

ECTOPIC THYROID TISSUE- A RARE CASE

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ABSTRACT**BACKGROUND**

Ectopic thyroid is a condition in which the thyroid tissue is present in locations other than the normal anterior neck region between the second and fourth tracheal cartilages. Its prevalence is 1 per 1,00,000-3,00,000 people. About 500 cases have been reported in the English literature mainly from Europe, Asia and America with a small number of reports coming from Africa. Ectopic thyroid tissue is a rare entity resulting from developmental defects in the migration of thyroid primordium from the foramen cecum at the base of the tongue to the infrahyoid portion of the neck between second and fourth tracheal cartilages. Ectopic thyroid tissue can occur anywhere along the course of the thyroglossal tract. Lingual thyroid is the most common type of ectopic thyroid accounting for 90% of cases. The most important differential diagnosis for ectopic thyroid is adenomas, metastatic thyroid tissue and hypertrophied lingual tonsil.

KEYWORDS

Ectopic Thyroid Tissue, Sublingual, Infrahyoid.

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BACKGROUND

Thyroid developmental anomalies arise when the thyroglossal duct incompletely descends or develops or obliterates. All thyroid congenital anomalies occurs along the thyroglossal tract.¹ The migration of the thyroid primordium begins at the foramen cecum, which is situated at the base of the tongue and then it loops around the hyoid bone anteriorly, inferiorly and posteriorly and then it descends anteriorly in front of the thyrohyoid membrane and finally to its normal position that is to the anterior neck region between the second and fourth tracheal cartilages. Ectopic thyroid is commonly categorised into four typical locations based on its embryologic course: 1) sublingual - base of the tongue 2) adjacent to the hyoid bone 3) midline infrahyoid location 4) lateral part of the neck.² Other locations where ectopic thyroid were found in head and neck are submandibular, trachea, palatine tonsil, axilla, pituitary gland, iris of the eye and carotid bifurcation. The presence of ectopic thyroid tissue in other places distant from head and neck were also been noted such as in thymus, oesophagus, heart, ascending aorta, stomach, duodenum, gallbladder, pancreas, adrenal glands, porta hepatis, mesentery of small intestine, uterus, vagina, fallopian tubes and ovary. Its prevalence is 1 per 1,00,000-3,00,000 people.³

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There is a high female-to-male ratio of approximately 8:1, the tongue is the most common ectopic location of the thyroid (90%) occurs in the midline dorsum of the tongue. Ectopic thyroid tissue is usually asymptomatic and are discovered incidentally, but symptoms like dysphagia, stridor, dyspnoea and hoarseness of voice maybe present. Malignancy may occur in thyroid, but is rare.⁴ Investigative procedures, which can be of useful are USG, CT, MRI, FNAC, radionuclide scintigraphy and thyroid function tests. CT is very useful because iodine concentrated within the functioning ectopic tissue makes it appear dense on CT.⁵

CASE REPORT

A 23-year-old female presented to the Department of Radiology with complaints of painless neck swelling since childhood. On clinical examination, an off midline swelling is seen extending into the left side of the neck in the infrahyoid location. It was a painless swelling gradually increasing since childhood. There was no history of fever, pain, dysphagia, stridor or hoarseness of voice. Routine blood tests, chest radiogram, USG abdomen and thyroid function tests were normal.

Imaging

USG Neck-by 7.5-MHz linear array transducer for both gray scale and Doppler imaging. Thyroid fossa was empty. A well-defined hyperechoic mass with few cystic areas measuring 3.3x1.3 cms was noted in the infrahyoid region anterolateral to thyroid cartilage on the left side with moderate vascularity on colour Doppler. Another well-defined hyperechoic mass was noted in the sublingual region in the midline measuring 1.2x1 cm in size.





