

## CASE REPORT

# Dual Ectopic Thyroid- Case Report Of A Rare Entity

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## ABSTRACT

**Introduction:** Ectopic thyroid is a rare developmental anomaly, usually found along the normal embryological course of the descent of thyroid. However, it is even rarer to have multiple locations of ectopic thyroid tissue present simultaneously.

**Case Report:** We present a case of a rare entity of dual ectopic thyroid in a 10 year old girl presented with midline swelling of neck. The diagnosis and subsequent management were established with the help of various imaging modalities and Technetium-99m pertechnetate thyroid scan.

**Conclusion:** The purpose of this report is to demonstrate the complimentary role of various imaging modalities and the importance of performing a thyroid scan in the cases of thyroid ectopia.

**Keywords:** Dual, Ectopic Thyroid, Lingual, Subhyoid, MRI, Radionuclide Scan

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## INTRODUCTION

Ectopic thyroid is the presence of thyroid tissue in a site other than its usual pretracheal location in the lower neck, extending from the level of the fifth cervical vertebra down to the first thoracic level. The pathway from the pharynx to the anterior neck is marked by the thyroglossal duct.<sup>1</sup> The arrest in the descent can occur anywhere

from just below the foramen cecum (lingual) or just above and below the hyoid bone.<sup>2</sup> Till date, about 500 cases have been reported of ectopic thyroid in the English literature and mostly occurred in females. Dual ectopia of thyroid is even more rare condition and only 32 cases have been reported till date. It is very unusual to find multiple ectopic thyroid tissue simultaneously.<sup>3,4</sup> In 70% of the cases of ectopic thyroid, the normal thyroid gland is absent. The second ectopic focus was at subhyoid or suprahyoid level in most cases.<sup>5</sup>

## CASE REPORT

A 10-year-old girl presented with history of a subhyoid midline swelling in the anterior neck for the past one year which was gradually increasing in size (Figure-1: 10yr old girl with dual ectopic thyroid presented with the midline anterior neck swelling). There was no history of pain, breathing or swallowing difficulty. The girl had no clinical complaints suggestive of hypo or hyperthyroidism. On examination, there was swelling was about 2 x 2 cm that was soft in consistency and moving with deglutition and protrusion of tongue. A clinical diagnosis of thyroglossal duct cyst was made and patient was advised ultrasonography of neck and thyroid function tests prior to surgery. The thyroid function test revealed increased TSH values of 9.91pg/ml, while T3 (4.2 pg/ml) and T4 (1.2 pg/ml) were within normal limits. Ultrasonography of the neck revealed a well-defined echogenic mass of 2.6×2.4×1.8 cm size with flow within it on color Doppler in the subhyoid region (Figure-2 a: Ultrasonography showed midline neck swelling at subhyoid region which shows heterogenous predominantly hyperechoic lesion with some internal vascularity). No other thyroid tissue in the neck was noted. She was further investigated and MRI scan of neck was done. MRI scan revealed, on both T1 and T2 weighted images, two homogenously hyper intense foci with enhancement on intraven-

ous gadolinium administration, one in the lingual region measuring 1.6x1.2x.8 cm and the other in the subhyoid region measuring 2.5x2.6x1cm. (Figure 3a-b: Post contrast T1w image shows heterogeneously enhancing lesions noted in posterior part of the tongue and at the level of thyroid cartilage in subhyoid location with enhancement). The eutopic thyroid gland was not found. A diagnosis of dual ectopic thyroid with absent normal thyroid was made. Thereafter, a Tc-99m pertechnetate radionuclide scan was done which clearly showed two distinct foci of tracer uptake in the midline neck in the lingual and subhyoid areas with no uptake in the normal location of the thyroid gland in the neck (Figure 4 a,b: Tc-pertechnetate radionuclide scan in two views shows two distinct foci of tracer accumulation, one in sublingual region and other in subhyoid location with no uptake in normal thyroid location). This confirmed the diagnosis of dual ectopic thyroid with absent normal thyroid. The patient was sub clinically hypothyroid so was started on thyroxine 50 microgram daily and was followed up after 6 weeks of therapy. A non-enhanced CT scan of neck was done after 6 weeks of therapy in the first follow-up which showed two homogeneously hyper dense lesions, one in lingual and other in subhyoid region (Figure: 5a-b Non contrast CT scan images show two hyper dense lesions corresponding to previously diagnosed dual ectopic thyroid). The size of the subhyoid swelling was 2.4x2x1.9 cm (a decrease of 20%), however the lingual thyroid size was unchanged.

## DISCUSSION

Hickman in 1869 described the first case of ectopic thyroid in a newborn who had upper airway obstruction due to lingual thyroid. Ectopic thyroid is a developmental arrest of descent of normal thyroid primordium at any level from foramen caecum to hyoid bone. Till date, about 500 cases have been reported of ectopic thyroid in the English literature and mostly occurred in females. Dual ectopia of thyroid is even more rare condition and only 32 cases have been reported till date. It is very unusual to find multiple ectopic thyroid tissue simultaneously.<sup>3,4</sup> Normal thyroid is absent in 70% cases of ectopic

