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Ankyloglossia–Diagnosis and management- A Case Report

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Case Report

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Abstract: Ankyloglossia is the result of a short, tight, lingual frenulum causing difficulty in speech articulation. In this article, we have reported a 18-year-old female with tongue-tie who complained of difficulty in speech following which she underwent frenectomy procedure under local anesthesia without any complications.
Keywords: Ankyloglossia, Lingual frenum, Frenectomy scalpel, sutures.

INTRODUCTION

Etymologically, "ankyloglossia" originates from the Greek words "agkilos" (curved) and "glossa" (tongue) is a condition present at birth that restricts the tongue's range of motion. With tongue-tie, an unusually short, thick or tight band of tissue (lingual frenulum) tethers the bottom of the tongue's tip to the floor of the mouth and may interfere with eating, speaking and swallowing.

Ankyloglossia may or may not be associated with other congenital abnormalities like orofacial clefts (i.e., cleft lip, cleft palate) and other craniofacial syndromes. Various treatment protocols for the management of ankyloglossia have been reported in the literature. Frenectomy, that is, incising the frenum or frenuloplasty, that is, is the surgical alteration of the frenulum. All these procedures can be performed using conventional scalpels or lasers.

This case report arrays the occurrence of ankyloglossia in an 18-year-old girl who was treated surgically (frenectomy) using scalpel.

CASE REPORT

A 18 year girl reported to Department of Periodontology, Govt Dental College and Hospital, Srinagar with the chief complaint of difficulty in speech and movement of tongue. On intraoral examination patient had thick lingual frenum almost 5mm from the tip of tongue. Restricted tongue movements and inability to touch the palate with the tip of the tongue were observed. According to Kotlow's classification, she was allocated Class III or severe ankyloglossia which accounts for tongue movement of 3-7 mm. According to Hazelbaker's assessment tool, the appearance score was 6 (which was <8) and the functional score was 9 (which was <11) hence was indicated for frenectomy. Patient also presented with spacing and recession with respect lower central incisors. Routine hematologic analysis (CBC, BT, CT) and random blood test was carried out which came out to be within normal range the patient was planned for frenectomy. After application of adequate local anesthesia (2 ml of 0.2% lignocaine hydrochloride in 1:80,000 adrenaline) was given as infiltration around the lingual frenum. A tissue holding forceps was used to clamp the frenum. A 15 no. scalpel was used and two incisions at the superior and the inferior aspect of the Elis forcep were given. This way, we removed the intervening frenum and got a diamond shaped wound. A 3–0 silk suture was used to approximate wound ends with the tissues to heal by primary intention thereby minimizing the scar tissue formation The patient was prescribed Amoxicillin (500 mg) thrice a day for 3 days and non-steroidal anti-inflammatory drug Tab. Ketorolac DT (10 mg) thrice a day for 3 days was to prevent post-operative infection and pain. Postoperative instructions were given and patient was asked to report after 1 week for suture removal and review. The Hazelbaker's appearance score after suture removal post 1 week was 10 and the function score was 12.The patient was advised to consult a speech therapist for improvement in the articulation of speech.

