

Case Report



Dual Ectopic Thyroid: A Case Report

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Citation: Brahmanandam L, et al. Dual Ectopic Thyroid: A Case Report. Arch Endocrinol Disord. 2026;2(2):1-6.

<https://doi.org/10.46889/AED.2026.2207>

Received Date: 05-06-2026

Accepted Date: 29-06-2026

Published Date: 06-07-2026



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Abstract

40 years female presented to endocrinology department with history of swelling in front of neck just above the usual position of thyroid since 3 years duration. Physical examination revealed 3 cm x 3 cm swelling, which is soft to cystic consistency, movable in all directions and moving with deglutition. However, there is no movement of the swelling on protrusion of tongue. As a part of evaluation we sent thyroid profile which showed low T4 (Tetraiodothyronine) and grossly elevated Thyroid Stimulating Hormone (TSH) suggestive of primary hypothyroidism. Next we did ultrasonography neck which showed 3 x 2.5 cm hyperechoic lesion in the midline at the level of hyoid bone. Then we did Magnetic Resonance Imaging (MRI) neck which revealed ectopic thyroid gland located at pre hyoid and base of the tongue. Then we did Fine Needle Aspiration Cytology (FNAC) of the neck swelling which confirmed the diagnosis of ectopic thyroid tissue. Patient managed with Levothyroxine (LT4) replacement therapy with 100 micrograms. Follow up of the patients 3 months after the treatment patient became euthyroid. The neck swelling slightly reduced after the treatment. Thus, we make the diagnosis of our case as Dual Ectopic Thyroid.

Keywords: Ectopic Thyroid Tissue; Lingual; Prehyoid; Levothyroxin; Hypothyroidism, Imaging

Introduction

Ectopic thyroid gland is a rare congenital anomaly occurs due to a defect in the migration of thyroid gland during embryonic development. The incidence of ectopic

thyroid is 1 in 1,00,000 individuals approximately. It is more prevalent in women when compared to men. It is often diagnosed during childhood or adolescence; however it may be seen during adulthood also. It may remain asymptomatic throughout life [1,2]. The thyroid gland originates at the foramen cecum at the base of the tongue and migrates to its definitive position in the pretracheal region. When this process is interrupted, thyroid tissue may remain in atypical locations which includes base of the tongue, mediastinum, submandibular region and along the course of thyroid descent [3].

Lingual thyroid is usually described as ectopic thyroid tissue in the midline of the base of the tongue between circumvallate papillae and the epiglottis [4,5]. Lingual thyroid is the most common ectopic thyroid accounting for 90% of all cases. Most ectopic thyroids are asymptomatic but dysphagia, dysphonia, dyspnoea, cough, snoring, foreign body sensation, sleep apnea and bleeding have all been reported [6,7].

Ectopic thyroid tissue have been reported to be located in submandibular region, the trachea, the mediastinum, the heart, the lung, the duodenum, the adrenal gland, the parotid gland and the gallbladder [8-16]. Sublingual, lateral cervical, axilla, palatine tonsil, carotid bifurcation and pituitary gland are the other locations of Ectopic thyroid.

The diagnosis of ectopic thyroid gland is made by clinical, laboratory and imaging findings. Here we report a case of dual ectopic thyroid. In our case the ectopic thyroid glands were located at the base of the tongue and prehyoid region.

Case History

40 Years female presented to Endocrinology department, Super Speciality Hospital, Government Medical College, Ananthapuramu with history of swelling in front of neck of 3 years duration (Fig. 1).



Figure 1: 40 Years Female with ectopic thyroid gland.

The swelling started as a small and gradually increased in its size and attained the present size. There were no compressive symptoms like dysphagia, dysphonia, dyspnoea. There are no other swellings over neck. Physical examination revealed 3 cm x 3 cm lesion noted in the midline on the anterior aspect of neck just above the thyroid cartilage, a site distinct from the usual location of thyroid tissue. The swelling is moving with deglutition, confirms that it is a thyroid tissue. However, there is no movement with protrusion of the tongue which excludes the diagnosis of thyroglossal duct cyst clinically. The swelling is soft to cystic in consistency and movable in all directions. There is no adherence to the surrounding structures making the diagnosis of malignancy unlikely clinically. There are no evidence of cervical lymphadenopathy. As a part of evaluation, we did thyroid profile which revealed low T4 and grossly elevated TSH suggestive of primary hypothyroidism. Next, we did ultrasonography neck which revealed 3 x 2.5 cm hyperechoic lesion with Isoechoic nodule noted in the midline at the level of hyoid bone, on colour Doppler showed slightly increased vascularity with an impression of ectopic thyroid gland with benign nodule. Next, we did MRI neck (Fig. 2) for further evaluation of ectopic thyroid gland. Interestingly MRI neck showed evidence of well-defined lesion measuring 2.5 x 2.6 cm noted at midline prehyoid which is hypo intense on T1 and hyper intense on T2 showing restricted diffusion. There is evidence of 10 x 9 mm well defined lesion noted within the above lesion which is hypo intense on T1 and hyper intense on T2 suggestive of cyst. There is also evidence of similar lesion measuring 11 x 10 mm noted at the base of the tongue. Thyroid gland is not visualized at its usual location. The impression of MRI neck report was ectopic thyroid gland at prehyoid and at the base of the tongue. Thus, we report a case of dual ectopic thyroid glands.



