



ORIGINAL RESEARCH PAPER

ENT

ECTOPIC THYROID TISSUE: AN UNUSUAL PRESENTATION IN NECK

KEY WORDS:

Dr. K. K. Bora

Assistant Professor, Department of ORL&HNS, Gauhati Medical College & Hospital, India

Dr. Manisha Bajoria*

Senior Resident, Department of ORL&HNS, Mahendra Mohan Choudhury Hospital, Annexe of Gauhati Medical College & Hospital, India *Corresponding Author

ABSTRACT

Ectopic thyroid tissue is an abnormality caused by thyroid gland dysembryogenesis during its passage from the floor of the primitive foregut to its final position in the anterior aspect of neck. The most common site of ectopic thyroid tissue is the base of tongue, whereas lateral thyroid gland is a very rare finding. The present case describes a case report of thyroid dysembryogenesis. A 25 years female presented with left paramedian swelling in anterior aspect of neck. Radiological imaging and fine needle aspiration cytological study showed ectopic thyroid tissue with absence of normal thyroid gland at its anatomical location. The importance of being aware of the possibility of ectopic thyroid tissue as a paramedian region swelling has an important bearing on disease management.

INTRODUCTION:

Ectopic thyroid tissue refers to the presence of functioning thyroid tissue in locations other than the normal pretracheal region between the second and fourth tracheal cartilages. It is the most frequent form of thyroid dysgenesis.¹ It is difficult to detect asymptomatic thyroid ectopia, but post-mortem studies have suggested that 7-10% of adults may harbour asymptomatic thyroid tissue along the path of the thyroglossal duct.² Ectopic thyroid tissue may coexist with a normal thyroid gland at its normal anatomic location.³

Embryologically, the median anlage of the thyroid originates from the endodermal segment in the floor of the primitive pharynx at the foramen caecum located in the midline at the junction of the anterior two thirds of the tongue (first branchial arch derivative) and posterior one third (third branchial arch derivative). Between 5 and 7 weeks of gestation, the gland migrates caudally from the foramen caecum to its normal position below the thyroid cartilage. The path of descent is closely associated with the hyoid bone and is usually anterior to it but can also be posterior to it or within the bone. The lateral thyroid anlage is derived from the ultimobranchial body, a descending diverticulum of the fourth to fifth pharyngeal pouch. The existence of this lateral anlage has been debated, but some believe it becomes incorporated into the median thyroid anlage to contribute morphogenesis of the thyroid parenchyma.⁴ Ectopic thyroid tissue can be found anywhere along the course of descent of the thyroid gland.

Approximately 90% of ectopic thyroid tissue is found in the base of tongue as lingual thyroid.⁵⁻⁸ Ectopic thyroid tissue in neck has also been reported to occur in the anterior neck, including the sublingual space, the thyrohyoid region, and within the trachea and larynx.⁹⁻¹² There is a theory on occurrence of ectopic thyroid tissue occurs in the lateral neck. Persistence of the lateral thyroid anlage may be the explanation for occurrence of non midline ectopic thyroid tissue in the neck.¹³ In approximately 75% of the patients, ectopic thyroid tissue is the only functioning thyroid tissue.¹⁴

CASE REPORT:

A 25 year old woman presented with a history of left paramedian swelling in the anterior aspect of neck first noticed 4 months before consultation (fig 1,2). The swelling gradually increased in size to attain the present size of a betel nut. There was no associated history of dysphagia, respiratory difficulty or pain. There was no history of symptoms of hypothyroidism. The patient's birth history, developmental history and menstrual history were normal. She was a non smoker and non alcoholic. Also, there was no similar family history.

On clinical examination, 4x3cm rounded swelling was noted in left paramedian region in anterior aspect of neck anterior to

sternocleidomastoid muscle. The swelling moved with deglutition but not on protrusion of tongue. The swelling was mobile, non tender and non fluctuant. The thyroid gland was not palpable in its normal position. Ultrasonographic examination revealed 12-31mm well defined smooth outlined oval shaped solid focal mass with colloid cyst in left paramedian space likely to be ectopic thyroid gland. There was absence of normal thyroid gland. Aspiration cytological examination of the swelling suggested features of Hashimoto's thyroiditis. CT scan examination was done to confirm the ultrasonography finding which revealed the same results. The patient was hypothyroid initially with TSH level of 23.46 mIU/L. The patient was prescribed thyroxine supplements to bring her TSH level within normal limits before surgical excision.