Figure 1

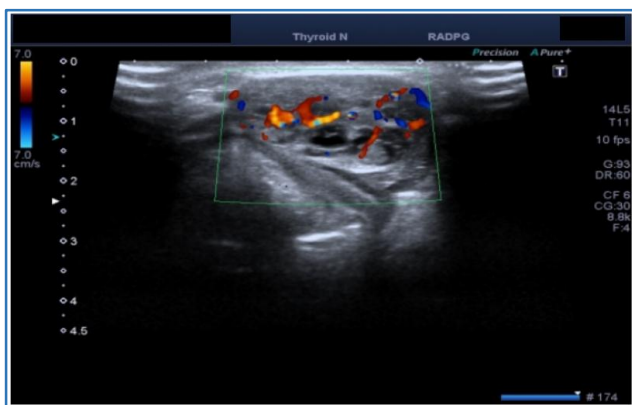


Figure 2



Figure 3



Figure 4

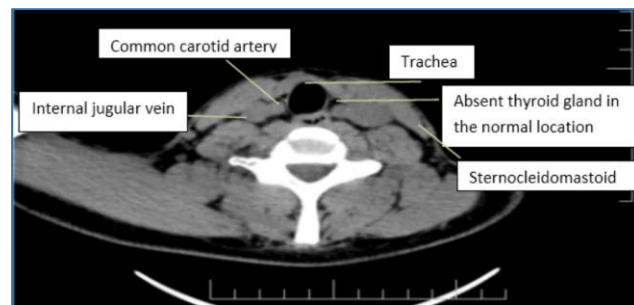


Figure 5

NECT-Neck

Patient in supine position, axial sections of 1 mm were taken from the level of maxillary sinus to the level of clavicles and later sagittal reformatted images were obtained. The thyroid gland, which should be normally located in the anterior neck region between the second and fourth tracheal cartilages was absent. A heterogeneous mass lesion was noted in the infrahyoid portion on the left side of the neck. The mass appears to be located anterior to the thyroid cartilage and splaying the strap muscles on the left side. There was another mass lesion in the sublingual region, which appeared hyperdense. FNAC from the infrahyoid region mass revealed colloid cyst with degenerative changes.