Figure 2: MRI Neck showing dual ectopic thyroid glands.

Next, we did FNAC of the swelling in front of the neck. The microscopic features of FNAC report of moderately cellular smears reveal benign looking thyroid follicular epithelial cells against in follicles, monolayered sheets and in clusters. Back ground shows blood mixed with scanty colloid, blood elements and focal histiocytic aggregates. No evidence of malignancy in the smears examined. Cytological features suggestive of follicular nodular disease arising in ectopic thyroid tissue (Fig. 3).

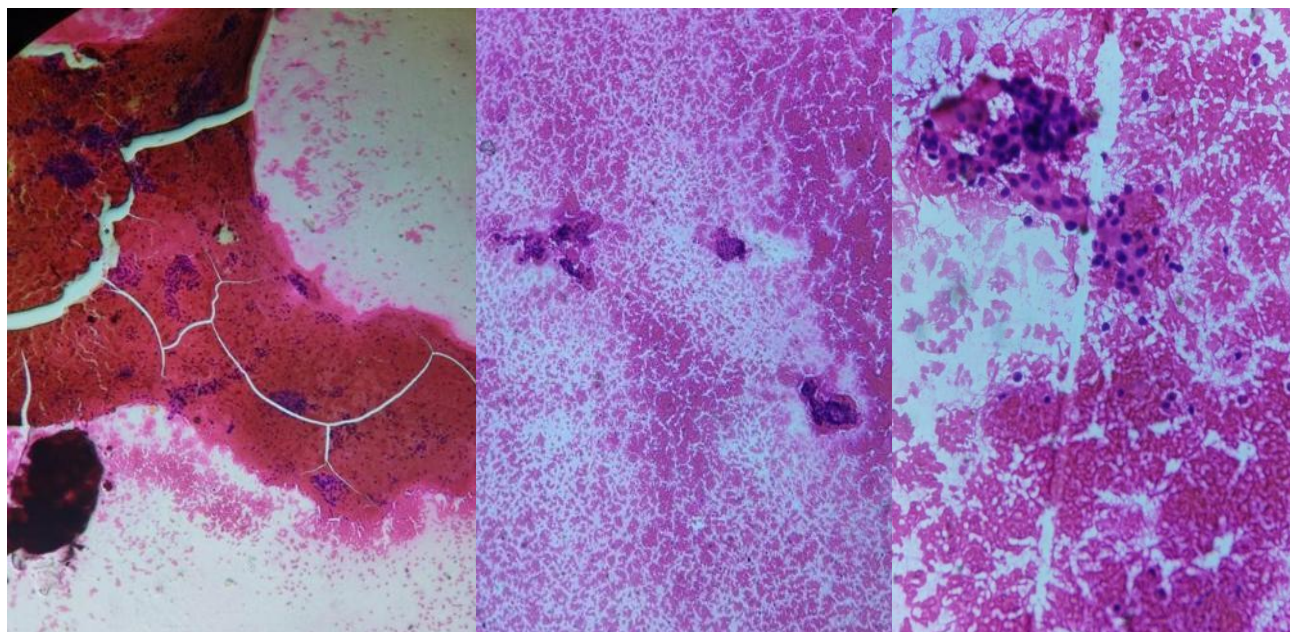


Figure 3: (a): Low power view of FNAC of ectopic thyroid gland (4x); (b): High power view of FNAC of ectopic thyroid gland (10x); (c): High power view of FNAC of ectopic thyroid gland (40x).

