

Dual Ectopy of Thyroid Tissue: Intratracheal and in Nasopharynx, Associated with Normally Located Thyroid

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ABSTRACT

Dual ectopic thyroid tissue associated with normally located thyroid, is a rare anomaly. We report a case of 42 years lady, who underwent left hemithyroidectomy for nodules in the left lobe of thyroid 15 years back. She presented with right side neck swelling and dyspnea for 6 months. Right hemithyroidectomy was done for multinodular goiter involving right lobe of thyroid. She developed stridor on the first postoperative day. CT scan and MRI showed intratracheal ectopic thyroid tissue. Ectopic thyroid tissue was removed by dividing cricoid cartilage, and trachea was repaired. Radio iodine scan after 6 weeks showed another ectopic thyroid tissue in nasopharynx. Patient refused for radio iodine ablation and, she was given thyroxin replacement.

Key Words: *Thyroid. Ectopic. Intratracheal thyroid. Nasopharyngeal thyroid. Radionuclide thyroid scan.*

INTRODUCTION

Ectopic thyroid tissue is a rare developmental anomaly. The ectopic thyroid tissue can be located along the path of descent of the thyroid gland from the floor of the primitive foregut to the pre-tracheal position. Its prevalence is about 1 per 100,000 - 300,000 in general population.¹ The common sites of ectopic thyroid tissue are lingual, sublingual, thyroglossal, laryngotracheal, and lateral side of the neck.² Presence of two ectopic foci associated with normally located thyroid is very uncommon.³ Ectopic thyroid tissue is more common in female patients. Patients with intratracheal ectopic thyroid tissue may present with dyspnea. The severity of the symptoms depends on the size and location of the ectopic thyroid tissue.

We are presenting an interesting and rare case of a lady with dual ectopy of thyroid tissue. She had ectopic thyroid tissue in the trachea and in nasopharynx associated with normally located thyroid.

CASE REPORT

A 42 years lady was admitted to surgical ward with complaints of swelling in the right side of the neck, and episodes of dyspnea. She had no history of bronchial asthma. She had no other co-morbid conditions. She had past history of left hemithyroidectomy for benign nodules in the left lobe of thyroid 15 years back. Clinically she was euthyroid. Examination of the neck

showed multinodular goiter involving right lobe of thyroid, and displacing the trachea to the left side.

Her thyroid function tests were within normal limits (T4=15 pmol/L, T3=5 pmol/L, TSH 2.35 µIU/ml). Ultrasound of the neck showed multiple nodules involving the right lobe of thyroid.

After taking the informed consent, the patient was planned for surgery. Right hemithyroidectomy was done with harmonic scalpel. Right recurrent laryngeal nerve was detected with nerve stimulator and preserved. Both upper and lower right parathyroid glands were preserved. The trachea was patent after the surgery, which was confirmed by anesthetist. On the first post-operative day, the patient developed stridor. Laryngoscopy was done by ENT surgeon, which showed decreased movement of the left vocal cord and subglottic edema. The decreased movement of left vocal cord can be attributed to previous surgery on the left side. She was improved on steroids, but she was experiencing dyspnea.

CT scan and MRI of the neck showed an enhancing nodule in the left tracheal cartilage in close relation to left lobe of thyroid, suggestive of thyroid nodule (Figure 1).

The patient was taken to operation theater on 4th post-operative day. The intratracheal thyroid tissue was attempted to remove through bronchoscope by the ENT surgeon, but was not successful. The intratracheal tissue was excised by dividing the cricoid cartilage, and trachea was repaired by the ENT surgeon. Frozen section of intratracheal tissue confirmed as benign thyroid nodule. The patient was kept intubated and shifted to intensive care unit. She was extubated the next day, and shifted to surgical ward. She remained stable. She had mild hoarseness of her voice. She was seen in the voice clinic and her laryngoscopy showed decreased movements of the left vocal cord and free right vocal cord.

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Figure 1: CT Scan showing intratracheal thyroid tissue.

