

*Case Report*

## Aberrant Thyroid in Glenoid Cavity of Scapula: A Rare Case Report

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### ABSTRACT

Ectopic thyroid refers to presence of thyroid tissue in another region apart from its normal anatomic localization, that is, anterolateral to the second to fourth tracheal cartilage. Its prevalence accounts for 1 case per 300 persons and 1 in 4-8 patients with symptomatic thyroid disease. Fine Needle Aspiration Cytology (FNAC) and histopathological examination with immunohistochemistry (IHC) provide confirmatory diagnosis of ectopic thyroid and also helps to differentiate between normal thyroid tissue and metastatic well-differentiated thyroid carcinoma. Herein, we report a rare entity of aberrant thyroid tissue which came out to be normal thyroid tissue on histopathological examination.

**Keywords:** aberrant thyroid, ectopic thyroid, scapula, histopathology.

### INTRODUCTION

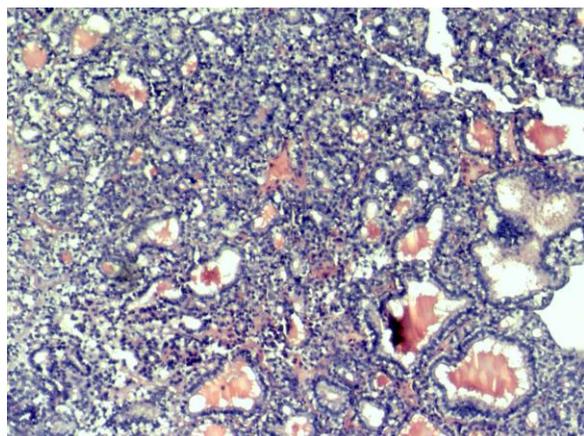
Ectopic thyroid refers to presence of thyroid tissue in another region apart from its normal anatomic localization, that is, anterolateral to the second to fourth tracheal cartilage. Its prevalence accounts for 1 case per 300 persons and 1 in 4-8 patients with symptomatic thyroid disease. Ectopic thyroid tissue remains a rare developmental abnormality arising from defective or aberrant embryogenesis of the thyroid gland. Ninety percent of thyroid cases are located, along the embryological development of the thyroid gland, that is, in a region along the thyroglossal duct. Lingual thyroid (at the base of tongue) is the most commonly found ectopy of thyroid. [1-3] However, rare cases of aberrant thyroid tissue have been found in other places that are distant from neck region includes, mediastinal region, esophagus, larynx, gall bladder, duodenum, iris, pituitary, adrenal, lung, heart tissue, gastric, pancreatic and

porta hepatis. The aetiology of this defect is not fully understood. However, symptoms may arise during period of stress due to enlargement of thyroid tissue. Signs and symptoms differ according to the location of ectopic thyroid tissue. In these cases, radioimaging and histopathological examination of the mass are the main diagnostic means for evaluation of thyroid tissue. However, a growing mass at an aberrant site raises the question of differential diagnosis between normal thyroid tissue and metastatic thyroid carcinoma. Mostly, it is seen that lateral aberrant tissue on further careful workup turned out to be a secondary deposit of thyroid carcinoma. [4,5]

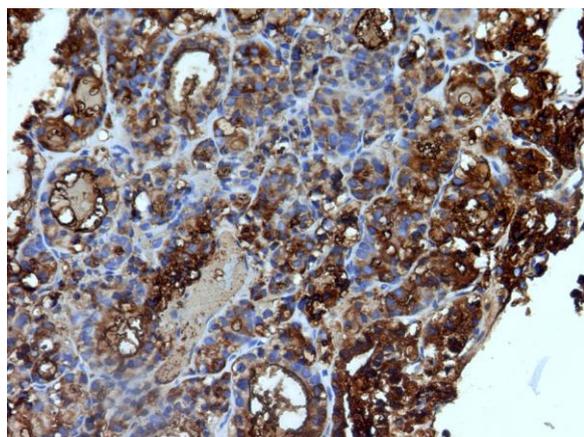
### CASE REPORT

An adult male, 45 years old, presented with continuous, dull aching pain in the right shoulder since 15 days. Symptoms exacerbated on lifting heavy

