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CASE STUDY

Z-FRENULOPLASTY TO UNTANGLETONGUE TIE

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ABSTRACT

Introduction: Ankyloglossia, commonly called as "tongue-tie" is a congenital anomaly characterized by an abnormally short lingual frenum. This may restrict tongue tip mobility which leads to problems with speech articulation and swallowing. There are different techniques for its management. The present case report highlights the use of a novel surgical technique called as Z- Frenuloplasty for the management of tongue tie of a 9-year old male patient.

Method: Z-Frenuloplasty is a technique sensitive surgical procedure and should be done under the expertise of a skilled clinician. An initial vertical incision is given in the centre of the frenum. Incisions are made to raise triangular flaps which are later repositioned in a 'Z-plasty' flap closure. Sutures are removed a week later.

Result: Z-Frenuloplasty helps to release scar contracture and relieve soft tissue tension. The appearance of a scar is also improved with this technique as it helps to both relax and re – align the tissues. This procedure can also be used to position a short frenulum more apically for better aesthetic and functional results.

Conclusion: The use of the Z-Frenuloplasty technique has shown favorable results with improved aesthetic and functional outcomes.

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INTRODUCTION

The word "ankyloglossia" finds its origin from the Greek words "agkilos" (curved) and "glossa" (tongue). In the medical literature the first use of the term ankyloglossia dates back to the 1960s. In the year 1963, Sir Wallace defined tongue-tie as "a condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short frenulum linguae, often containing scar tissue." (Wallacem 1963) Ankyloglossia is also known as tongue-tie. It is a congenital oral anomaly that may decrease mobility of the tongue tip and is caused by an unusually short, thick lingual frenulum, a membrane connecting the underside of the tongue to the floor of the mouth. Ankyloglossia varies in degree of severity from mild cases characterized by mucous membrane bands to complete ankyloglossia whereby the tongue is tethered to the floor of the mouth. Ankyloglossia causes difficulty in speech articulation, dysarthria, dyspnea, and problems with breastfeeding in babies (Heller *et al*., 2005; Kahnberg, 1977; Devishree *et al*., 2012; Mcbride Craig, 2005). In most cases, this condition is self-limiting and resolves spontaneously by itself. Surgery should be considered at any age if there are speech or feeding difficulties (Kotlow, 1999). Patients, consented for this procedure, are warned to expect mild discomfort, post-operative pain, bleeding, swelling and infection of the surgical site.

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Case Report

The present case highlights the use of Z- Frenuloplasty for the management of ankyloglossia of a 9 year old male patient. He was referred from the Department of Pedodontics and Preventive Dentistryto the Department of Periodontics at Kothiwal Dental College & Research Centre, Moradabad, Uttar Pradesh. Patient reported that he had difficulty in speech since two years. He was unable to protrude his tongue. Besides he also had difficulty in pronouncing certain words. On intraoral examination it was found that patient had aberrant/abnormal attachment of lingual frenulum to the anterior tip of the tongue that connected tongue to the floor of the mouth. (Fig.1)

Tongue protrusion was 8 to 9mm. So, it was a case of moderate Ankyloglossia. The following steps were performed:

- Administration of adequate local anesthesia with 2 % lignocaine with 1:80000 adrenaline.
- A central vertical incision is made with a #11no. BP blade at the base of frenulum. (Fig. 2)
- The incision is made at the most inferior part of the frenulum in an upwards direction.
- Incisions are then made to create the 'Z-shape' triangular flap.
- The blade is rotated 90 degrees and a horizontal incision is made in the lingual mucosa, starting from the top of the frenulum and then extending outwards.
- This is approximately 1-2cm in length and it creates the triangular flap.
- Another identical triangular flap is raised on the contra lateral side but at the base of the vertical incision which gives the incision the' Z - shape'. (Fig.3)
- The flaps are then rotated and repositioned to achieve closure.(Fig.4)
- Sutures were given using 4-0 Mersilk suture material followed by placement of periodontal dressing following adequate closure without puckering. (Fig.5,6)