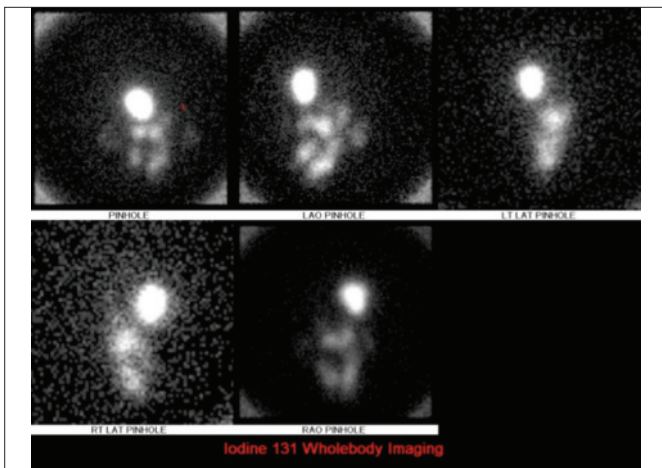


Figure 2: Iodine 131 whole body scan showing thyroid tissue in nasopharynx .

Her case was discussed with nuclear medicine, ENT and endocrine teams. She was discharged in stable condition, with follow-up appointment in surgery, endocrine, and nuclear medicine clinic. Radionuclide iodine scan after 6 weeks showed ectopic thyroid tissue in the nasopharynx and small residual tissue in thyroid bed (Figure 2). The patient was explained about the need of radio-iodine ablation therapy, but she did not opt for radio-iodine therapy. She was started on thyroxine replacement. Hoarseness of her voice improved, and she had no dyspnea. She is attending voice clinic.

DISCUSSION

Embryologically thyroid gland develops from an endodermal diverticulum from the floor of the pharyngeal gut which descends from the foramen cecum to the pre-tracheal region. The common sites of ectopic thyroid tissue are sublingual, lingual, thyroglossal and laryngotracheal. Rare sites for ectopic thyroid tissue include mediastinal, esophageal, cardiac, adrenal, pancreas and ovaries.² This is more common in females, and in younger age group. Its prevalence is 1 per 4000 - 8000 cases in patients with thyroid disease.⁴

There are two theories regarding the pathogenesis of intratracheal ectopic thyroid tissue. The ingrowth theory, which describes the failure of development of mesenchymal tissue between trachea and thyroid to develop, which causes some thyroid tissue to remain inside the trachea. The malformation theory, proposes that thyroid gland is split by growing trachea, which leads to a part of the gland to remain inside the trachea. Some of the gene transcription factors, including TITF1, NKX2-1, FOXE1 are responsible for the descent and development of thyroid. Mutations in these genes may lead to ectopic migration of thyroid tissue.⁵

The patients with ectopic intratracheal thyroid tissue may present with dyspnea, cough, dysphagia, hemoptysis and stridor. These patients are usually euthyroid.⁶

Doppler ultrasound has a sensitivity of 90% for detection of the ectopic thyroid tissue.⁷ CT scan and MRI are very helpful in detecting the location of ectopic thyroid tissue. These will also differentiate between thyroid tissue, lymph nodes, and tumour. Radio-iodine may not be very helpful, as uptake by normal thyroid gland masks uptake of ectopic tissue. Laryngoscopy and biopsy is more helpful to localize the lesion and to get histological diagnosis. FNAC can also provide the diagnosis of ectopic thyroid tissue.⁸

The presence of dual ectopic thyroid tissue is rare. Most cases present with one lesion in the sublingual and second in the subhyoid region. About half of these patients are euthyroid and half are hypothyroid.³ This patient was having one lesion in nasopharynx, and another in subglottic region, associated with normally located thyroid. She was euthyroid.

Patients with thyroid disease having dyspnea during pregnancy, which is not getting cured by medicines, should be evaluated for ectopic intra tracheal thyroid tissue. In pregnancy, the size of thyroid gland as well as of the ectopic thyroid tissue increases, which leads to more dyspnea during pregnancy.⁹

Carcinoma arising from ectopic thyroid tissue is uncommon. Few cases of papillary carcinoma and follicular carcinoma, have been reported in cases of lingual thyroid, thyroglossal cyst, and ectopic thyroid tissue in mediastinum.^{4,9}

Surgical resection is the recommended treatment for ectopic thyroid tissue in the presence of airway obstruction. Intra tracheal thyroid tissue can be removed by endoscope and laser or by open cricotomy. Radionuclide iodine ablation and a suppressive hormone therapy with levothyroxine is given in elderly patients, or in patients who are not fit for surgery.¹⁰

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