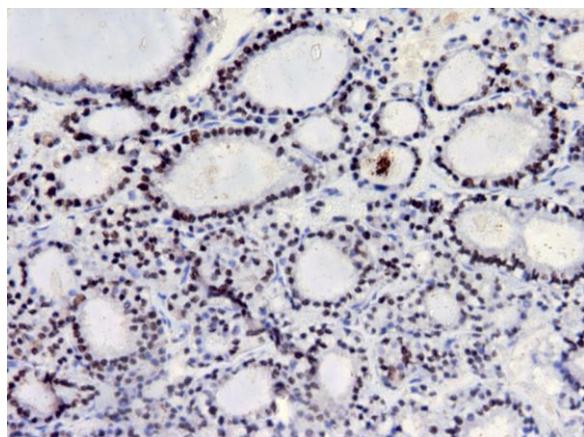
weight. Magnetic resonance imaging of the shoulder was performed and showed a well defined lesion appearing isointense to mildly hyperintense on T1 sequence and hyperintense on T2 sequence in the axillary recess of joint capsule. No erosion or bone marrow edema was noted in humeral head and glenoid fossa. Labrum and glenohumeral ligaments appeared normal.



Aberrant thyroid (H &E; 10x)



(b) thyroglobulin positivity (IHC; 10x)



(c)TTF positivity (IHC;10x)

Fine needle aspiration cytology was advised. On aspiration, blood mixed colloid was aspirated. Smears examined showed benign sheets of follicular epithelial cells lying singly and in clusters; few stripped nuclei and scant colloid was present in the background. Based on the clinical history and relevant investigations, excision biopsy was advised. Histopathological examination confirmed the diagnosis of aberrant thyroid. On immunohistochemistry, TTF-1 and Thyroglobulin was strongly positive. Further work up of the patient revealed deranged thyroid function with increased T<sub>3</sub>, T<sub>4</sub> and normal TSH. Patient was kept on follow up and recovered from illness.

## DISCUSSION

Ectopic thyroid remains a rare developmental abnormality arising from defective or aberrant embryogenesis of thyroid gland. The thyroid gland is formed by a fusion of a medial anlage. Ninety percent of ectopic thyroid tissue is found in the base of tongue as lingual thyroid. Lingual thyroid results from complete arrest of descent of median thyroid anlage. Autopsy studies showed the prevalence of ectopic thyroid tissue around 7- 10 %. It occurs mostly in females during puberty and pregnancy period. Female to male ratio is 4:1. It is most commonly found along the line of descent of thyroid gland starting from base of tongue (as lingual thyroid) to any site of the thyroglossal duct. [3-6] Other common sites in head and neck region are submandibular or sublingual and pre-laryngeal. However, rare cases of aberrant thyroid tissue has been found distant from the neck region, for example esophagus, larynx, gall bladder, duodenum, iris, pituitary, adrenal, lung, heart, gastric, pancreas and porta hepatis. [7,8]

In most of the cases, the cause of aberrant thyroid tissue remains unclear. However, some researchers showed that genes which are essential for thyroid morphogenesis and differentiation were found to be mutated in abnormal migration of thyroid. Genes of transcription factor

TTF-1, Foxe-1 (TTF-2) and PAX-8 are involved in normal thyroid development. Aberrant migration of thyroid tissue at a distant location could be explained by presence of uncommitted endodermal germ cells. As it is hypothesized that heterotopic thyroid tissue might be the result of aberrant differentiation of local tissue by heteroplasia or metaplasia. [9]

However, further more studies and researches are necessary to elaborate all possible mechanisms of ectopic thyroid tissue. Many times ectopic thyroid tissue is seen along with eutopic functioning thyroid tissue. Two cases were described about thyroid tissues around carotid bifurcation. In one of these cases, authors found a proper functioning thyroid gland in its normal location. Euthyroidal state is also reported in cardiac and pulmonary thyroid. [10]

