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Management of ankyloglossia by Electrocautery assisted lingual frenectomy: A case report.

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Abstract

Background: Ankyloglossia or tongue tie is a congenital condition occurs when the lingual frenulum is undersized and attached to the tip of the tongue, bounds the normal movements of tongue. Due to the restricted tongue movements, it will cause difficulties in feeding and speaking some consonants letter. Surgical intervention for treating ankyloglossia includes conventional technique with haemostats, electrocautery and laser

Purpose: The article was aimed to report the treatment of an twenty two years old boy who came with the chief complaint of difficulty in moving his tongue freely which causes difficulties in pronouncing some letters

Case Management: The patient was treated for an Electrocautery assisted lingual frenectomy procedure under local anaesthesia. The haemostats were used to guide the incisions with needle electrode. One haemostat used to clamp the upper aspect of the frenulum may be helpful to guide the incision close to the ventral surface of the tongue. After the release of the tongue, care must be taken not to injury the submandibular ducts when making the second incision at the lower aspect of the frenulum. Suture was placed to approximate the diamond shape wound. After 1 to 2 weeks there was satisfactory healing with free movement of tongue

Keywords: Ankyloglossia, lingual frenum, frenectomy, Electrocautery

Introduction

Lingual frenulum is a fold of mucous membrane which attaches the tongue to the floor of the mouth. Ankyloglossia also known as tongue-tie, is a congenital oral condition characterized by thick, undersized or unusually tight lingual frenulum.[1] This abnormality can cause the reduced movement of tongue to varying degrees,[2] and has been associated with functional boundaries including atypical swallowing, difficulties in pronouncing some letters, Mechanical problems such as

the inability to clean the oral cavity, and psychosocial stress.[3] Various treatment options are available such as observation, speech therapy, lingual frenectomy have all been widely discussed in the literature.[4]

Case description

A 22-year-old male patient reported to the Department of Periodontology of Surendera Dental College and Research Institute, Sriganganagar, with his chief complain of bad breath and bleeding gums and also had difficulty in tongue movement and speaking difficulty in pronouncing certain words freely. Because of limited tongue movement, the patient complained of difficulty in maintaining a routine oral hygiene measure. Clinically intraoral examination revealed fusion of lingual frenulum to the tongue and with lingual gingiva of lower central incisors with limited tongue protrusion up to inner border of lips (Figure 1 & Figure 2). Physical examination found that his frenulum was attached very close to the tip of the tongue, and unable to produce speech sounds that require rising or extending the tip of the tongue, including "s, z, t, d, l" and specially to roll an "r". There were no feeding problems have been tracked down when he was born until now. The patient was diagnosed with class III ankyloglossia according to Kotlow's classification.[5]

On taking family history, there was no such case reported in the patient's family members and medical history was no relevant. There was no abnormality found in the radiologic examination and extra oral examination, the patient was scheduled for Electrocautery assisted lingual frenectomy procedure.

Case Management

The surgical procedure was carried out after obtaining informed consent. After intraoral antisepsis with povidone iodine, topical anesthetic was applied to the underside of the tongue following which Right lingual nerve block with 2% lignocaine was administered. Small curved haemostat with the convex curve facing the ventral surface of the tongue was used to hold the frenulum. Lingual frenectomy was performed with needle electrode of electrocautery (Figure 3). The first incision was made following the curvature of the haemostat, cutting through the upper aspect of the frenulum. The second incision was made at the lower aspect of the frenulum, fairly close to the floor of the mouth. The frenulum was then excised, leaving a diamond-shaped wound (Figure 4). The wound margins were undermined with the tips of Ball electrode. Following the excision of the muscle fibers, 3-0 black silk simple interrupted sutures were placed to close the diamond shape wound (Figure 5). Post-operative instructions were given to the patient along with prescription of AMOXCILLIN 500 antibiotic regimen twice a day for three days and analgesic twice a day for five days. The sutures were removed 2 week following the day of surgery showed excellent healing and the tongue movements were re-evaluated (Figure 6). Four weeks post-surgical healing showing marked improvement in tongue protrusion. One month post-surgical healing shows marked improvement in tongue protrusion (Figure 7 & Figure 8). The patient was also advised to visit a speech therapist for further improvement in his speech.

Discussion

Ankyloglossia is a rare congenital anomaly characterized by the attachment of tongue to the floor of the mouth. It occurs due to failure in cellular degeneration leading to longer anchorage between tongue and floor of the mouth.[6] The incidence of ankyloglossia in various reports ranges from 0.02% to as high as 4.8% of term new-borns. The pathogenesis of ankyloglossia is unknown.

