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Review Article

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A CASE OF LINGUAL THYROID WITH SUBCLINICAL HYPOTHYROIDISM IN A 7 YEAR OLD CHILD

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ABSTRACT

Lingual thyroid is a very rare pathological finding and is usually incidentally discovered. It occurs when a defect in embryogenesis gives rise to ectopic thyroid as tongue base mass. Majority of the patients are asymptomatic. We present a 7 year old female child with lingual thyroid which was incidentally discovered by her mother. The patient denied any symptoms of hypothyroidism but subsequent investigations revealed subclinical hypothyroidism and was started on levothyroxine suppression therapy.

KEYWORDS: Lingual thyroid, thyroglossal cyst, Levothyroxine suppression therapy.

INTRODUCTION

The thyroid gland is one of the largest endocrine gland in the body. It lies approximately at the same level as the cricoid cartilage. Ectopic thyroid tissue has been found from the tongue to the diaphragm. Ninety percent of the reported cases of ectopic thyroid are found in the base of the tongue.[1] Lingual thyroid (LT) is a rare developmental thyroid anomaly, caused by the failure of the gland to descend from its anlage, early in the course of embryogenesis. It generally originates from epithelial tissue of non-obliterated thyroglossal duct. Prevalence rates of lingual thyroid vary from 1 in 100,000 to 1 in 300,000, with female to male ratio ranging from 4:1 to 7:1.[2]

Although the pathogenesis of lingual thyroid is unclear, some authors have postulated that maternal antithyroid immunoglobulins may impair gland descent during early fetal life. Clinical presentation is varying from mild dysphagia to severe upper airway obstruction. Diagnosis depends on finding thyroid tissue at the base of the tongue with the absence of normally located gland. Imaging studies as ultrasound scan (USG), Computed Tomography (C.T.) scan and Technetium (Tc99m) thyroid scan would be of great value establishing the diagnosis.[3] The treatment options for lingual thyroid include: levothyroxine suppression therapy, radioactive iodine ablation and lingual thyroidectomy. The decision between conservative and surgical therapy depends on subjective complaints, regional iodine uptake, growth behavior of the lingual thyroid and especially on cytological findings of fine needle biopsy.

CASE PRESENTATION

We present a case of a 7-year-old girl who was referred to the outpatient clinic, with history of swelling behind the posterior part of tongue which was accidentally noted by her mother. Child was asymptomatic. No history of pain, difficulty in swallowing or breathing. Her past medical history was insignificant. Her mother denied receiving any medications during pregnancy. On general physical examination child was conscious, cooperative and well oriented to time, place and person. Child is of average built. On local examination, it was noticed that she had a 2 cm × 2.5 cm midline smooth, rubbery and reddish mass at the base of the tongue. Neck examination revealed neither palpable thyroid gland nor any other palpable masses. Rest of the oral cavity examination is within normal limits. Examination of nose, paranasal sinuses, oropharynx was also normal. A thyroid function panel revealed hypothyroidism based on the following results: thyroid-stimulating hormone level, 25 mIU/L (normal range, 0.25–5 mIU/L); free triiodothyronine level, 5.07 pmol/dL (normal range, 3.95–9.5 pmol/dL); and free tetraiodothyronine level, 10.6 pmol/L (normal range, 10.3–25.8 pmol/L). Other laboratory tests were within normal limits. Thyroid USG scan revealed the absence of thyroid gland. Contrast Enhanced Computerized Tomography (CECT) neck shows ectopic thyroid tissue at base of tongue (lingual thyroid) in supra hyoid region with absent thyroid gland at its normal anatomical position "figure 1".