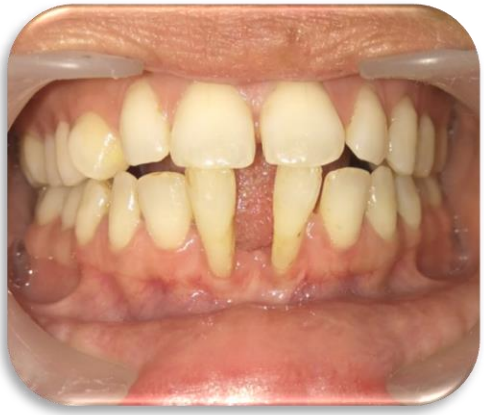

Fig-1: Frontal view

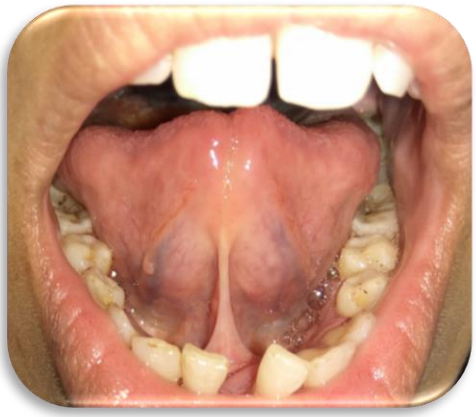

Fig-2: Ankyloglossia

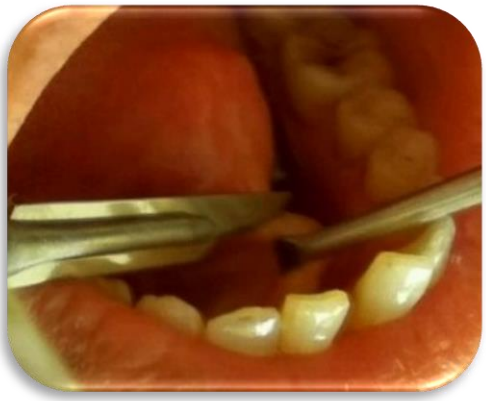

Fig-3: incision with scalpel

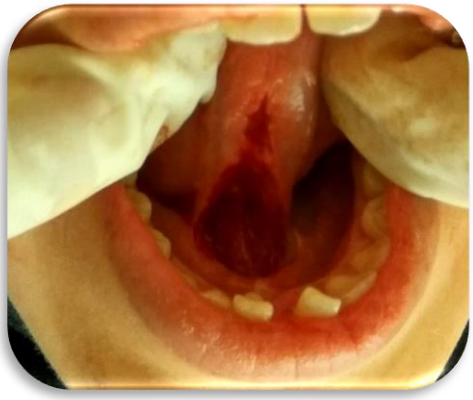

Fig-4: Diamond shaped wound

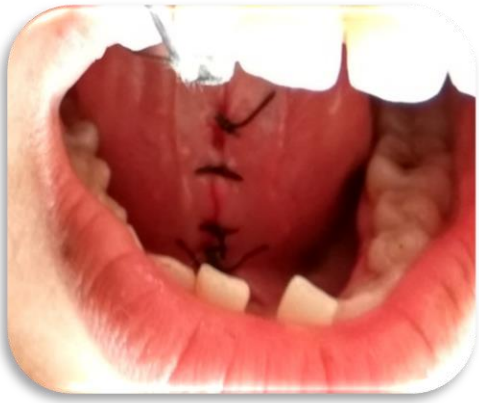

Fig-5: Sutures done

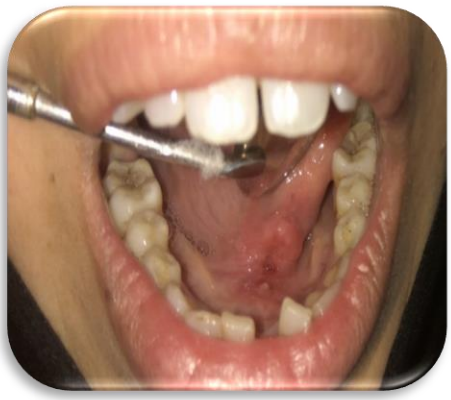

Fig-6: Postoperative view after 1 week

DISCUSSION

The prevalence of ankyloglossia reported in the literature varies from 0.1% to 10.7%. The prevalence is also higher in studies [1] investigating neonates (1.72% to 10.7%) than in studies [2] investigating children, adolescents, or adults (0.1% to 2.08%). The absolute pathogenesis of ankyloglossia remains unknown [3]. There is some evidence that ankyloglossia can be a genetically transmissible pathology. While most cases of ankyloglossia are sporadic, mutations in the T box transcription factor TBX22 may lead to heritable (X-linked) ankyloglossia with or without cleft lip, cleft palate and/or hypodontia[4]. Reports suggest that there is a genetic basis for the microvariation in the attachment of genioglossus muscle due to the mutations present in the TBX22 gene. In case of cleft palate with ankyloglossia (CPX) patients, TBX22 expression is seen in early human development, where the expression is found in the palatal shelves and is highest prior to elevation to a horizontal position above the tongue. TBX22 mRNA is also detected in the base of the tongue in the region of the frenulum that corresponds to the ankyloglossia seen in CPX patients [5]. Ankyloglossia was also found associated in cases with some rare syndromes such as X-linked cleft palate syndrome [6], Kindler syndrome [7] van der Woude syndrome [8]. Beckwith-Wiedemann syndrome, Simpson-Golabi-Behmel syndrome and Opitz syndrome [9]. Nevertheless, most ankyloglossias are observed in persons without any other congenital anomalies or diseases. Ankyloglossia can cause difficulty with breast-feeding, speech articulation. The difficulties in articulation are evident for consonants and sounds like “s, z, t, d, l, j, zh, ch, th, dg” [10] and it is especially difficult to roll an “r”. The possible sequela of AG remains controversial, and the range of suggested complications is great. Among the suggestions found in the literature are: (1) lower incisor deformity; (2) gingival recession; and (3) malocclusions [11].