As the patient had thyroid profile suggestive of primary hypothyroidism with low T4 and grossly elevated TSH we started her on Levothyroxin (LT4) replacement therapy with 100 micrograms. Follow up of the patient 3 months after the treatment patient became euthyroid (Table 1). The neck swelling slightly reduced in its size after the treatment. However the patient still concerned about the swelling. We have given reassurance and told her about the need for regular follow up at Endocrinology department.

Thyroid Profile	Biological Reference Values	At the Time of Diagnosis	3 months after the Diagnosis
T3	60-200 ng/dl	99 ng/dl	130 ng/dl
T4	4-12 microgm/dl	3.62 microgm/dl	6.77 microgm/dl
TSH	0.5-5.5 microIU/ml	172 microIU/ml	4.01 microIU/ml

Table 1: Patient details.

Discussion

Ectopic thyroid gland may present as congenital or acquired hypothyroidism, particularly when the ectopic thyroid tissue is the only source of thyroid hormone production [17]. Ectopic thyroid gland is one form of thyroid dysgenesis where there will be defective development of the thyroid gland. Ectopic thyroid gland may remain asymptomatic and diagnosed incidentally on imaging studies in many cases [18]. However, patients with lingual thyroid may present as dysphagia, dysphonia, dysphasia, sleep apnea and cervicectopic thyroid may present with dry cough, dysphagia and stridor particularly if the swelling is very large.

The anatomical location of ectopic thyroid tissue varies widely, reflecting embryological descent of the gland. The most common location is the lingual region which accounts for 90% of the reported cases. Other midline locations include sublingual, supra hyoid and infra hyoid [19-21]. In our case the ectopic thyroid gland located at the base of the tongue and pre thyroid. Thus our case is a dual ectopic thyroid. Sometimes we may see ectopic thyroid gland in lateral cervical regions including submandibular and parotid region [22]. Less frequently ectopic thyroid gland may be located in mediastinum, heart and lungs and also in liver, pancreas and ovaries. Additionally, cases of dual ectopic thyroid gland are also seen as in our case and also triple ectopic thyroid glands have been described [23].

The diagnosis of ectopic thyroid gland is made by clinical examination, hormonal evaluation, FNAC of the ectopic thyroid gland and Imaging studies for confirmation. Ultrasonography neck is the usual initial modality of choice which allows adequate localization of thyroid tissue. Computed Tomography (CT) neck and MRI neck Imaging modalities help further for assessing the extent of the lesion and compressive effects over adjacent structures and also to diagnose dual or triple ectopic thyroid glands [24]. In our case MRI neck helped us to diagnose dual ectopic thyroid gland located at pre hyoid and lingual regions. Otherwise, we might have missed the ectopic thyroid gland located at lingual region. Thyroid scintigraphy with Technetium 99 or Iodine 123 is the gold standard for the diagnosis of ectopic thyroid glands [24,25]. However, we could not do thyroid scintigraphy due to economic constraints.

If the ectopic thyroid gland shows significant compressive symptoms, progressive enlargement of the lesions or if there is any concern for malignant transformation, surgical intervention is needed [26,27]. Ectopic thyroid tissue is more susceptible to hyperplasia, adenoma, thyroiditis, malignancy than orthotopic thyroid gland [28].

FNAC is required to rule out any malignancy in patients with ectopic thyroid gland. In our case FNAC confirmed the diagnosis of thyroid tissue located in ectopic location. FNAC also showed there is no evidence of any malignancy. In our case, our follow up with the patient is only 3 months. However, we have to monitor the case for any malignant transformation of the ectopic thyroid gland during long term follow up of the patient. The incidence of developing malignancy, most commonly papillary carcinoma is reported to be 1% [29].

Conclusion

We report a rare case of dual ectopic thyroid gland located at lingual region and pre hyoid region. Clinical examination hormonal evaluation, imaging studies are useful for the diagnosis of ectopic thyroid glands. In our case MRI neck helped us to diagnose our case. Otherwise we would have missed the lingual ectopic thyroid gland. So, we recommend MRI neck in all cases of ectopic thyroid gland in order not to miss any other ectopic thyroid glands which may be present in those cases.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding Statement

This research did not receive any specific grant from funding agencies in the public, commercial or non-profit sectors.

Acknowledgement

We acknowledge our heartfelt thanks to the department of Radiology and department of Pathology of our Institute for aiding us to diagnose the rare case of Dual Ectopic thyroid.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Ethical Statement

The project did not meet the definition of human subject research under the purview of the IRB according to federal regulations and therefore was exempt.

Informed Consent Statement

Not Applicable.

Authors' Contributions

All authors contributed equally to this paper.

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