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Case Report

## Lingual Thyroid

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### ABSTRACT

Lingual thyroid is due to an aberration in the normal development of thyroid. Ectopic thyroid is defined as the presence of thyroid tissue in a location other than the normal anterior neck region between 2<sup>nd</sup> and 4<sup>th</sup> tracheal rings. It is due to a defect in thyroid diverticulum migrating from the base of the tongue, to its final pretracheal position. Here is a case of lingual thyroid presented as a swelling at the base of the tongue, of size 2x3cm since 2 months. Diagnosis of ectopic lingual thyroid was made. Tc99 pertechnetate radioisotopes can confirm ectopic lingual thyroid. There was no thyroid tissue in the normal location. Hence ectopic Lingual thyroid was the only functioning thyroid. Management was by Surgical excision of the gland and thyroxine replacement.

**Key words:** Lingual thyroid, Ectopic thyroid, Tc<sup>99</sup> pertechnetate scan.

### INTRODUCTION

In 1869 Hickman reported first case of ectopic thyroid at the base of tongue pressing down the epiglottis on the larynx and causing death by suffocation 16 hrs after birth. [1] Ectopy of thyroid is defined as an aberrant localization of thyroid tissue outside the thyroid compartment. Lingual thyroid is most common type of ectopic thyroid accounting for almost 90% of the cases. Incidence of lingual thyroid is one in 1,00,000 cases. [2] There are four groups of lingual thyroid: lingual, sublingual, intralaryngeal, thyroglossal. [3] Diagnosis is based on clinical examination and radioisotope scanning. Radio nucleotide thyroid imaging employing technetium <sup>99m</sup> pertechnetate, I<sup>131</sup>, I<sup>123</sup> is useful in the evaluation for ectopic thyroid. The differential diagnosis for lingual thyroid is lipoma, dermoid cyst, hemangioma of tongue, lymphangioma, thyroglossal duct

cyst and lymphadenopathy. Here we present a case of lingual thyroid; An eight year-old female patient presented with a chief complaint of noticing a swelling at the base of tongue since two months. Ectopic thyroid was suspected and confirmed by Tc99-m pertechnetate scan. Management was by surgical excision followed by thyroxine replacement.

### CASE REPORT

An eight-year-old female patient came to surgical OPD with a chief complaint of noticing a swelling at the base of tongue since two months. This was not associated with any symptoms, no similar complaints in her family. Patient was euthyroid. Oral cavity examination revealed 2x3 cm solitary swelling at the base of the tongue, extending more towards the right side. Swelling margins are regular, surface is smooth, soft and nontender fixed to the

tongue, non compressible, not bleeding on touch. (figure:1)



Figure: 1 Diagnosis of ectopic lingual thyroid was made.

On investigation with Tc99 pertechnetate radioisotope scan; ectopic lingual thyroid was diagnosed. (figure: 2) There was no thyroid tissue in normal location at anterior part of neck

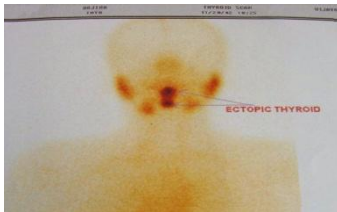


Figure:2 Patient was managed by surgical excision of the lesion and thyroxine replacement.

## DISCUSSION

Lingual thyroid is due to an aberration in the normal development of thyroid. Normally the thyroid development starts on 24<sup>th</sup> day of gestation. The thyroid gland has two diverse cell types which originate from two different embryological structures: thyroid anlage and ultimobranchial body which are the sites of origin of thyroid follicular cells and C cells respectively. It develops from endodermal diverticulum from the median plate of floor of the pharyngeal gut. This diverticulum descends in the midline and reaches its final position in front of the trachea in the seventh week of gestation. [4] Aberration in descent of thyroid development leads to ectopic thyroid. Genetic research has shown that the gene transcription factors TITF-1(Nkx2-1), *Foxe1* (TITF-2) and PAX-8 are essential for thyroid differentiation and morphogenesis. [4,2] Mutation in these genes may be involved in ectopic thyroid. Maternal antibodies against thyroid are also

implicated aberration in thyroid development. [1]

