

## Ectopic Intrapulmonary Thyroid: A Case Report

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An ectopic thyroid is caused by abnormalities in migration of the thyroid during development and rarely occurs in the thoracic cavity or the abdominal cavity. We report the case of a 64-year-old female who had abnormal findings from a thyroid hormone test during follow-up after thyroid cancer surgery. Based on the radioisotope diagnostic test, an ectopic thyroid inside the thoracic cavity was suspected. Through surgical treatment, the patient was diagnosed with ectopic intrapulmonary thyroid. Ectopic intrapulmonary thyroid is reported to be very rare and the case is described along with a literature review.

Key words: 1. Thyroid dysgenesis  
2. Thyroid neoplasms  
3. Lung neoplasm

### CASE REPORT

A 64-year-old female was diagnosed with thyroid cancer in 2004 and was treated by thyroidectomy. During follow-up, blood free T4 levels were increased and an I-131 whole body scan was performed. The results showed hot uptake at the left mediastinum (Fig. 1). Additional chest computed tomography (CT) showed a 1.2-cm-long nodule at the left lower lobe, which matched the location in the I-131 scan results (Fig. 2). A thoracoscopic approach was first attempted, but failed due to adhesion of left upper lobe. Thus, a thoracotomy was performed. A 1-cm-long nodule surrounded by pulmonary tissue was observed next to the inferior pulmonary vein. A blood vessel branching off from the pulmonary vein and going through the nodule was also observed. The blood

vessel was ligated, excised, and isolated from the inferior pulmonary vein. EndoGIA (Covidien, Mansfield, USA) was then used for wedge resection of the nodule (Fig. 3). Postoperative histological findings reported a 1×1 cm nodule attached to the lung (Fig. 4). It was identified as ectopic thyroid tissue, but it was not observed to be malignant (Fig. 5). The patient's chest tube was removed on day 5 after surgery, and the patient was discharged on day 10 without other complications. The patient is currently under follow-up observation through outpatient care.

### DISCUSSION

The thyroid migrates from endodermal protrusion of the first and second pharyngeal arch at 3 weeks to 7 weeks of

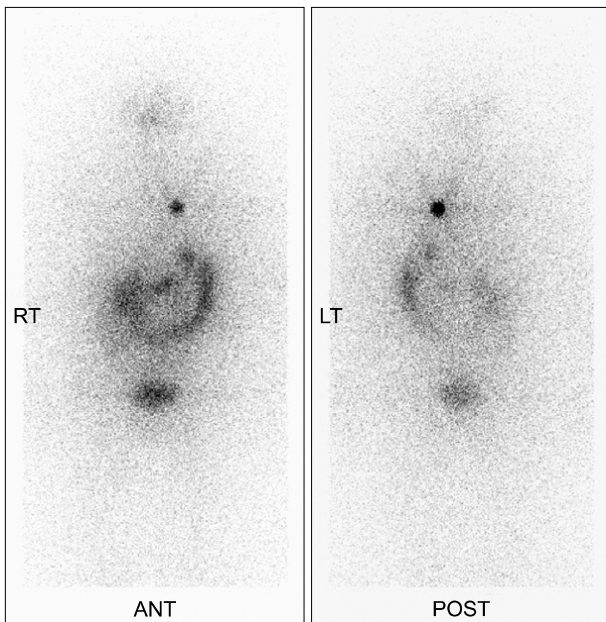
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Received: January 28, 2013, Revised: March 11, 2013, Accepted: March 12, 2013

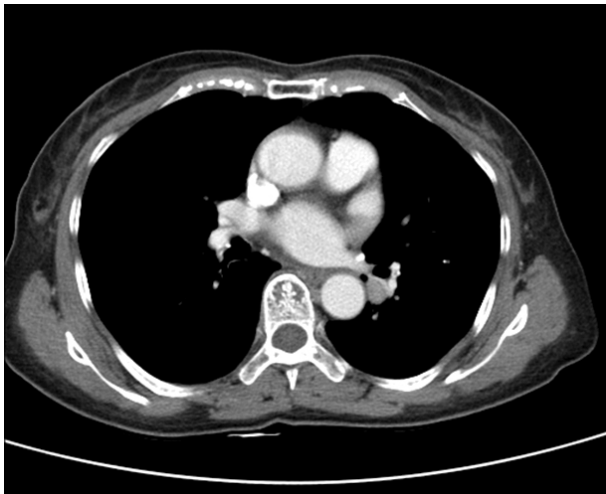
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**Fig. 1.** I-131 scan: extrathyroidal distant functioning metastasis. RT, right; LT, left; ANT, anterior; POST, posterior.