Ankyloglossia can be a part of certain rare syndromes such as X-linked cleft palate and van der Woude syndrome, Opitz syndrome, and Kindler syndrome. Ankyloglossia is commonly seen as an isolated finding in an otherwise normal child.[7]

According to Kotlow's observation, ankyloglossia can be of the following four types depending on clinically available free tongue (protrusion of tongue):

1. Class I: Mild ankyloglossia: 12–16 mm
2. Class II: Moderate ankyloglossia: 8–11 mm
3. Class III: Severe ankyloglossia: 3–7 mm
4. Class IV: Complete ankyloglossia: <3 mm

The difficulties in speaking some consonants sounds such as "s, z, t, d, n, l, j, zh, ch, th, dg." However the most difficulty in producing lingual-alveolar sounds (particularly/l/) and interdental sounds (voiced and voiceless/th/) is that tip of tongue must be maximally elevated up to alveolar ridge to produce /l/ and maximally protruded up to palatal surface of maxillary incisors to produce /th/. Consequently it is significant to emphasis on lingual-alveolar sounds while assessing the effect of Ankyloglossia on speech.

Kotlow recommends the following structural guidelines to assess the need for the surgical management of lingual frenulum.[5]

1. Clefting of tongue tip during protrusion of tongue
2. Patient cannot sweep the upper and lower lips easily, without straining with tip of tongue
3. Blanching of the lingual tissue of anterior teeth while retrusion of tongue
4. Tongue places excessive forces on the mandibular anterior teeth.
5. Lingual frenum interferes with normal deglutition process.
6. Midline diastema between mandibular central incisors created by lingual frenum
7. Difficulty in pronouncing some letters due to limited tongue movements.
8. In infants, abrasions are seen, at the underside of the tongue.
9. If the frenum prevents infant from attaching to the mother's nipple during nursing.

Choice of management for ankyloglossia includes well-timed and suitable surgical intervention, followed by speech therapy which delivers pleasing results, often in a less time than expected. Surgical intervention for treating ankyloglossia includes conventional scalpel technique with hemostats, electrocautery and laser.[8] The Electrocautery has an advantage over other two methods as less pain, clear surgical field, comfort of the patient and cost effective. The most expedient factor of electing Electrocautery has advantage over the other techniques was that the complete excision of the lingual frenulum muscle fibres could be achieved. But caution should be taken while preferring Electrocautery in order to minimize the trauma to the adjacent vital structures.[9]

