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A safe and effective Suprahyoid Surgical approach for Lingual Thyroid

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Abstract:

Lingual thyroid is an uncommon disorder which rarely need surgical intervention. Various techniques have been described with the majority requiring morbid procedures. We sought to describe a relatively novel technique for the surgical approach of this uncommon disorder with negligible morbidity and good functional results. The suprahyoid surgical approach for lingual thyroid was undertaken in a 27 year old lady with persistent dysphagia after thyroxine suppression therapy. The procedure was accomplished in 40 minutes with minimal blood loss and does not require morbid procedures like splitting of lip, mandible and tongue. Blood loss was minimal(25 ml). Patient was discharged on the 7th post operative day without any anatomical or functional complications. This novel suprahyoid surgical approach is simple, easily reproducible, without any morbidity ensuring complete removal of the lingual thyroid under direct vision during the entire procedure.

Keywords:

Lingual thyroid, Suprahyoid approach, obstructive features, base of the tongue

INTRODUCTION:

Lingual thyroid is the presence of thyroid tissue at the base of the tongue between the circumvallate papillae and the epiglottis which presents as a lobular midline mass in the mucosal surface of the base of the tongue. It has a reported incidence of 1 in 3000 thyroid cases with an overall prevalence of 1 in 1,00,000 to 3,00,000 cases[1]. Lingual thyroid is the most common ectopic location of the thyroid gland [1] andmay be the sole thyroid tissue in 70% of cases[2,3]. Majority of lingual thyroid patients are hypothyroid. They are detected accidentally or present with features of hypothyroidism and very rarely present with obstructive features. Majority are treated medically and patients with dysphagia or compromised airway are candidates for surgery. Various Surgical approaches have been proposed for excision of lingual thyroid ranging from splitting of the lip,tongue, mandible, transcervical pharyngotomy, and minimally invasive transoral excision.[4]. We intend to describe a novel technique for safe and complete excision of the lingual thyroid.

After institutional ethical clearance, the technique was applied to a 27 year old female who presented with clinical features of hypothyroidism of 6 months duration with recent onset of dysphagia for 3 months. She did not suffer from dysphonia or respiratory distress. Clinical examination revealed a reddish fleshy mass at the posterior aspect of the tongue, well visualized on protrusion of the tongue. On evaluation, the serum thyroid stimulating hormone level was 30 mIu/ml (normal: 0.5- 5.5). High resolution ultrasonography of the neck revealed absence of thyroid tissue in the eutopic location with a hypervascular mass in the base of the tongue.Tc-^{99m} pertechnetate scan revealed absence of cervical thyroid tissue with presence of uptake at the base of the tongue. Contrast enhanced computed tomography of the head, neck and superior mediastinum revealed an intensely enhancing lesion at the base of the tongue with absence of thyroid in the normal posi-

tion. The patient was started on thyroxine suppression therapy for a period of 3 months. She became euthyroid but had persistent dysphagia which was the indication for the lingual thyroid excision.

Under general anaesthesia with endotracheal tube, the patient was placed in the kocher's position with hyperextension of the neck with shoulder bag behind. Ryle's tube was placed after securing the endotracheal tube. Then a stitch was taken at the tip of the tongue to act as a lever. A gauze on a sponge holding forceps was inserted orally to push the lingual thyroid anteriorly in the suprahyoid region to ensure exact placement of the incision over the mass. A 8 cm long suprahyoid skin crease incision was made with division of the mylohyoid muscle in the superficial layer and then the deeper muscles geniohyoid and hyoglossus were divided exposing the ventral surface of the tongue. Next,the valecullar mucosa was incised and a finger was inserted into the oropharynx and the tongue was divided horizontally to expose the lingual aspect of the epiglottis.. At this stage, the tongue was held with the babcocks forceps and flipped exposing the posterior third of the dorsum of the tongue. This maneuver exposes the lingual thyroid completely with the posterior third of the tongue. Under direct vision and palpation, using ultrasonic shears the lingual thyroid was completely excised. After removal of the ectopic thyroid tissue, the divided muscle layers were approximated with absorbable sutures (2-0 vicryl). The wound was closed in layers with a suction drain placed in the inter muscular plane which was removed on the 2nd post operative day. The patient was fed through the Ryles tube for 5 days in the postoperative period, after which the patient was allowed fluids initially and then started on normal diet subsequently and discharged on the 7th postoperative day without any sequelae in a satisfactory condition. The suprahyoid scar was not visible in the post operative period as it merged with the skin crease under the chin.