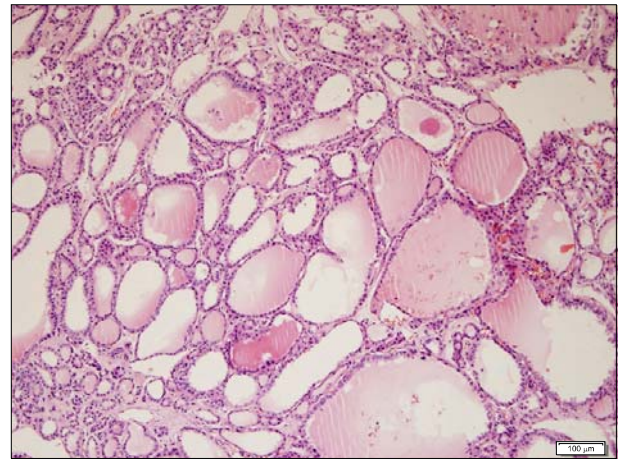


**Fig. 2.** Chest computed tomography: a 1.2 cm ovoid lesion with homogeneous enhancement in the left lower lobe (se2/31).

gestation. It descends anteriorly along the midline from the foramen cecum. A thyroglossal duct forms along the descending path of the thyroid and undergoes atrophy during the embryonic stage. During this development, abnormal migration of the thyroid causes it to be misplaced, which is known as ectopic thyroid [1,2]. The prevalence of ectopic thyroid is 1 in every 100,000 to 300,000 in the general population and 1

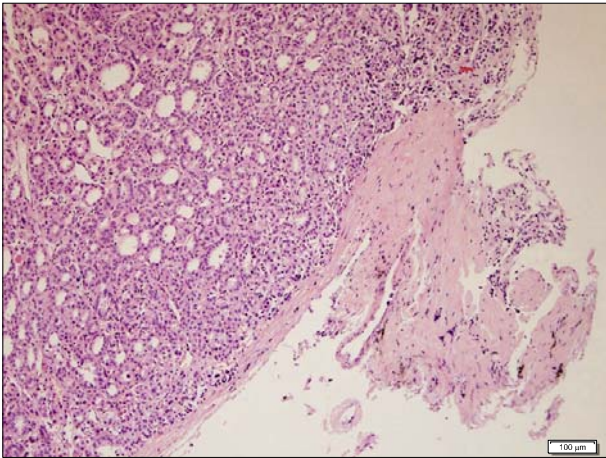


**Fig. 3.** Intraoperative findings.



**Fig. 4.** Microscopically, there is shallow demarcation of the fibrous capsule between the solid mass and lung parenchyme (H&E,  $\times 100$ ).

in 4,000 to 8,000 in patients with thyroid disease. It is more common in women and Asian populations [3]. Ectopic thyroid is mostly symptomless, but can have various symptoms based on the size and location. In particular, when located inside or around the trachea, the patient may experience aphagia, hoarseness, dyspnea, or a foreign body sensation as the size increases. However, most cases of ectopic intrapulmonary thyroid are symptomless, as in this case study. It is observed through radiation screening and CT scans and is reported to cause dry cough, dyspnea, hemoptysis aphagia, and superior vena cava syndrome. In addition, it is reported that orthotropic thyroid coexists in all cases of intrapulmonary thyroid [4,5]. Radiologic examinations for diagnosis include CT,



**Fig. 5.** On low magnitude power, the solid mass is composed of thyroid tissue. Variably sized follicle structures and benign follicular cells were found (H&E,  $\times 100$ ).

magnetic resonance imaging, Tc-99m, I-131, and I-123. Blind bronchoscope aspiration and real-time ultrasound aspiration have been used to obtain samples for histological diagnosis. Thoracoscope and mediastinoscope histological examinations are also possible [6]. A differential diagnosis of ectopic intrapulmonary thyroid includes thyroid cancer metastasis, thymoma, neuroma, and germ cell tumor. Among ectopic thyroid cases, 10% may progress to malignant papillary thyroid tumor. Prior to ectopic intrapulmonary thyroid treatment, the patient's age, presence of orthotropic thyroid, symptoms due to nodules and their severity, thyroid hormone level, and malignancy potential need to be considered to perform surgical or medical treatment [7]. Depending on the position of the tissue, sternotomy or thoracotomy can be performed for surgical treatment. Also, thoracoscopic treatment can also be considered.

In conclusion, ectopic thyroid occurs due to early devel-

opmental differentiation problems and can be positioned in different locations based on thyroid development. It is usually symptomless, but can cause symptoms depending on its location, size, and malignance. Surgical treatment can be performed considering the presence of symptoms or malignancy. This case reports a patient with a history of thyroid cancer and abnormal thyroid function. Surgery was performed in order to determine malignancy, and to diagnose and treat the ectopic thyroid.

#### CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

#### REFERENCES

1. Bando T, Genka K, Ishikawa K, Kuniyoshi M, Kuda T. *Ectopic intrapulmonary thyroid*. Chest 1993;103:1278-9.
2. Hazarika P, Murty PS, Nooruddin SM, Zachariah J, Rao NR. *Lingual thyroid*. Ear Nose Throat J 1988;67:161-5.
3. Noussios G, Anagnostis P, Goulis DG, Lappas D, Natsis K. *Ectopic thyroid tissue: anatomical, clinical, and surgical implications of a rare entity*. Eur J Endocrinol 2011;165:375-82.
4. Noyek AM, Friedberg J. *Thyroglossal duct and ectopic thyroid disorders*. Otolaryngol Clin North Am 1981;14:187-201.
5. Guimaraes MJ, Valente CM, Santos L, Baganha MF. *Ectopic thyroid in the anterior mediastinum*. J Bras Pneumol 2009; 35:383-7.
6. Park SJ, Lee SJ, Shim IK, Jang TW, Chun BK. *A case of mediastinal ectopic thyroid tissue diagnosed by endobronchial ultrasound guided transbronchial needle aspiration*. Kosin Med J 2011;26:89-92.
7. Shah BC, Ravichand CS, Juluri S, Agarwal A, Pramesh CS, Mistry RC. *Ectopic thyroid cancer*. Ann Thorac Cardiovasc Surg 2007;13:122-4.