thyroid, out of which lingual thyroid is the most common location. The other ectopic focus was at suprahyoid level in most cases.<sup>5</sup> Other rare sites can be at parathyroid, larynx, trachea, oesophagus cervical lymph nodes, submandibular gland, brachial cysts, duodenal mesentery, adrenals and carotid bifurcation.<sup>6</sup> Mostly ectopic thyroid is seen at any age but has an increased incidence of detection at adolescence or after pregnancy. Incidence is more in females than males.<sup>7</sup> Symptoms of ectopic thyroid can be due to pressure on surrounding structures like trachea which will cause airway obstruction or a foreign body sensation in throat. Incidence of clinical hypothyroidism is 24-60%.<sup>2</sup> Rest are euthyroid or sub clinically hypothyroid. However hyperthyroidism may be seen rarely. All diseases capable of affecting the normal thyroid can affect the ectopic thyroid like adenoma, hyperplasia, inflammation and rarely malignancy. The rate of malignant transformation in ectopic thyroid is no greater than in normally placed. The most important diagnostic modality for ectopic thyroid is a thyroid scan with Technetium-99m which can detect the presence of other sites of thyroid tissue and shows the absence or presence of thyroid in its normal location. Radiological imaging modalities, such as grayscale or color Doppler USG, computed tomography (CT), and magnetic resonance imaging (MRI), may be complementary investigations and may help in designating the extension and location of ectopic tissue, thus contributing to a better evaluation of these cases. Thyroid tissue has higher Hounsfield value due to increase iodine content in thyroid so it appears brighter than surrounding muscles on non contrast CT scan. Thyroid tissue appear slightly hyper intense than surrounding muscle on T1W and T2W images in MRI, It shows homogenous enhancement on post contrast MRI scan.<sup>8</sup> In some ectopic rests, other diagnostic tools, such as the endoscopic evaluation of intra-tracheal thyroid, are valuable. Lastly, fine needle aspiration cytology (FNAC) provides considerable assistance in confirming the diagnosis of ectopic thyroid and may help in differentiating between a benign and a malignant lesion. Asymptomatic and euthyroid patients usually do not require any treatment but they should be followed up and watched for any complications. Medical treatm-



Figure-1;

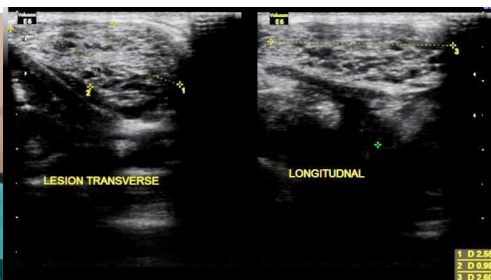


Figure-2

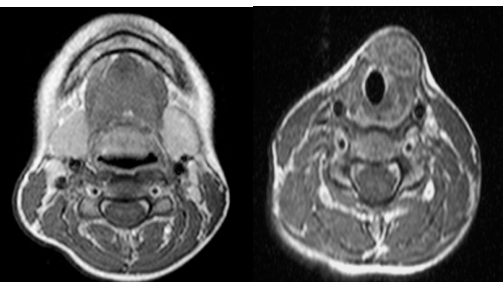


Figure-3a,b



Figure-4

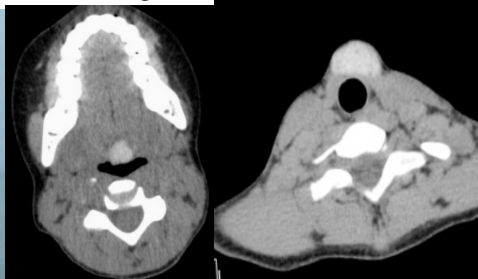


Figure-5a,b

**Figure-1:** 10yr old girl with dual ectopic thyroid presented with the midline anterior neck swelling; **Figure-2:** 10yr old girl with dual ectopic thyroid-Ultrasonography showed midline neck swelling at subhyoid region which shows heterogenous predominantly hyperechoic lesion with some internal vascularity. USG was done using linear probe of 7 MHz frequency

**Figure-3a,b:** MRI of 10yr old girl with dual ectopic thyroid. MRI was done. Post contrast T1w axial images shows uniform contrast enhancement of both the lesions-at posterior part of tongue and at the level of thyroid. Technique- TE-15, TR-612, gadolinom based contrast used and the dose given was 3ml (1 ml contained 0.1 mmol/ml); **Figure-4:** 10yr old girl with dual ectopic thyroid. Tc-pertechnetate radionuclide scan in antero-posterior view shows two distinct foci of tracer accumulation, one in sublingual region and other in anterior midline neck with no uptake in normal thyroid location; **Figure-5a,b:** 10yr old girl with dual ectopic thyroid. Non contrast CT scan of neck on follow up was done using 40 slice CT machine. Axial images of neck show two hyperdense lesions corresponding to previously diagnosed dual ectopic thyroid. Technique - mA-277, kVp-120. Slice Thickness- 10mm No contrast was used.

ent is given in patients with hypothyroidism. Surgery is usually not done, since the swelling may be the only functioning tissue in the body. Surgery is only done if patient is having difficulty in breathing or swallowing or if any malignancy develops in the ectopic thyroid tissue.<sup>2</sup> In our patient, institution of thyroxine therapy resulted in the reduction of the subhyoid thyroid tissue by about 20% after 6 weeks of therapy similarly as Noussios G et al.<sup>7</sup>

## CONCLUSION

Ectopic thyroid should be a diagnostic consideration in every case of subhyoid midline swelling in children and adolescence. If an ectopic thyroid rest is found, a search should be done for other rests at any other site

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