The entire operative procedure from skin incision to skin closure was accomplished with in a period of 40 minutes with minimal blood loss of 25 ml. There was no intraoperative or postopera-

tive complications since we could remove the entire lingual thyroid under direct vision without injuring the vital vascular or neural structures, without splitting the mandible or the lip. The entire lingual thyroid could be removed in toto in this procedure and there is negligible fear of leaving remnant thyroid tissue that entails future risk of malignant transformation. The histopathology was colloid goiter. Postoperatively, the patient was supplemented with thyroxine and had completed 1 year followup without any complications like dysphgia, dysphonia ,alteration in tongue movements or loss of sensation. Her serum TSH was 3.0 mIu/ml (0.5-5.5) with supplemental dose of thyroxine.

DISCUSSION:

Lingual thyroid is uncommon and patients undergoing surgery is still uncommon but when needed can be easily dealt with, by the above described suprahyoid approach. The presenting features of lingual thyroid include pain, bleeding,dysphonia, dysphagia, and fullness in the throat. The surface of lingual thyroid is usually smooth and vascular[5]. Around 70% of cases with lingual thyroid do not have normally placed thyroid tissue which must be documented by scintigraphy, radiology and laboratory tests before undertaking surgery[6]. The lingual thyroid usually enlarges before or during puberty in response to increased demand of thyroid hormone by means of hypertrophy but also can occur during conditions of metabolic stress like pregnancy, infection, stress, menopause leading to oropharyngeal obstructive features.[7] The major indications for surgery in lingual thyroid include compressive features, malignat transformation, concern for malignancy like a normal eutopic thyroid. The above descriubed technique is simple, avascular with no intervening vital structures which can be reproduced easily by a trained endocrine surgeon.. A major limitation of this study would be the rarity of this condition.

CONCLUSIONS:

Lingual thyroid is rare and the need for resection is more uncommon. By Suprahyoid approach, lingual thyroid can be excised in toto with relative ease and negligible morbidity if surgical excision is indicated.

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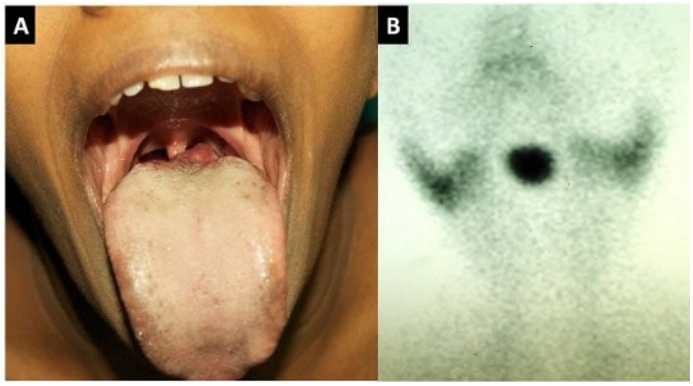