Lingual thyroid is the most common type of ectopic thyroid accounting for almost 90% of the cases. Incidence of lingual thyroid is one in 1,00,000 cases. [2] In 1869 Hickman reported first case of ectopic thyroid at the base of tongue pressing down the epiglottis on the larynx and causing death by suffocation 16 hrs after birth. [1] The other locations of head and neck region where ectopic thyroid tissue may be found includes trachea, submandibular, lateral cervical region axilla, palatine tonsils carotid bifurcation, iris of the eye, pituitary gland. [5-8] Other places where ectopic thyroid reported in literature include heart, gallbladder, uterus, vagina, adrenal gland, duodenum. [9-11]

Lingual thyroid, though usually asymptomatic, can present with cough, pain, dysphagia, dyspnoea, dysphonia and hemorrhage, [12,13] Adults having lingual thyroid may present with sleep apnea and respiratory obstruction. [14] The clinical manifestations of lingual thyroid peak at a mean age of 40 years with two statistical peaks at 12 and 50 years. [13]

Radio nucleotide thyroid imaging employing technetium <sup>99m</sup> pertechnetate, I<sup>131</sup>, I<sup>123</sup> is useful in the evaluation for ectopic thyroid. Tc 99-m pertechnetate yields better quality imaging and at the same time delivers a lower radiation burden to body compared to I<sup>131</sup>. I<sup>123</sup> hence is widely used for ectopic thyroid in the children. But the higher cost and shorter half life makes its availability more difficult. High resolution ultrasonography is also used for evaluation of the ectopic thyroid. Other investigations used for ectopic thyroid are CT and MRI. Usually, biopsy and FNAC are not recommended because of risk of bleeding and infection but if malignancy of thyroid is suspected we need to perform a biopsy and FNAC for better diagnosis. [6,7] Thyroid function tests are useful for serum levels of thyroid hormones.

Asymptomatic euthyroid patients with ectopic thyroid do not require any

treatment but do need to be kept under observation. Surgical intervention is indicated for severe obstructive symptoms, cystic degeneration, ulceration, bleeding and malignancy conditions. [15] The ectopic thyroid maybe the only functioning thyroid in the patient, so determination of normally located thyroid gland is necessary for planning removal of ectopic thyroid to avoid hypothyroidism and lifelong hormone replacement. To retain the thyroid tissue in the patient, different procedures were described in literature. These are: transposition of ectopic thyroid with vascular pedicle flap into lateral pharyngeal wall; muscular space at the floor of mouth, anterior rectus sheath and strap muscles. [16,17] Even after auto transplantation of thyroid 70% of the patients require exogenous thyroid hormone replacement. Surgical excision can be made either transorally or externally with pharyngotomy through a trans hyoid approach. [18,19] Other methods are transoral laser excision. [20,21] Trans oral radiofrequency ablation may also reduce the tissue volume. [22] Radioiodine <sup>131</sup> is an alternative to surgical excision of ectopic thyroid indicated in patients who are unfit or unwilling for surgery. [23] Treatment of ectopic thyroid with hyperthyroidism can be treated with anti-thyroid drugs or surgical excision, or radioactive iodine, which can also be used in patients' refractory to antithyroid drugs. [24]

## CONCLUSION

A rare case of Lingual thyroid presenting as the only functioning gland in the absence of normal thyroid is presented.