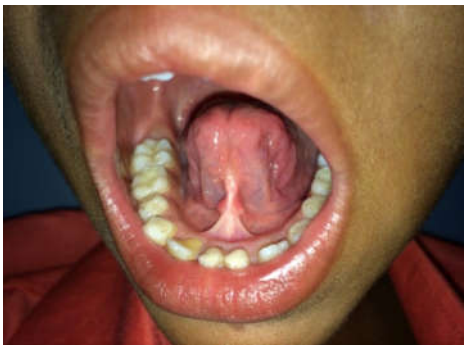

Fig.1. Pre-operative view

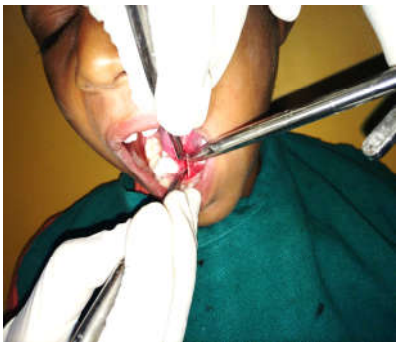

Fig.2. Central Vertical Incision

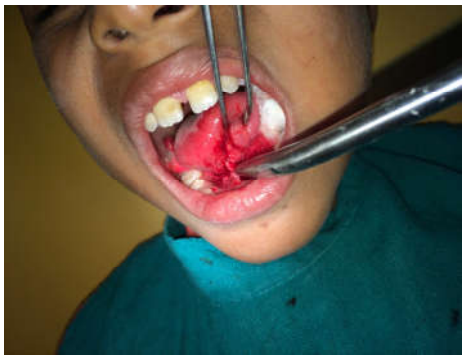

Fig.3. Triangular flaps raised

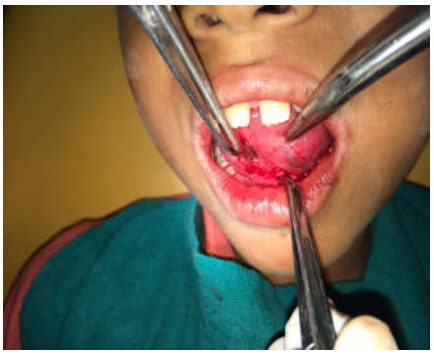

Fig.4. Flaps rotated and repositioned

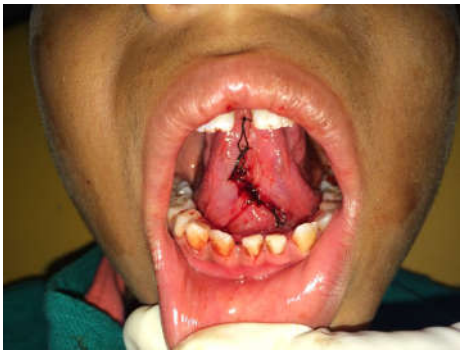

Fig.5. Sutures given

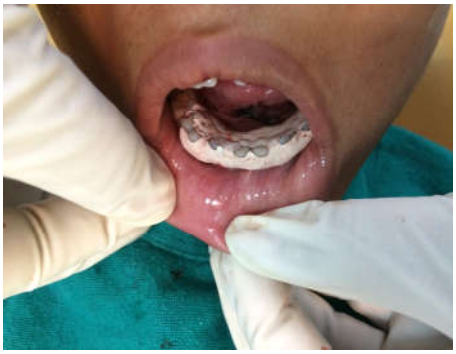

Fig.6. Periodontal Dressing

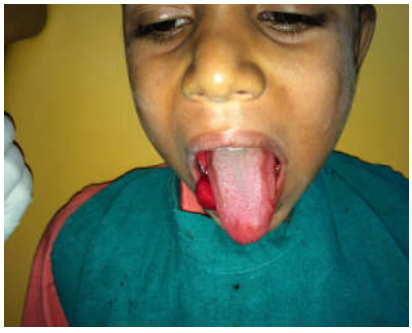

Fig.7. Immediate Post-operative view

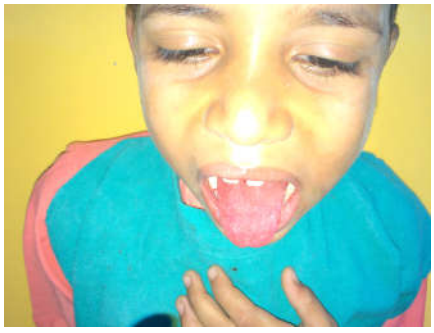

Fig.8. 6 Months Post-operative view

- After the above procedures, patients were discharged and post-operative instructions were given.
- Patient was asked to maintain a soft diet for a week, take analgesics if necessary and to maintain good oral hygiene.
- Antimicrobials (CapsuleAmox 250 mg twice daily) were prescribed for 5 days.
- NSAIDs (Ibugesic Plus 400mg half tablet twice daily) for 5 days was prescribed for pain relief.
- The patient was recalled after 15 days for suture removal.

DISCUSSION

Lingual frenum is a very important anatomic structure as it stabilises the base of the tongue without interfering with the tongue tip movement. In case of ankyloglossia, frenum has an anterior attachment and may be unusually short causing virtual adhesion of the tongue tip to the floor of the mouth.

The ankyloglossia can be classified into 4 classes based on Kotlow's (1999) assessment as follows;

Class I: Mild ankyloglossia: 12 to 16 mm,
Class II: Moderate ankyloglossia: 8 to 11 mm,
Class III: Severe ankyloglossia: 3 to 7 mm,
Class IV: Complete ankyloglossia: Less than 3 mm

According to this classification our case was of Class II Moderate Ankyloglossia with tongue protrusion of 8mm. By using the Z-Frenuloplasty technique and by repositioning of the flap in this manner, we found that this results in less soft tissue tension, lengthening of the lip, minimal scarring and improved lip or tongue function. With a co-operative patient this technique can easily be performed under local anaesthetic and unlike other techniques there is no relapse of the Frenulum making it a very reliable treatment.

Conclusion

Z- Frenuloplasty is a technique sensitive procedure which needs expertise of a skilled clinician. The approach should be as conservative as possible since extensive division of a lingual frenulum can damage the blood vasculature in the floor of the mouth resulting in post-operative sloughing of the tissue. Rare cases of sublingual haematoma and also Ludwigs angina have been reported in the literature (Heller *et al*., 2005). Overall the Z-Frenuloplasty procedure is a safe and cost effective technique. It yields better functional and aesthetic results. This procedure allows for tissue healing by primary intentions; increasing recovery and reducing the risk of tissue contractures.

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