Ankyloglossia: diagnostic and treatment dilemma; A case report.

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Abstract:
Ankyloglossia is a congenital oral anomaly characterized by the presence of a hypertrophic lingual frenum that hinders protrusion and elevation of the tongue towards the palate, due to its short and thick composition. However variable phenotypic presentation makes it a diagnostic dilemma. Additionally, the questions pertaining to the age, the time frame when it should be treated and the most optimal method to treat still plague the clinicians. It has been reported to cause feeding difficulties, dysarthria, dyspnea, and social or mechanical problems, which may warrant surgical correction in symptomatic cases. In this article we report a case of 20 year old girl with tongue-tie who underwent the frenectomy procedure under local anesthesia with astounding results without any post surgical complications.

Keywords: Ankyloglossia, tongue tie, lingual frenum, frenectomy, frenotomy

Introduction:
Ankyloglossia, or tongue tie, is an uncommon congenital anomaly characterized by an abnormally short lingual frenum which may restrict tongue-tip mobility and may subsequently lead to a range of problems such as difficulties in breastfeeding during infancy, inability to chew age-appropriate solid foods, speech impediments, poor oral hygiene and behavioral problems[1]. Similarly in adults it may pose both esthetic and functional disturbing ailments, as it is known to alter the swallowing pattern, position of teeth, thus creating a plaque retaining niche and consequent periodontal tissue destruction, errors of bite, lingual dysfunction and anomalous oral habits[2,3]. The clinical appearance can vary from a thin elastic membrane to a thickened, white nonelastic tissue, thus making the estimation of prevalence rate almost impossible. Though the literature is replete with prevalence studies yet no standardized clinical criteria have been identified to correctly diagnose ankyloglossia. While Hogan et al. (2005)[4] identified cases of ankyloglossia as the ones in which the frenum extended to about 25-100% of the total tongue’s length, Griffiths (2004)[5] postulated a thick frenum with a heart-shaped tongue when protruded as diagnostic for the same. Kotlow LA[3] summarized his clinical research with a comprehensive classification to discuss the severity of ankyloglosia viz.

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1. Clinically acceptable, normal range of free tongue: greater than 16 mm
2. Class I: Mild ankyloglossia: 12 to 16 mm
3. Class II: Moderate ankyloglossia: 8 to 11 mm
4. Class III: Severe ankyloglossia: 3 to 7 mm
5. Class IV: Complete ankyloglossia: less than 3 mm

Structural guidelines were also developed by the author to assist in determining if the lingual frenum required revision. A normal range of motion of the tongue is indicated by the following criteria:

1. The tip of the tongue should be able to protrude outside the mouth without clefting.
2. The tip of the tongue should be able to sweep the upper and lower lips easily, without straining.
3. When the tongue is retruded, it should not blanch the tissue lingual to the anterior teeth.
4. The tongue should not place excessive forces on the mandibular anterior teeth.
5. The lingual frenum should allow a normal swallowing pattern.
6. The lingual frenum should not create a diastema between the mandibular central incisors.

A deviation from the above mentioned norms warranted a surgical revision of the frenum. According to Lalakea and Messner [6], incidence figures of ankyloglossia reported in literature vary from 2 to 4.8% and were observed to occur more commonly in males with a male to female ratio of 3 to 1 with no racial predilection. Studies report a larger incidence of independent occurrence, though some authors have also documented its occurrence in conjunction with various syndromes like Pierre-Robin syndrome, Opitz syndrome and Orodigitofacial syndrome[1,7].

Literature amply documents the dilemma faced by clinicians over the years regarding the timing and optimal technique for desired esthetic and functional results. In symptomatic cases however, frenectomy (complete surgical excision) and frenotomy (surgical repositioning) are the advocated treatment modalities employed according to the independent merits and informed choice of the patient under observation[8].

Case report:

A 20 year old female patient reported with a chief complaint of speech impairment in addition to the inability to chew and difficulty in deglutition.

On clinical examination, complete ankyloglossia (Class IV) with the lingual frenum extending within 3 mm of the tip of the tongue was observed (Fig 1).

![Fig.1 Ankyloglossia with short lingual frenum](image)

Morphologically, it was abnormally short and thick and the tongue appeared heart shaped upon protrusion (Fig 2). Functionally, the tongue was unable to protrude past the gum line and could not contact the palatal vault.
The patient and her parents had been informed by their dentist about the potential oral structural and functional impediments if appropriate treatment was not undertaken on time. Surgical apprehensions though made them decide against the same at that time; however the subsequent socio-psychological trauma experienced over the years drove them for definite surgical care.

The patient’s family and medical history were found to be non-contributory. Routine blood and urine investigations revealed normal findings. ENT and general physical examination revealed insignificant findings. Pre-surgically the patient was explained the treatment modality with potential risks and benefits and an informed consent was taken. Following topical anesthesia, local anesthetic infiltration was performed along the undersurface of the tongue. Once adequate anesthesia was achieved, the lingual frenum was clamped with a hemostat and relieving incisions were made (Fig 3).

The procedure was performed sequentially, taking into consideration the vital anatomical structures present in the vicinity. Following total release, suturing was done with 3-0 mersilk. Improved mobility of the organ was visible immediately after post intervention (Fig 4).

The patient was discharged with post operative instructions and was recalled after one week for suture removal (Fig 5).

The routine follow-up demonstrated uneventful healing with satisfactory mobility of the tongue.

Discussion:

Ankyloglossia inferior, is a relatively common congenital abnormality of lingual frenum. Sequelae of ankyloglossia encompasses errors in speech articulation including the expression of lingua-alveolar and lingua-dental consonants\textsuperscript{[9]}, inability to perform internal oral flushing and in severe cases it may even lead to open bite deformity\textsuperscript{[10]} and prognathism\textsuperscript{[11]}. Although the appropriate management of
Ankyloglossia has been much debated, there is currently a paucity of objective information regarding its incidence, natural history, and the need for and timing of treatment. Early operation on all patients may be unwarranted, but delay until the onset of symptoms may unnecessarily commit some patients to a period of rehabilitative speech therapy or social embarrassment.

Physicians often delay recommending treatment of a short lingual attachment in case of children below 3 years of age. The presence of a non-disturbing lingual frenum, however, does not justify its surgical section. The diagnostic and severity protocol as established by Kotlow LA can be used effectively as a guideline by the clinicians to identify the potential symptomatic cases of ankyloglossia. Surgical intervention followed by speech therapy in severe cases is advocated. The surgical technique employed in the current case neither requires the patient to be routinely admitted to a hospital nor the administration of general anesthesia. Considering the various merits offered by this simple yet efficacious surgical technique namely; safety, reduced treatment cost and treatment rendering time, it admittedly poses as a viable option among the various surgical protocols available for the symptomatic cases of ankyloglossia.

Conclusion:

Optimal management followed by speech therapy whenever indicated has the potential to deliver pleasing, satisfactory results to the patient in a short duration of time hence emphasizing further the importance of early diagnosis implementation of an efficacious treatment plan.

References: