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RESEARCH ARTICLE

PRE SUTURING TECHNIQUE- A THERAPEUTICAL AND SURGICAL APPROACH FOR TIED TONGUE (ANKYLOGLOSSIA)

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ABSTRACT

Ankyloglossia is a congenital anomaly that restricts the tongue's range of motion. Lingual frenulum connects the bottom of the tongue's tip to the floor of the mouth with a band of tissue which is tight, thick and short. This results in difficulty in speech and tongue movements. Lingual frenulum is a small fold of tissue. Lingual frenectomy which is also known as a frenulectomy, frenulotomy or frenotomy is the removal of a frenulum. A novel surgical technique known as presuturing technique in the management of ankyloglossiahas been used in this case report. In this case different sets of sutures are used on lingual frenum before giving the insicion. It resultedin reduced opening of the wound, minimal pain, bleeding and discomfort. A23 yr old male patient with tongue tie had been managed with this technique. 1 year of follow-up had been recorded which showed satisfactory protrusive and lateral movement of the tongue without any complications.

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INTRODUCTION

Ankyloglossia originated from the Greek word 'agkilos'(curved) and 'glossia'(tongue) (Lawrence, 1999). In 1960's tongue tie was defined by Wallace as a condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of short frenulum linguae, often containing scar tissue (Walace, 1963). Ankyloglossia is more commonly found in males than females (Nevile, 2002). The exact cause of ankyloglossia is unknown, although it is likely to be due to abnormal development of the mucosa covering the anterior two-thirds of mobile tongue (Dollberg, 2006). The ankyloglossia can be classified into 4 classes based on Kotlow's assessment (Lawrence A Kotlow's, Quintessence international 1990) (Lawrence, 1999).

Class I: mild ankyloglossia (12 to 16 mm)
Class II: moderate ankyloglossia (8 to 11mm)
Class III: sever ankyloglossia (3 to 7mm).
Class IV: complete ankyloglossia (less than 3mm).

Tongue is a basal organ for deglutition and a short lingual frenum can become a mechanical hindrance to its proper function. It can cause problems starting at neonatal age with breastfeeding difficulty or early childhood with speech restraint.

A functional assessment of the lingual frenum is essential to decide the need for speech therapy or surgical intervention.
Other surgical maneuver have been introduced for the treatment of ankyloglossiawhich mayincrease bleeding and discomfort, postoperative swelling and pain (Khairnar, 2002). Laser also can be used, but problem with the Laser is its availability. The purpose of this case report was to present a novel surgical approach similar to the study carried out by Khairnar and Babita Pawar et al in 2014 for the management of Kotlow's Class ll ankyloglossia. This may reduce the intra-operative bleeding and postoperative pain which was also experienced by them (Khairnar, 2014).

CASE REPORT

A 23-year-old male reported to the Department of Periodontology, BVPDU, Pune with a chief complaint of restricted tongue movement and difficulty in speech. On intra oral examination, the patient had Kotlow's Class II ankyloglossia Figure 1. Patient had difficulty in protruding the tongue beyond the vermillion border of lower and upper lip. Letter sounds like "l," "t," "d," "n," "s," and "th" were not clear when uttered. There was no recession on the lingual aspect of mandibular central incisors related to the frenum. After thorough assessing, an informed written consent was obtained, and lingual frenectomy was planned. All routine

necessary blood investigations were carried out for the patient. All were found to be within normal limits.

Surgical Procedure

Lignocaine with 1:2,00,000 adrenaline approximately around 1 ml was deposited bilaterally in close proximity to the lingual frenum, floor of the mouth and the anterior lingual aspect of mandible. Firstly a suture (3-0 silk) was placed at the tip of the tongue to ease the retraction of the tongue so that it doesn't interfere and give a good visibility while performing the suregery (Khairnar, 2014). After that, two different sets of sutures were planned. Initially 2 interrupted sutures were given as a first set of suture in a vertical line extending from the tip of the tongue to the base of the frenum. Another set of 2 sutures were given anteriorly parallel to the first set of sutures in the vertical line (Figure 2). Care was taken while suturingas Wharton's duct (an opening of the submandibular gland) lies in the close vicinity of the operating area. Then with blade No. 15 the incision was made carefully along the vertical line. A diamond shape wound was seen with limited opening because of the pre sutured frenum. Evaluation of any muscle tension by protruding the tonguewas checked (Figure 3). Suturing was done using silk (3-0) in the entire length of the tongue. Precautions were taken not to puncture or severe the Wharton's duct. Antibiotic Amoxicillin 500mg and analgesic combination (Aceclofenac 50mg + Paracetamol 325mg) 3 times a day for 3 days respectively was prescribed to the patient and advised to use 0.2% chlorhexidine gluconate (1:1 dilution) for 30 seconds twice daily for 2 weeks. Post operative instructions were given to the patient. Patient was advised to avoid spicy or hard food and ice pack to be used in the region for first 24 hours.