Hazelbaker in 1993 gave an assessment tool for lingual frenum function with a scoring criteria based on which the necessity of frenectomy is decided [12]. It measures two scores the appearance score and the function score. The appearance score assesses the appearance of the tongue and frenum. The perfect appearance score is given as 10 and if the appearance score is <8, it is indicated for frenectomy. The function score assesses the lateral movement of the tongue, extension, lifting, cupping, peristalsis and the spread of the anterior tongue. The perfect function score is given as 14 and a score of <11 is indicated for frenectomy. Kotlow in 1999 categorized ankyloglossia into five classes based on the severity [13]. Clinically acceptable movement of the tongue is >16 mm. Class 1 or mild

ankyloglossia shows movement of the tongue in between 12 mm and 16 mm. Class II or moderate ankyloglossia shows tongue movement of 8–10 mm. Class III or severe ankyloglossia shows tongue movement of 3–7 mm. Class IV or complete ankyloglossia has a tongue movement of <3 mm. Hogen *et al*. in 2005 explained ankyloglossia as a frenulum extending along 25–100% of tongue's total length [14].

Various treatment protocols for the management of ankyloglossia have been reported in the literature. Frenectomy, that is, incising the frenum or frenuloplasty, that is, is the surgical alteration of the frenulum can be performed in mild Class 1 (Kotlow's classification) cases. Frenectomy, that is, the complete removal of the frenum and its attachment to the underlying structure has to be performed in Class II, III, IV cases, that is, moderate, severe and complete ankyloglossia. All these procedures can be performed using conventional scalpels or lasers. The advantage of lasers over the traditional techniques has been reported in the literature. The benefits of laser treatment include reduced bleeding during surgery with consequent reduced operating time and rapid hemostasis, thus reducing the need for sutures. The reduced need for local anesthetics and sutures, as well as intra-operative comfort makes this technique particularly useful for very young patients [15]. After surgical correction, patients should be referred to a speech therapist for speech modulation.

CONCLUSION

Ankyloglossia can cause oral complications (limitation of tongue protrusion, elevation and speech problems) and can be a social stigma as well so it is important to diagnose and manage the condition as early as possible for general well-being of patient. It can be easily treated using frenotomy/ frenuloplasty/ frenectomy based on the severity of lingual attachment. Laser frenotomy/frenectomy provides remarkable results as management therapy of tongue tie. The patient, however, should be referred to a speech therapist after surgical correction.

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