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Ankyloglossia and its surgical management

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Abstract

Ankyloglossia or tongue-tie is the result of a tight and short lingual frenulum which causes difficulty in breast feeding, eating and speech articulation due to limited tongue movement. In this condition, the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short lingual frenum. In this article, we have reported a 26 year old female patient with tongue-tie who complained of difficult in speech. She underwent frenectomy procedure under local anaesthesia without any complications. This was followed by speech therapy sessions.

Keywords: tongue tie, ankyloglossia, frenectomy

Introduction

In the year 1950, Miller defined a frenum as “a membranous fold which joins two parts and restricts the individual movement of each [1].” Wallace [2] defined tongue-tie as “a condition in which the tip of the tongue cannot be protruded beyond the mandibular incisor teeth because of a short lingual frenum, often containing scar tissue.” In many individuals, ankyloglossia/tongue tie is asymptomatic and this condition may resolve spontaneously. Some of the affected individuals may learn to compensate adequately for their reduced tongue mobility. However, those who cannot compensate for reduced lingual mobility or when ankyloglossia does not resolve spontaneously, such individuals benefit from surgical intervention such as frenotomy, frenectomy or frenuloplasty with scalpel, laser or electrocautery. Patients should be educated about the possible long-term effects of tongue-tie so that they can make an informed choice regarding the best suitable therapy for their case [3].

Case report

A 26 year old female patient reported to the department of Periodontics, Government dental college and hospital, Aurangabad with the chief complaint of speech difficulty and limited lingual mobility. On intra-oral examination it was found that she had ankyloglossia (tongue-tie) and it was classified as Class III based on Kotlow’s classification of ankyloglossia (figure 1) [4]. Patient could not protrude her lip due to frenal attachment at the tip of the tongue. (figure 2) After taking the written informed consent from the patient, lingual frenectomy was planned.



Fig 1: Baseline Photograph

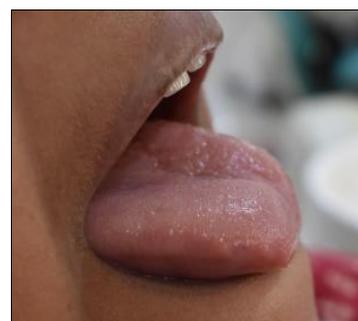


Fig 2: Patient could not protrude the tongue.

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Local anaesthesia was administered at the base of the tongue and into the lingual frenum before starting with the frenectomy procedure. For retraction of the tongue and prevention of tongue movements during the surgery, a sling suture was passed from the tip of the tongue. (Figure 3) A hemostat is inserted at the depth of the vestibule and clamped into position to hold the frenum. (Figure 4) This is followed by giving incisions at the superior and inferior aspect of hemostat in order to remove the intervening frenal tissue. (Figure 5) Muscle fibers are removed with the help of hemostat. The wound edges were approximated by giving interrupted sutures (Figure 6) followed by removal of sling sutures from the tip of the tongue.



Fig 3: Sling suture passed from the tip of the tongue



Fig 4: Haemostat is inserted at the depth of the Vestibule



Fig 5: Removal of the lingual frenum



Fig 6: Interrupted sutures placed

Antibiotics and analgesics were prescribed to prevent post-operative infection and pain. Post-operative healing was uneventful and sutures were removed after 1 week. Patient was advised tongue exercises and speech therapy sessions. After a follow-up of 6 months, the tongue showed complete healing, normal speech and protrusion of the tip of tongue several mm beyond the lower lip and incisors. (figure 7) Protrusion, lateralization, and elevation of the tongue were improved compared to the pre-surgical condition. Patient was extremely happy with the outcome.



Fig 7: Improved tongue protrusion after 6 month follow-up

Discussion

Clinically acceptable and normal range of tongue is greater than 16 mm [5]. The ankyloglossia can be classified into 4 classes based on Kotlow's assessment as follows [4]:

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

Class III and Class IV severely restrict the normal range of tongue movements and social embarrassment due to disharmony of speech. Hence, these cases require special attention and treatment planning. Hogen *et al.* in 2005 explained that ankyloglossia is a frenum that extends up to 25-100% of tongue's total length ^[6].

Optimal management of ankyloglossia should include early intervention, appropriate surgical procedure, followed by speech therapy for speech modulation and tongue exercises when indicated in order to deliver pleasing results. Surgical techniques for the treatment of tongue-tie can be classified into three procedures. Frenotomy which is a simple incising of the frenulum. Frenectomy is defined as complete excision or removal of the whole frenum mostly the chosen procedure for moderate, severe or complete ankyloglossia. Frenuloplasty is the surgical alteration of the frenum involving different methods to release the tongue-tie and correct the anatomic situation. It can be used in mild ankyloglossia or Kotlow's Class I cases. The exact cause of ankyloglossia is unknown, but some studies suggest it might likely be due to abnormal development of mucosa over the anterior two-third portion of the tongue ^[7]. Horton *et al.* reported that the prominent lower frenulum may lead to repeated lower denture plate dislodgement when the tongue is elevated and this was observed by various authors in their studies ^[8].

Several options exist for the management of tongue-tie which include observation, speech therapy, otolaryngotherapy, frenuloplasty, frenotomy, frenectomy, Z-plasty, electrocautery and laser frenectomy. The literature suggests that surgical treatment for ankyloglossia is absolutely safe at any age and timely intervention reduces long term complications ^[9].

Conclusion

Ankyloglossia or tongue-tie may cause general as well as oral problem such as feeding problems, sleep apnea, problems with speech articulation, psychological and social problems. Thus, early diagnosis and prompt surgical intervention will help in the general wellbeing by improving the oral hygiene of the patient, better articulation of the words, improving social and psychological aspect leading to personality development.

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