Ectopic lingual thyroid - the role of imaging

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Abstract

Ectopic thyroid tissue may be found throughout the migration course of the thyroid gland. Thyroid ectopy may be partial or total. The most common location of ectopic thyroid tissue is in the tongue base (lingual thyroid). We discuss the computed tomography (CT) and radioisotope findings of a patient with ectopic lingual thyroid.

Case report

A 31-year-old female presented with a history of feeling of a lump in the throat, but no dysphagia. Clinically a reddish lobulated soft tissue mass was seen at the base of the tongue. The patient was euthyroid. A clinical diagnosis of lingual thyroid was made. Five x 5mm axial unenhanced and enhanced CT scans, of the neck and upper mediastinum, and coronal 5 x 5mm enhanced CT scans of the nasopharynx and tongue base were performed on a General Electric Hi-speed Advantage CT Scanner. Ninety ml iohexol 240 was administered intravenously as a bolus using a power injector at 2 ml/sec . Technetium radioisotope (2.5 m Ci Tc04) scan using a Picker Prism 2000 HP Gamma camera was also performed. A homogenous hyperdense enhancing lobular mass, measuring 2.5 x 2 x 2cm, was noted at the base of the tongue and another lesion, measuring 2 x 1,5 x 1,5cm was also noted anterior to the hyoid bone (Figures 1-3). Bilobular thyroid tissue was confirmed in the

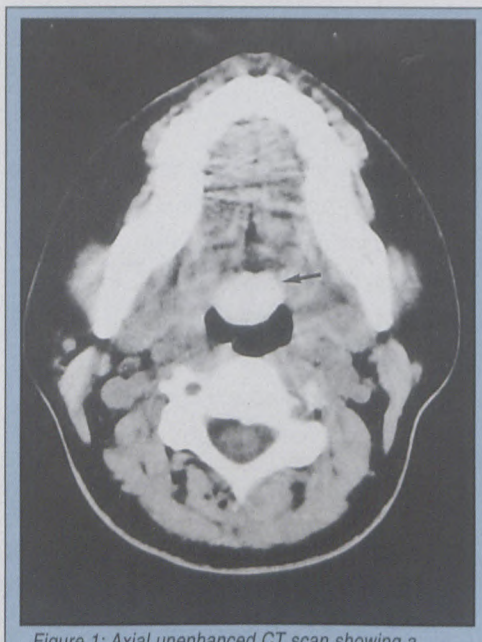

Figure 1: Axial unenhanced CT scan showing a homogenous hyperdense lobular mass at the base of the tongue (arrow).

Figure 2: Axial enhanced CT scan demonstrating the intense enhancement of the lingual thyroid (arrow).

to page 27

from page 26

Figure 3: Axial enhanced CT scan showing ectopic thyroid tissue (arrow) anterior to the hyoid bone (arrowhead).

sublingual area on scintigraphy (Figure 4). No thyroid tissue was noted at the level of the thyroid cartilage or in the superior mediastinum on CT scan or scintigraphy.

Diagnosis: Ectopic lingual thyroid.

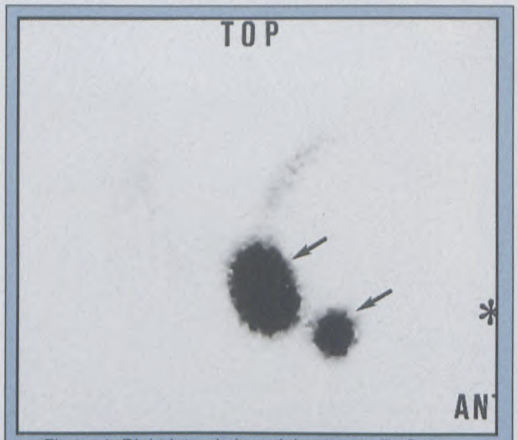

Figure 4: Right lateral view of the thyroid Tc O4 scintigram demonstrating the ectopic thyroid tissue in the sublingual region (arrows). The asterix denotes the symphysis menti.

Discussion

The thyroid primordium appears at the end of the third gestational week as a midline endodermic swelling in the ventral wall of the pharynx. It penetrates the underlying mesoderm and starts its descent, connected to the tongue by a narrow epithelial channel, the thyroglossal duct. It is believed that this migration is achieved through the development of the body of the embryo caudad, and the cephalic progression of the tongue and pharynx. Early in the fifth week, the thyroglossal duct loses its lumen, while the foramen caecum remains at the tongue base. The descent of the thyroid gland along the thyroglossal tract follows a vertical line in close contact but anterior to the hyoid bone and ends at the level of the upper trachea, leaving in 50% of cases, a midline pyramidal lobe. It is easy to understand thyroid ectopy as a defective descent of the gland. Total thyroid ectopy may be observed at various levels, suprahyoid location - lingual or sublingual, and infrahyoid location, - prelaryngeal.[1] Lingual thyroid is the most frequently encountered anomaly, accounting for approximately 90% of cases of total thyroid ectopy.[2] In 70-80% of lingual thyroid cases, the ectopic tissue is the only existing thyroid tissue. The presence of a hypertrophied ectopic thyroid gland may be asymptomatic or cause dysphonia and relative obstruction of the upper respiratory and gastrointestinal tracts.[3] The frequency is estimated to be 1/4000[4] - 1/100 000.[5] The pathological condition develops most often between the third and fifth decade and there is a female predominance (7:1).[4,6] Partial thyroid ectopy, that is, ectopic tissue in the presence of a thyroid gland in its normal position may appear at various levels namely, suprahyoid location - lingual or sublingual, and infrahyroid location - prelaryngeal, intra-tracheal, intra-oesophageal or intrathoracic. Complications include carcinoma (3% papillary), but there is no increased incidence compared to normally positioned thyroid tissue.[6]

The differential diagnosis of a mass located in the foramen caecum area at the tongue base would include adenoma, thyroglossal cyst, angiomas, fibromas, chondromas, lymphangiomas, epithelioma, squamous cell carcinoma, adenoid cystic carcinoma, lymphoma and lymphosarcoma.[6] Irregular or inhomogenous contrast enhancement on CT would be expected in some of these lesions, and confusion with lingual thyroid could occur. The diagnosis of a lingual thyroid however can be confirmed by thyroid isotope scanning (Technetium or Iodine-123). Scintigraphy is useful to confirm the presence of thyroid tissue, to assess other sites of ectopic thyroid tissue, and whether the ectopic tissue is the only thyroid tissue present. It does not however have the spatial resolution of CT or MRI scanning, which can delineate the anatomical relations more precisely.

Ultrasound may be used to evaluate the neck for ectopic thyroid tissue .A suspected lingual thyroid may be seen as a soft tissue mass at the base of the tongue with parenchymal characteristics similar to that of thyroid seen on ultrasound.[7] However, further confirmatory tests, e.g. scintigraphy may need to be done.

Summary

Ectopic lingual thyroid is a congenital anomaly caused by failure of migration of the thyroid gland from the embryological pharyngeal position to its usual location in the lower neck. The commonest location of ectopic thyroid is in the tongue base. The diagnosis is usually made clinically, with radiology, usually thyroid radioisotope scan, as a confirmatory test. CT scan and MRI are useful in delineating the anatomical relations.

References

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