Figure 1



Figure 2

The patient underwent excision of the ectopic mass after the diagnosis made on basis of radiological investigations, FNAC finding and hypothyroidism. During the operative procedure, the ectopic mass was found to be supplied by superior thyroid vessels which were ligated and the mass was dissected out from the surrounding strap muscles. Hemostasis was achieved and the wound was closed in layers with a drain in situ (fig 3,4,5). The pathologic diagnosis of the mass was thyroid tissue with colloid cyst with no other features of malignancy.

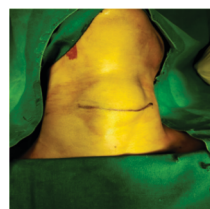


Figure 3

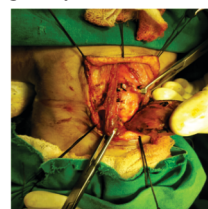


Figure 4



Figure 5

Post operative period was uneventful. The patient was supplemented with lifelong hormone replacement therapy as the ectopic tissue was the only functional thyroid tissue.

DISCUSSION:

Ectopic thyroid tissue refers to the presence of functioning thyroid tissue in locations other than the normal pretracheal region between the second and fourth tracheal cartilages. It is the most frequent form of thyroid dysgenesis¹. Descent of the thyroid during embryogenesis may not proceed normally. Thyroid descent may stop at various sites from the base of the tongue to any site of the thyroglossal duct^{15,16}, resulting in the development of ectopic thyroid. Approximately 90% of ectopic thyroid tissue is found in the base of tongue as lingual thyroid.⁵⁻⁸ Ectopic thyroid tissue in neck has also been reported to occur in the anterior neck, including the sublingual space, the thyrohyoid region, and within the trachea and larynx.⁹⁻¹²

Ectopic thyroid occurs more frequently in female patients, with a female: male ratio of 4:1. It is seen at any age, but occurs more commonly during childhood during adolescence, and around menopause. This probably occurs because the demand for thyroid hormones increases during these stages, increasing the circulating TSH levels which causes growth of ectopic thyroid tissue^{17,18}. According to several studies, about 33% to 62% of all patients with ectopic thyroid tissue develop hypothyroidism with increased TSH levels.¹⁹ Hypothyroidism may cause the mass to enlarge and become symptomatic; however, hyperthyroidism is very unusual.²² The ectopic thyroid tissue causes symptoms relative to the growth of the thyroid tissue, causing dysphagia, dysphonia with stomatolalia, bleeding, or dyspnea. The diagnosis is usually made as a result of the incidental discovery. The most important diagnostic modality for ectopic thyroid is thyroid scanning with technetium-99 m. However, fine-needle aspiration cytology, ultrasonography, computed tomography, and magnetic resonance imaging may help to define the extension and location of the ectopic thyroid gland.²⁰

Differential diagnoses of ectopic thyroid tissue in neck include all other lateral neck swellings namely, minor salivary gland tumors, branchial cysts, thyroglossal duct cysts without thyroid tissue, epidermal and sebaceous cysts, hemangioma, adenoma, fibroma, lipoma etc.²¹

The asymptomatic and euthyroid patients do not require any treatment, except regular follow ups and evaluation for any complications. Patients with high TSH levels with swelling should undergo replacement therapy with thyroid hormone, which can produce a slow reduction in the size of the mass. When medical treatment fails or evidence of obstructive symptoms, hemorrhage, or suspicion of malignancy is present, then surgical excision of the ectopic thyroid tissue is considered followed by lifelong hormone replacement therapy.²⁰

In our case report, the 25 year female presented with ectopic thyroid tissue in left paramedian position with absent normal thyroid gland along with hypothyroidism. The patient was advised thyroxine supplement to revert her to euthyroid state although not reducing the size of the ectopic mass. Though there were no symptoms of dysphagia or airway obstruction, patient underwent surgical excision for cosmetic purpose and to abort the need for regular follow ups despite knowing the need for postoperative lifelong hormone replacement.

CONCLUSION:

The ectopic thyroid tissue is rare developmental anomaly of the thyroid gland. Different pathological changes that affect normal eutopic thyroid can occur in the ectopic tissue. Evaluation of the other lateral neck swellings (differential diagnoses), including minor salivary gland tumors, branchial cysts, thyroglossal cyst duct, epidermal and sebaceous cysts, angioma, adenoma, fibroma, and lipoma, is an important step in patient evaluation. Treatment may be conservative with substitutive hormonereplacement in patients with mild symptoms, while surgery seems to be the most appropriate treatment for patients showing clinical signs of upper

airway obstruction or with a lesion showing signs of infection or malignant changes. In spite of its rarity, ectopic thyroid tissue is a pathological condition that must always be kept in mind in patients with other neck swelling.