As demand of thyroid hormones increases during stress period, it leads to increasing circulating TSH levels and growth of ectopic thyroid tissue. Subsequently, subclinical hypothyroidism become clinically detectable. Moreover, neoplastic change and thyroiditis also described in ectopic thyroid tissue. These morphological changes result in growth of ectopic thyroid tissue as a mass that later on develop pressure symptoms according to the location of mass. [11]

However, ectopic thyroid tissue at scapula is not easy to understand on the basis of thyroid embryology, because it is so rare, the possibility of metastasis should be considered. Patients should be first approached by radio-imaging techniques as they are non-invasive, cheap and also detect ectopic thyroid tissue. Ultrasonography with color doppler is more effective as it detects vascularity of tissue also. CT Scan and MRI are more sensitive and specific diagnostic tools for detection of ectopic thyroid and they can be combined with radionuclide scan. Cases of multiple ectopia can also be detected easily by these non-invasive investigations. FNAC and histopathological examination with IHC provide confirmatory diagnosis of ectopic thyroid and also helps

to differentiate between normal thyroid tissue and metastatic well-differentiated thyroid carcinoma. [9-11]

T. Takahashi et al confirmed ectopic tissue in duodenum by immunostaining with thyroglobulin. Further, depending upon the location of ectopic thyroid tissue more particular investigation may be required to reach to a diagnosis like barium swallow, x-ray, abdominal imaging etc. [12]

## REFERENCES

1. Babazade F, Mortazavi H, Jalalian H, Shahvali E. Thyroid tissue as a submandibular mass: a case report. *J Oral Sci* 2009;51;655–7.
2. Kousta E, Konstantinidis K, Michalakis C, Vorias M, Sambalis G, Georgiou M et al. Ectopic thyroid tissue in the lower neck with a coexisting normally located multinodular goiter and brief literature review. *Hormones* 2005;4:231–4.
3. Bersaneti JA, Silva RD, Ramos RR, Matsushita Mde M, Souto LR. Ectopic thyroid presenting as a submandibular mass. *Head and Neck Pathol* 2011;5:63–6.
4. Gopal RA, Acharya SV, Bandgar T, Menon PS, Marfatia H, Shah NS. Clinical profile of ectopic thyroid in Asian Indians: a single-center experience. *Endo Prac* 2009;15:322–5.
5. Yoon JS, Won KC, Cho IH, Lee JT, Lee HW. Clinical characteristics of ectopic thyroid in Korea. *Thyroid* 2007;17:1117–21.
6. De Felice M, Lauro R. Thyroid development and its disorders: genetics and molecular mechanisms. *Endo Rev* 2004;2:722–46.
7. Gallo A, Leonetti F, Torri E, Manciooco V, Simonelli M, DeVincentiis M. Ectopic lingual thyroid as unusual cause of severe dysphagia. *Dysphagia* 2001;16:220–3.

8. Cassol CA, Noria D, Asa SL. Ectopic thyroid tissue within the gall bladder: case report and brief review of the literature. *Endo Pathol* 2010; 21:263–5.
9. Shuno Y, Kobayashi T, Morita K, Shimizu S, Nishio Y, Ito A et al. Ectopic thyroid in the adrenal gland presenting as cystic lesion. *Surgery* 2006;139:580–2.
10. Pasca di Magliano M, Di Lauro R, Zannini MS. Pax8 has a key role in thyroid cell differentiation. *PNAS* 2000; 97:13144–9.
11. Basaria S, Westra WH, Cooper DS. Ectopic lingual thyroid masquerading as thyroid cancer metastases. *J Clin Endocrinol Metab* 2001;86:392–5.
12. Takahashi T, Ishikura H, Kato H, Tanabe T, Yoshiki T. Ectopic thyroid follicles in the submucosa of the duodenum. *Virchows Archiv. A, Pathol Anat Histopathol* 1991;418: 547–50.

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