Figure 1. Preoperative view Class II ankyloglossia

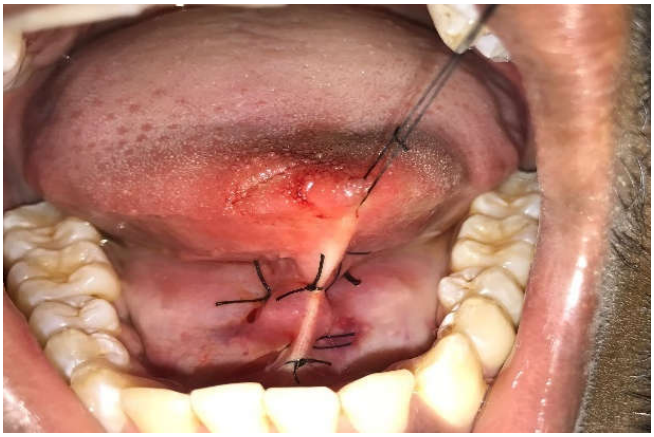

Figure 2. Two vertical rows of suture parallel to each other

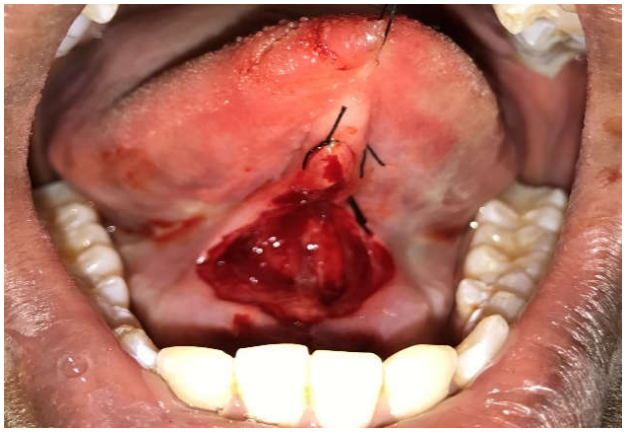

Figure 3. Opening of diamond shape wound

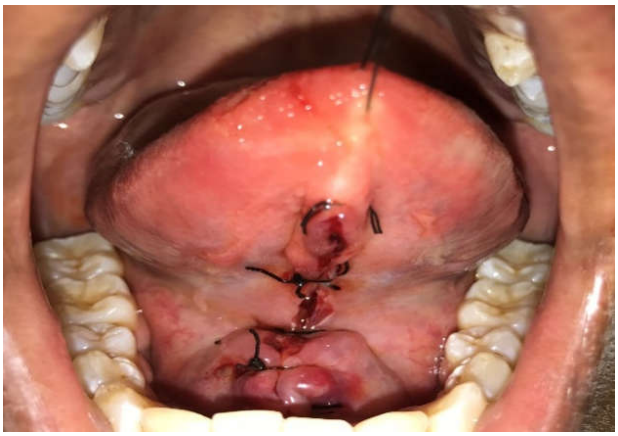

Figure 4. Immediate postoperative view

Figure 5. Postoperative view after 2 weeks

Figure 6. View after 1 year

Tongue exercises like lifting the tongue up and protrution and extending the tongue side to side were advised 3 times daily for 2 mins (Khairnar, 2014). Patient was recalled after 7 days for the suture removal. The healing was uneventful after a follow up of 6 months without scar formation. The tongue showed good healing with protrusion of 3-4 millimeters approx beyond lower lip. Healing was satisfactory.

DISCUSSION

Ankyloglossia is a congenital oral anomaly which decreases the mobility of the tongue tip. It is caused by a short, thick lingual frenum (which is a membrane connecting the underside of the tongue to the floor of the mouth). It is also known as tongue-tie or short lingual frenum. Now a days in daily clinical practice, tongue-ties are a frequent finding in patients (Garcı, 2002). Limitations of movement of tongue are the most obvious clinical symptoms of ankyloglossia (Messner, 2002). The maximal tongue protrusion is to be improved in such cases. A normal range of motion of the tongue is indicated by the following criteria: (Pimpale release the restriction: a case series on ankyloglossia, 2015). The tip of the tongue should protrude outside the mouth; without clefting, the tip of the tongue should sweep the upper and lower lips easily; without straining. Whenretruded, the tongue should not blanch the tissues lingual to the anterior teeth. This can be treated in number of ways apart from the conventional techniques. Pre suturing technique is one of them. Lasers like the carbon dioxide (CO2), neo-dymium-doped:yttrium, aluminum garnet (Nd:YAG, and erbium-doped (Er):YAG lasers allows minimally invasive dentistry for soft tissue procedures like frenectomy (American Academy of Periodontology, 2002). Though bloodless surgical removal of frenum is evident with Laser still the drawbacks like less relief of the muscle attachments and high precautions of eyes during its use are seen. In this case report, Pre suturing technique had shown less scarring of tissues in a follow up of 1 year and adequate tongue movements.

Conclusion

In this case report the technique showed less scarring of tissues in a follow up of 1 year and adequate tongue movements, absence of any swelling, less postoperative pain. The post operative tongue exercises were beneficial for the patient in the speech improvement. Thus this novel technique gives promising results in the management of ankyloglossia.

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