REFERENCES:

- De Felice M, Di Lauro R. Thyroid development and its disorders: genetics and molecular mechanisms. *Endocrine reviews*. 2004 Oct 1;25(5):722-46.
- Ibrahim NA, Fadeyibi IO. Ectopic thyroid: etiology, pathology and management. *Hormones*. 2011 Oct 1;10(4):261-9.
- Radkowski D, Arnold J, Healy GB, McGill T, Treves ST, Paltiel H, Friedman EM. Thyroglossal duct remnants: preoperative evaluation and management. *Archives of Otolaryngology-Head & Neck Surgery*. 1991 Dec 1;117(12):1378-81.
- Randolph chapter 6,pg 148
- Yoon JS, Won KC, Cho IH, Lee JT, Lee HW. Clinical characteristics of ectopic thyroid in Korea. *Thyroid*. 2007 Nov 1;17(11):1117-21.
- Neinas FW, Gorman CA, Devine KD, Woolner LB. Lingual thyroid: clinical characteristics of 15 cases. *Annals of Internal Medicine*. 1973 Aug 1;79(2):205-10.
- Noyek AM, Friedberg J. Thyroglossal duct and ectopic thyroid disorders. *Otolaryngologic Clinics of North America*. 1981 Feb;14(1):187.
- Cappelli C, Gandossi E, Cumetti D, Castellano M, Pirola I, De Martino E, Agosti B, Micheletti L, Cherubini L, Mattanza C, Rosei EA. Ectopic lingual thyroid tissue and acquired hypothyroidism: case report.
- Bowen-Wright HE, Jonkkaas J. Ectopic intratracheal thyroid: an illustrative case report and literature review. *Thyroid*. 2005 May 1;15(5):478-84.
- Khan M, Michaelson PG, Hinni ML. Intratracheal ectopic thyroid tissue presenting with protracted airway obstruction: A case report. *ENT: Ear, Nose & Throat Journal*. 2008 Aug 1;87(8):.
- Kotidis KN, Ubhi CS, Duffy JP. Benign intratracheal thyroid tissue: a rare cause of upper airway obstruction. *Interactive Cardiovascular and Thoracic Surgery*. 2003 Dec 1;2(4):644-6.
- Dowling EA, Johnson IM, Collier FC, Dillard RA. Intratracheal goiter: a clinico-pathologic review. *Annals of surgery*. 1962 Aug;156(2):258.
- Paliaga A, Bianchelli G, Balercia G, Mantero F. Contribution of the lateral anlage to the embryogenesis of the thyroid gland: evidence of a persisting thyrocarotid duct. *The European journal of surgery=Acta chirurgica*. 1997 Oct;163(10):795-7.
- Baik SH, Choi JH, Lee HM. Dual ectopic thyroid. *European archives of oto-rhino-laryngology*. 2002 Feb 1;259(2):105-7.
- Léger J, Marinovic D, Gareil C, Bonaditi-Pellié C, Polak M, Czernichow P. Thyroid developmental anomalies in first degree relatives of children with congenital hypothyroidism. *The Journal of Clinical Endocrinology & Metabolism*. 2002 Feb 1;87(2):575-80.
- Kousta E, Konstantinidis K, Michalakos C, Theodoropoulos GE, Vorias M, Georgiou M, Sambalis G. Ectopic thyroid tissue in the lower neck with a coexisting normally located multinodular goiter and brief literature. *Hormones*. 2005;4(4):227-31.
- Kumar R, Sharma S, Marwah A, Moorthy D, Dhanwal D, Malhotra A. Ectopic goiter masquerading as submandibular gland swelling: a case report and review of the literature. *Clinical nuclear medicine*. 2001 Apr 1;26(4):306-9.
- Steinwald Jr OP, Muehrcke RC, Economou SG. Surgical correction of complete lingual ectopia of the thyroid gland. *Surgical Clinics of North America*. 1970 Oct 1;50(5):1177-86.
- Yoon JS, Won KC, Cho IH, Lee JT, Lee HW. Clinical characteristics of ectopic thyroid in Korea. *Thyroid*. 2007 Nov 1;17(11):1117-21.
- Abdallah-Matta MP, Dubarry PH, Pessey JJ, Caron P. Lingual thyroid and hyperthyroidism: a new case and review of the literature. *Journal of endocrinological investigation*. 2002 Mar 1;25(3):264-7.
- Hazarika P, Siddiqui SA, Pujary K, Shah P, Nayak DR, Balakrishnan R. Dual ectopic thyroid: a report of two cases. *The Journal of Laryngology & Otology*. 1998 Apr;112(4):393-5.
- Jain A, Pathak S. Rare developmental abnormalities of thyroid gland, especially multiple ectopia: A review and our experience. *Indian journal of nuclear medicine: INJM: the official journal of the Society of Nuclear Medicine, India*. 2010 Oct;25(4):143.