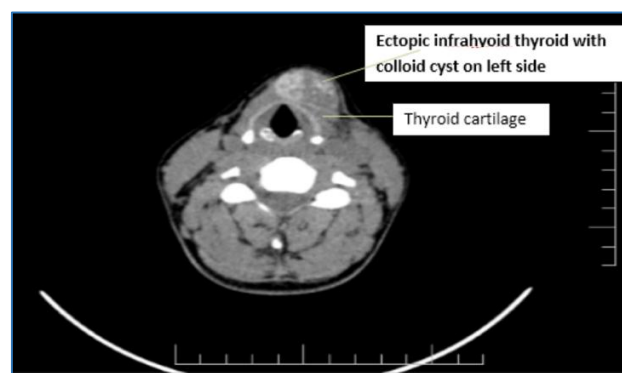


Figure 6

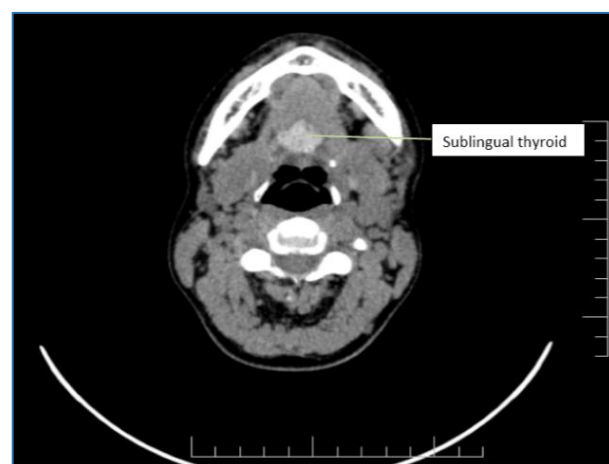


Figure 7

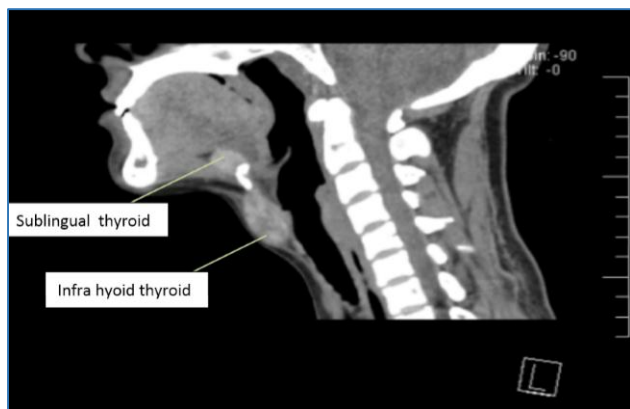


Figure 8

DISCUSSION

The thyroglossal duct is a narrow tube, which connects the developing thyroid gland to the tongue. The thyroglossal duct usually involutes at the sixth or eighth week. If the descent of the thyroid gland is arrested at any site in the thyroglossal duct, it results in the ectopic thyroid.⁶ Normally, the thyroid grows down from the tongue as a bilobed diverticulum connected back to the tongue by the thyroglossal duct. In this case, the left lobe of the thyroid descent is arrested at infrahyoid region on the left side and the right lobe descent is arrested at sublingual region resulting in bilateral ectopic thyroid tissues.

Pathogenesis

The mechanisms responsible for thyroid morphogenesis may include the transcription factor TITF1/NKX2-1, this factor is responsible for expression of thyroid specific thyroglobulin and thyroperoxidase and also the transcription factors FOXE1, HHEX and PAX8, which are required for the early stages of thyroid morphogenesis. Some other genes such as TSH receptor gene is also required for thyroid development and mutations in these factors may result in the thyroid developmental disorders.⁷

Differential Diagnosis

The differential diagnosis for midline and lateral neck ectopic thyroid tissues include: metastatic thyroid carcinoma, lymphatic malformation, epidermoid cyst, abscess, branchial cleft cyst, saccular cyst, squamous cell carcinoma,⁸ submandibular gland tumour, parathyroid adenoma, metastatic lymph node, lipoma, neurofibroma, carotid body tumour, cystic hygroma, primary soft tissue tumour and infections (like tuberculosis and syphilis).⁹

Treatment

Most of the patients with ectopic thyroid are either hypothyroid or euthyroid, but rarely hyperthyroid.¹⁰ Asymptomatic euthyroid individuals do not require any treatment, but are kept under observation. The individuals with symptoms, the treatment mainly depends on the size of the thyroid gland, thyroid function tests and histological findings. In patients with mild obstructive symptoms and/or

hypothyroidism suppressive therapy is administered using exogenous thyroid hormone.

This helps in suppressing the TSH level and results in the reduction of the gland size. But, usually the rate of reduction in the size of the gland is slow.³ The individuals who fail to achieve significant reduction in the gland size even after the suppressive therapy should undergo surgical excision to prevent progressive growth and also possible malignant transformation.

CONCLUSION

Ectopic thyroid is a rare disease and the exact aetiology is not fully known. Most of the patients are euthyroid or hypothyroidism and rarely hyperthyroid. Ectopic thyroid tissue should be considered in the differential diagnosis of painless midline/lateral swelling in the neck. The patients may remain asymptomatic or symptoms like dysphagia, dyspnoea or hoarseness of voice maybe present. Treatment depends on the symptoms and surgical excision is often required. The investigative modalities includes USG, CT, MRI, radionuclide thyroid imaging, thyroid function test and FNAC. The investigation of choice for ectopic thyroid is thyroid scan with Tc-99m or iodine-123 or iodine-131 because it helps to confirm the presence of ectopic thyroid and is also important to differentiate the ectopic thyroid tissue from other neck masses.¹¹

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