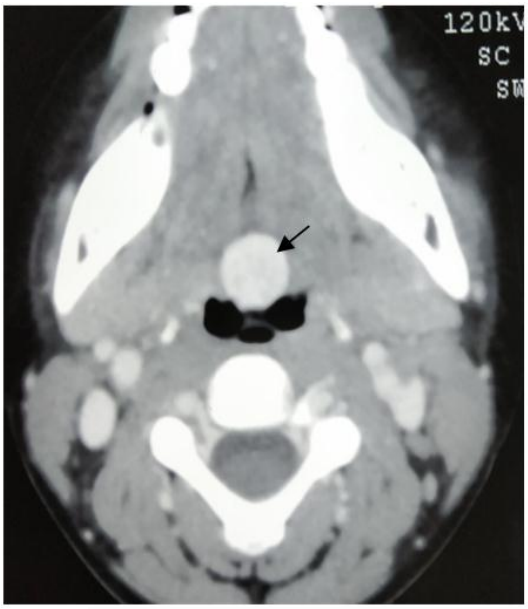

Figure 1: Head and neck contrast-enhanced axial computed tomographic (CECT) scan showing a tissue density in the midline at the base of the tongue (arrow).

The nominated final diagnosis was lingual thyroid (LT). Patient was put on tablet levothyroxine 25 microgram daily dose and discharged.

DISCUSSION

Hickmann recorded the first case of lingual thyroid in 1869. Montgomery stressed that for a condition to be branded as lingual thyroid, thyroid follicles should be demonstrated histopathologically in tissues sampled from the lesion. A brief discussion of embryology of thyroid gland would ensure better understanding of the pathophysiology involved in the formation of ectopic thyroid gland. Early in embryogenesis, thyroid gland appears as proliferation of endodermal tissue in the floor of the pharynx between tuberculum impar and hypobranchial eminence (this area is the later foramen caecum). Normally thyroid gland descends along a path from foramen cecum in the tongue, passes the hyoid bone, to the final position in front and lateral to the second, third, and fourth tracheal rings by 7 weeks gestation. During this descent thyroid tissue retains its communication with foramen cecum. This communication is known as thyroglossal duct.[4] Once the thyroid reaches its final destination the thyroglossal duct degenerates. Persistence of thyroglossal duct even after birth leads to the formation of thyroglossal cyst. These cysts usually arise from the remnants of thyroglossal duct and can be found anywhere along the migration site of thyroid gland. This descent may arrest anywhere along this path and this condition may remain unnoticed until puberty.[5] Any functioning thyroid tissue found outside of the normal thyroid location is termed ectopic thyroid tissue. Although it is usually found along the normal path of development, ectopic tissue has also been noted in the mediastinum, heart, esophagus, and diaphragm. Lingual thyroid is the result of failure of descent of the thyroid anlage from the foramen cecum of the tongue.

The reasons for the failure of descent are unknown. The incidence of LT is reported as 1:100,000.[2] It is 7 times higher in females. Clinical presentations are varied, most of them related to oropharyngeal obstruction, and may include dysphagia (mild or severe), dyspnea and dysphonia, fullness in the throat, sleep apnoea.[6] Stridor is most common in neonates. About 33% of the patients show hypothyroidism findings.[2] Bleeding is rarely described. Thorough head and neck examination with special attention to the base of the tongue is mandatory. Palpation of the neck is extremely essential in order to check the presence or the absence of the thyroid gland in its normal position.

Investigations include thyroid function tests (often demonstrate normal gland functions). Technetium scanning confirms the presence of ectopic thyroid tissue at the base of tongue. Unless emergency surgery is indicated, suppressive therapy with exogenous thyroid hormone should be tried first in order to decrease the size of the gland. Additionally, levothyroxine therapy should be initiated after surgical excision as the lingual thyroid is the only functioning thyroid tissue found in 70% of these patients. Investigation includes thyroid function tests, neck ultrasound scan, Technetium scanning and C.T scan. Fine Needle Aspiration Cytology (FNAC) is not preferred by some authors as it would cause unnecessary bleeding.[3]

Although different types of surgical access have been described, the trans-oral approach provides good exposure and is less traumatic for the patient, with better postoperative recovery.

CONCLUSION

Lingual thyroid is a rare anomaly representing faulty migration of normal thyroid gland. The exact pathogenesis of this ectopic is not known. It is seven times higher in females. Dysphagia and dysphonia are common presenting symptoms. Thorough head and neck examination with special attention to base of tongue is essential.

Declaration of Patient Consent: The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/ their consent for his/ her/ their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict Of Interest: Nil.

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