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Legend Figures

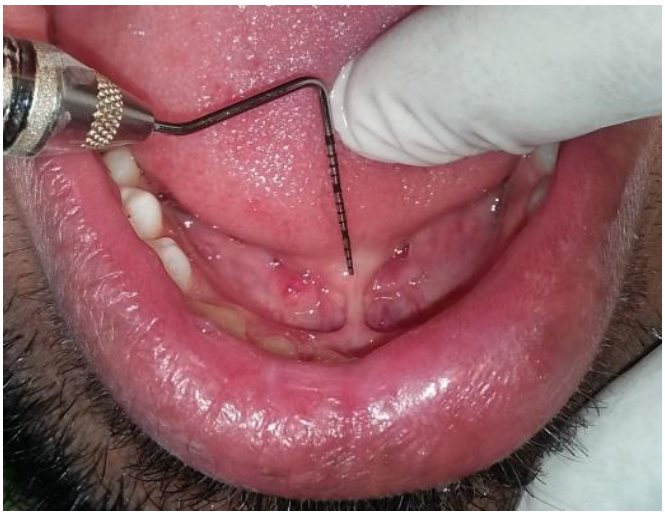

Figure 1: Pre-operative view

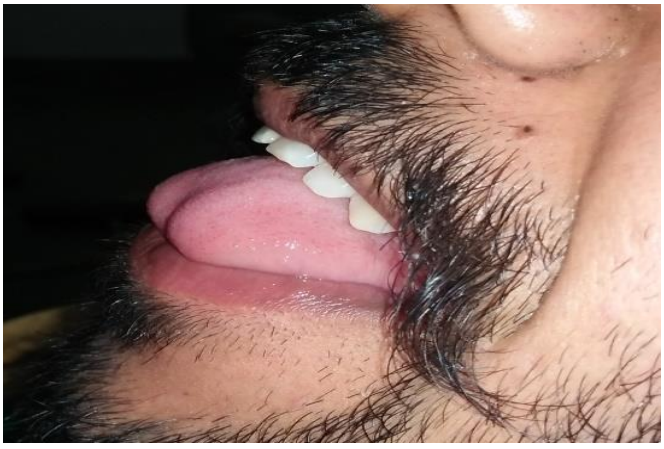

Figure 2: Pre-op protrusion of tongue

Figure 3: Incision with needle electrode

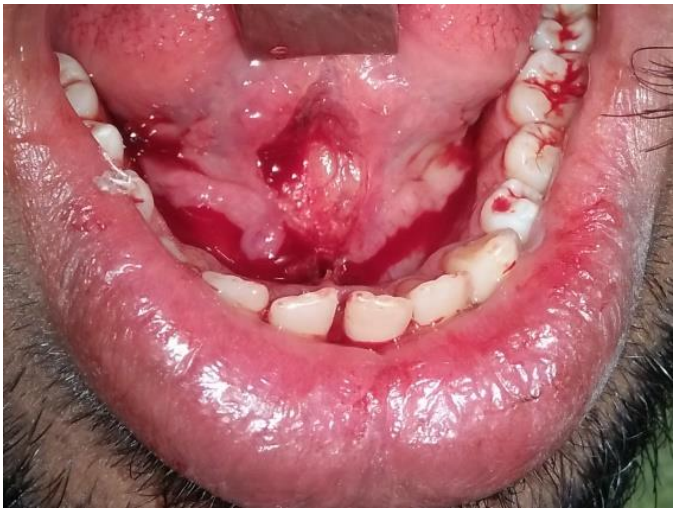

Figure 4: Diamond shaped wound

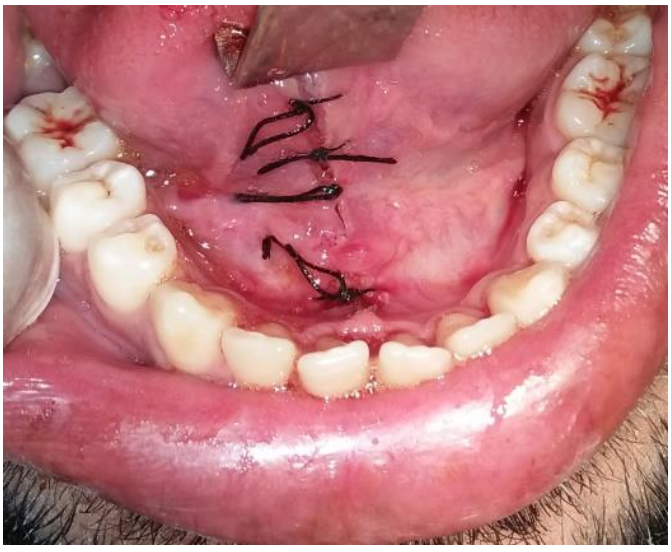

Figure 5:Suture given

Figure 6: Suture removal at 2 weeks

Figure 7: Healing at 1 month

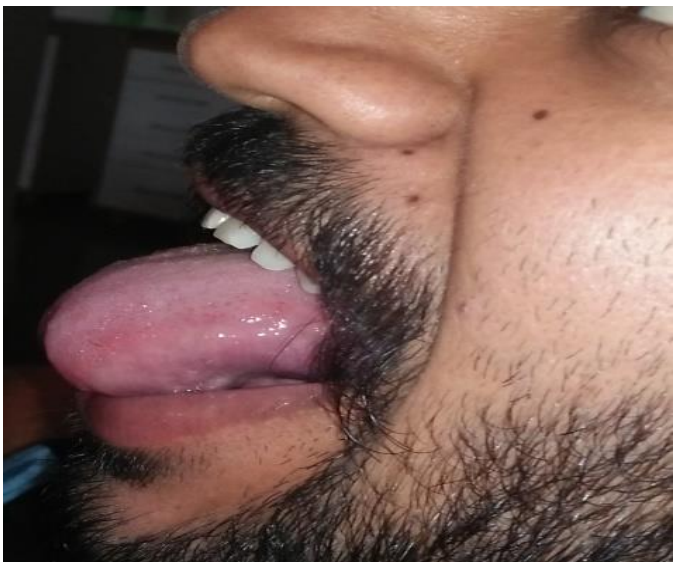

Figure 8: Post-op protrusion at 1 month