Fig – 1 A and B

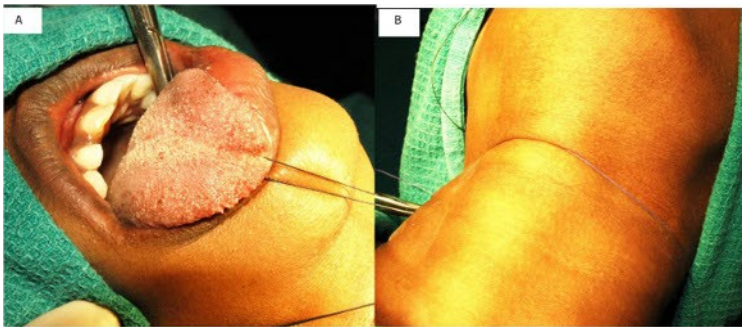

Fig – 2 A and B

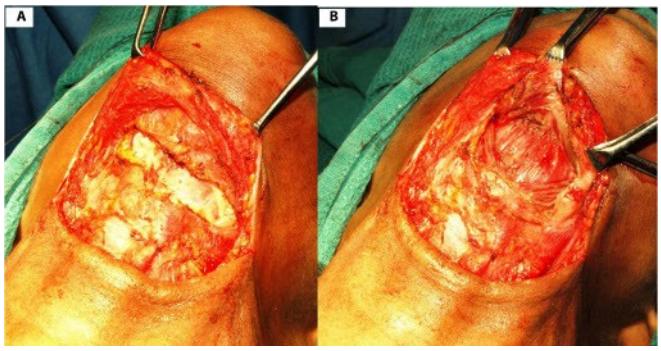

Fig 3 A and B

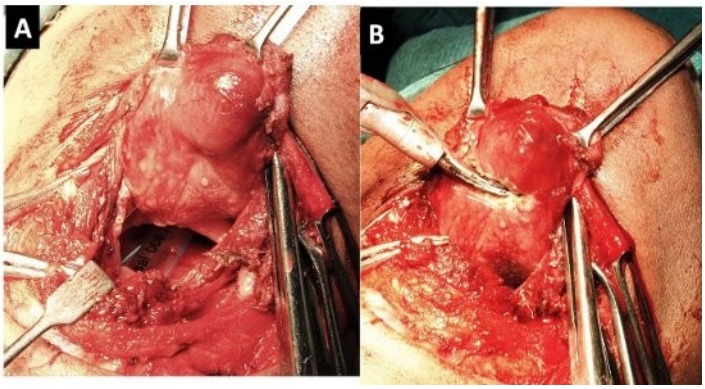

Fig 4 A and B

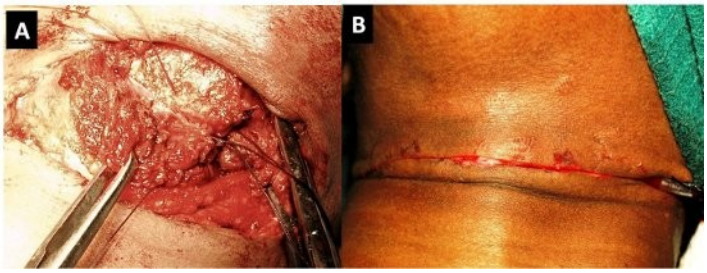

Fig 5 A and B

Fig 6 A and B

Legend to Figures:

Figure-1: A. Clinical photograph showing the lingual thyroid as a fleshy vascular swelling at the base of the tongue . B.Thyroid scintigraphy showing intense uptake at the base of the tongue with absence of uptake in the normal thyroid position

Figure-2: A.The tip of the tongue is pulled out with a silk suture for leverage. B The suprahyoid incision mark

Figure-3: A. Lifting of the flaps in the suprahyoid region B.Division of the mylohyoid muscle

Figure-4: A. Flipping of the tongue exposing the dorsal aspect of the base of the tongue with the lingual thyroid B. Dissecting the lingual thyroid with ultrasonic shears

Figure -5: A. Cut ends of the tongue musculature approximated using 2'0 vicryl B.Wound with drain before skin approximation

Figure-6: A.The gross specimen of lingual thyroid after excision B. Cut section of the lingual thyroid showing soft, vascular and fleshy thyroid tissue