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Abstract: Abnormalities in the embryologic development and migration of the thyroid gland can result in ectopic thyroid tissue. Ectopic mediastinal goiters are somewhat uncommon developmental anomalies, accounting for less than 1% of all thyroid ectopies. Graves’ disease within mediastinal goiter is a very rare entity, described only in few cases in English literature. Pretracheal thyroidectomy alone does not cure Graves’ disease and can stimulate growth of the ectopic tissue in such cases.

Key Words: Graves’ disease, ectopic thyroid, mediastinal goiter, thyroid scanning

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REFERENCES
FIGURE 1. A 26-year-old female patient with history of subtotal thyroidectomy and hyperthyroidism was referred for thyroid scan and radioiodine uptake measurement. Tc-99m pertechnetate thyroid scan demonstrated enlarged thyroid tissue with diffuse, homogeneous increased uptake in bilateral thyroid lobes and left pyramidal lobe. In addition, 2 foci of prominent Tc-99m pertechnetate uptake were noted which was in mediastinum. Radioiodine uptake measurement was very high (24th hour: 61.3%; normal range: 10%–40%), and mediastinal planar image at 24th hour revealed mediastinal iodine-avid mass similar with technetium scan (not shown). The clinical and scintigraphic features, thyroid function tests were consistent with pretracheal and mediastinal Graves’ disease. The patient had a history of subtotal thyroidectomy 5 years ago, and pathologic examination had revealed Graves’ disease. She was put on antithyroid medications 1 year after operation for recurrent hyperthyroidism.

Although total thyroidectomy was planned, scar tissue and suspicion of laryngeal nerve injury limited surgery to bilateral near-total thyroidectomy and median sternotomy for mediastinal mass. Histology revealed Graves’ disease in both tissues.

Three months after the surgery, the patient was hyperthyroid, and I-131 scan demonstrated bilateral thyroid and minimal mediastinal residual functioning tissue. She was then treated with 15 mCi of I-131. Three months after radioactive I-131 therapy, the patient was hypothyroid and was started on levothyroxine.

FIGURE 2. T2-weighted sagittal slice of thorax MRI showing 7, 5 × 3, 5 × 2 cm mass in the anterior mediastinum (arrows) with similar signal intensity of pretracheal thyroid (arrowhead). Sublingual area is the most common site of ectopic thyroid tissue, accounting for 90% of the cases. True ectopic mediastinal goiters are rare developmental anomalies, accounting for less than 1% of all thyroid ectopies. Thyroid ectopia may present, in isolation, as the only functioning gland or may coexist along with a normal pretracheal thyroid. Ectopic lesions are usually asymptomatic, but they tend to increase in size when hormone demands increase, such as in puberty, pregnancy, or Graves’ disease. Biochemically, the patients with ectopic thyroid tissue are usually hypothyroid or euthyroid. Hyperthyroidism and Graves’ disease in a mediastinal ectopic goiter are a very rare entity and to date have been described only in few cases in the English literature. To detect ectopic thyroid tissue, thyroid scintigraphy is the first-line diagnostic tool. Pretracheal thyroidectomy can stimulate growth of the ectopic tissue resulting failure to cure Graves’ disease that can be avoided by preoperative thyroid scanning.