## REFERENCES

1. Hickman W, 1869 congenital tumor of the base of the tongue, pressing down the epiglottis on the larynx and causing death by suffocation sixteen hours after birth. *Trans Pathol Soc Lond* 20: 160-161.
2. Gillam MP, Kopp P, 2001 Genetic regulation of thyroid development. *Curr Opin Pediatr* 13: 358-363.
3. T.-T. Chiu, C.-Y. Su, C.-F. Hwang, C.-Y. Chien, and H.-L. Eng, "Massive bleeding from an ectopic lingual thyroid follicular adenoma during pregnancy," *American Journal of Otolaryngology: Head and Neck Medicine and Surgery*, vol. 23, no. 3, pp. 185-188, 2002.
4. De Felice M & Lauro R. Thyroid development and its disorders: genetics and molecular mechanisms. *Endocrine Reviews* 2004 25 722-746.
5. M. P. Abdallah-Matta, P. H. Dubarry, J. J. Pessey, and P. Caron, "Lingual thyroid and hyperthyroidism: a new case and review of the literature," *Journal of Endocrinological Investigation*, vol. 25, no. 3, pp. 264-267, 2002
6. T. S. Huang and H. Y. Chen, "Dual thyroid ectopia with normally located pretracheal thyroid gland: case report and literature review," *Head and Neck*, vol. 29, no. 9, pp. 885-888, 2007.
7. P. Hazarika, S. A. Siddiqui, K. Pujary, P. Shah, D. R. Nayak, and R. Balakrishnan, "Dual ectopic thyroid: a report of two cases," *Journal of Laryngology and Otolaryngology*, vol. 112, no. 4, pp. 393-395, 1998.
8. S. Rabiei, M. Rahimi, and A. Ebrahimi, "Coblation assisted excision of lingual thyroid," *Indian Journal of Otolaryngology and Head and Neck Surgery*, vol. 62, no. 2, pp. 108-110, 2010.
9. Comajuan SM, Ayerbe JL, Ferrer BR, et al, 2009 An intracardiac ectopic thyroid mass. *Eur J Echocardiogr* 10: 704-706.
10. Liang K, Liu JF, Wang YH, Tang GC, Teng LH, Li F, 2010 Ectopic thyroid presenting as a gallbladder mass. *Ann R Coll Surg Engl* 92: W4-6.
11. Yilmaz F, Uzunlar AK, Sogutau N, 2005 Ectopic thyroid tissue in the uterus. *Acta Obstet Gynaecol Scand* 84: 201-202.
12. Dossing H, Jorgensen KE, Jorgensen EO, Krogdahl A, Hegedus L, 1999 Recurrent Pregnancy-Related Upper Airway Obstruction Caused by Intratracheal Ectopic Thyroid Tissue. *Thyroid* 9: 955-958.
13. Rahbar R, Yoon MJ, Connolly LP, et al, 2008 Lingual Thyroid in Children: A

- Rare Clinical Entity. *Laryngoscope* 118: 1174-1179.
14. Barnes TW, Olsen KD, Morgenthaler TI, 2004 Obstructive lingual thyroid causing sleep apnoea: a case report and review of the literature. *Sleep Med* 5: 605-607.
  15. Talwan N, Mohan S, Ravi B, Andley M, Kumar A, 2008 Lithium-induced enlargement of a lingual thyroid. *Singapore Med J* 49: 354.
  16. Wu ZX, Zheng LW, Dong YJ, Li ZB, Zhang WF, Zhao YF, 2008 Modified approach for lingual thyroid transposition: report of two cases. *Thyroid* 18: 465-468.
  17. Rojananin S, Ungkanont K, 1999 Transposition of the lingual thyroid: A new alternative technique. *Head Neck* 21: 480-483.
  18. S. S. Kumar, D. MuthiahSelva Kumar, and R. Thirunavukuarasu, "Lingual thyroid-conservative management of surgery? a case report," *Indian Journal of Surgery*, vol. 75, supplement 1, pp. 118-119, 2013.
  19. P. Peters, P. Stark, G. Essig Jr. et al., "Lingual thyroid: an unusual and surgically curable cause of sleep apnoea in a male," *Sleep and Breathing*, vol. 14, no. 4, pp. 377-380, 2010.
  20. M. A. Hafidh, P. Sheahan, N. A. Khan, M. Colreavy, and C. Timon, "Role of CO2 laser in the management of obstructive ectopic lingual thyroids," *The Journal of Laryngology & Otology*, vol. 118, no. 10, pp. 807-809, 2004.
  21. R. Puxeddu, C. L. Pelagatti, and P. Nicolai, "Lingual thyroid: endoscopic management with CO2 laser," *American Journal of Otolaryngology—Head and Neck Medicine and Surgery*, vol. 19, no. 2, pp. 136-139, 1998.
  22. S. D. Dasari, N. K. Bashetty, and N. S. M. Prayaga, "Radiofrequency ablation of lingual thyroid," *Otolaryngology—Head and Neck Surgery*, vol. 136, no. 3, pp. 498-499, 2007.
  23. Iglesias P, Olmos-García R, Riva B, Díez JJ, 2008 Iodine 131 and Lingual Thyroid. *J Clin Endocrinol Metab* 93: 4198-4199.
  24. Kumar R, Gupta R, Bal CS, Khullar S, Malhotra A, 2000 Thyrotoxicosis in a patient with submandibular thyroid. *Thyroid* 10: 363-365

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