



REVIEW

Dysphagia and dyspnea by lingual thyroid mass: An appropriate approach



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Received 8 June 2014; accepted 20 November 2014

Available online 8 December 2014

KEYWORDS

Ectopic thyroid;
Lingual thyroid;
Thyroid dysgenesis;
Dysphagia;
Dyspnea

Abstract Lingual thyroid is a rare embryological anomaly originated from the thyroid gland failure that descends from the foramen cecum to its normal eutopic pre-laryngeal site. The case in this study was a 39 year old female, presenting with the sensation of a foreign body, progressive dysphagia and dyspnea. Indirect laryngoscopy revealed a large well-defined mass in the tongue base. Imaging studies confirmed the diagnosis of large ectopic lingual thyroid. The surgery was performed via an external cervical approach due to the mass size. The decision on the best treatment looks into the mass position, size, symptoms, airway emergency and medical facilities.

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Peer review under responsibility of Egyptian Society of Ear, Nose, Throat and Allied Sciences.

<http://dx.doi.org/10.1016/j.ejenta.2014.11.002>

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1. Introduction

Lingual thyroid is a rare developmental anomaly that originates from aberrant embryogenesis during the passage of the thyroid gland through the neck. Embryonic development begins around 24 days after fertilization in the floor of the Primitive hypopharynx out of the median endodermal thickening. The primitive gland starts to descend close to the hyoid bone and the laryngeal cartilages.¹

The thyroglossal duct is a narrow tube which connects the developing thyroid gland to the tongue and it usually involutes during weeks 6–8. The foramen cecum is the opening of the thyroglossal duct in the tongue. The thyroid gland gradually descends to meet the lateral ultimo-branchial bodies; the fusion of these elements forms the functional and mature thyroid gland by the third fetal month.²

Lingual thyroid is the most frequent ectopic location for the thyroid gland, although its prevalence varies between 1:100,000 and 1:300,000. The clinical incidence is reported to range from 1:4000 to 1:10,000. Its true incidence is probably underestimated; some authors reported the ectopic lingual tissue 10% out of 200 consecutive necropsies.³ In literature, approximately 400 symptomatic cases were presented.⁴ Ectopic thyroid tissue can also occur between the geniohyoid and mylohyoid muscles (sublingual thyroid), above the hyoid bone (pre-laryngeal thyroid) or in such rare sites as the mediastinum, precardial sac, heart, breasts, pharynx, esophagus, trachea, lungs, duodenum, mesentery of the small intestine, and adrenal gland.^{5–9}

Most ectopic thyroids are asymptomatic; instead, patients complain from some upper airway problems such as foreign body sensation, progressive dysphagia to solid foods, odynophagia, hoarseness, hot potato voice, bleeding and dyspnea. Some patients have difficulty in breathing or snoring on their back position. Although symptoms grow very gradually, some patients may experience acute onset of obstructive airway symptoms.

2. Case

A 39-year-old female was admitted with dyspnea and muffle voice by the emergency ward at Imam Reza Hospital, Tabriz, Iran. The case had a mass in the tongue base with a foreign body sensation and stomatolalia that caused dyspnea and dysphagia to solid food. The patient was unable to lie on her back for last 5 years. The airway obstruction caused mouth breathing and snoring. These symptoms showed gradual growing in the last 10 years. Weight loss was another unexpected symptom. No record for thyroid disease was available except an untreated mild depression.

In the oral examination, the patient had a solid, pink and spherical mass, covered with intact mucosa on the base of the tongue, obstructing the visualization of the larynx. Neck examination revealed neither palpable thyroid glands in the normal pre-tracheal position, nor cervical adenopathies. The computed tomography (CT) revealed a 41 × 34 × 45 mm mass with distinct margins restricted to the tongue base enhancing after contrast administration. Absence of the thyroid glands was notable (Fig. 1).

A thyroid scan with technetium Tc-99m sodium showed a marked isotope uptake in the area of the tongue base with no uptake in the neck (Fig. 2). Tests of thyroid hormones

showed normal thyroid-stimulating hormone (TSH) concentrations and normal Free T3 and Free T4.

3. Surgical technique

In this case, an external approach with transhyoid median pharyngotomy was utilized. The anesthesiologist was unable to intubate the patient even with glidescope due to the large mass kissing the posterior pharynx wall. Although awake fiberoptic nasotracheal intubation is reported as the common option in these patients, the tracheotomy under local anesthesia was initially done due to the insufficient equipment. It was followed by the operation under general anesthesia.

An 8 cm transverse midline incision was done in the neck under the hyoid bone. The hyoid bone and the suprahyoid muscles were exposed, the infra-hyoid and supra-hyoid muscles were freed and the hyoid bone body was removed. Another incision was done in the pharyngeal mucosa to enter the hypopharynx. The mass visualized at the tongue base was dissected with an under mucosa approach and excised (Figs. 3 and 4). The pharyngeal opening was sutured in 2 layers, and the neck incision was closed in 3 layers. A nasogastric tube was introduced to feed the patient for 10 days. The tracheostomy tube was removed after 5 days. On the 8th post-operative day, the patient was discharged. The substitutive hormone therapy was commenced to maintain the euthyroid state. The excised specimen was sent for microscopic examination which was reported as a normal thyroid tissue.

4. Discussion

A rare embryological aberration, ectopic thyroid may occur when the migration of the thyroid results in the lingual (at tongue base), sublingual (below the tongue), prelaryngeal (in front of the larynx), and substernal (in the mediastinum) ectopy. Dual ectopic thyroid is described^{1,10} even with the thyroid glands in the normal location.¹¹ It is more frequent in females with the ratio 4:1 to men. Ectopic thyroid is seen at any age but more commonly during childhood, adolescence or around menopause. This anomaly probably occurs when the demand



Figure 1 CTscan with contrast revealed a large enhanced mass at tongue base.

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