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## CASE REPORT

### MANAGEMENT OF TONGUE TIE IN A 4 YEAR OLD CHILD USING ELECTROCAUTERY – A CASE REPORT

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#### ABSTRACT

Ankyloglossia or tongue-tie is a congenital anomaly which occurs as a result of short lingual frenum. It may restricts mobility of the tongue and even lead to various problems including difficulties in feeding, mastication, speech impairment, poor oral hygiene, malocclusion during childhood, adolescence and even adulthood. Here, we are presenting a case of a four year old patient who was diagnosed with moderate ankyloglossia which was treated by performing lingual frenectomy using electrocautery procedure.

##### Key Words:

Ankyloglossia, Electrocautery,  
Lingual Frenum.

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## INTRODUCTION

The word "ankyloglossia" means curved ("agkilos") tongue ("glossa"). It is a congenital anomaly characterized by an abnormally short lingual frenulum and the tongue is fused to the floor of the mouth as a result the mobility of the tongue is impaired<sup>1</sup>. The incidence of tongue tie is around 4.2 % and 10.7%, with a male to female ratio of 3:1. The severity varies from mild cases of mucous membrane bands to complete ankyloglossia whereby the tongue is fused to the floor of the mouth<sup>2</sup>. The consequences of ankyloglossia ranges from difficulties in breastfeeding during infancy to difficulty in mastication, speech difficulties in pronunciation of consonants, poor oral hygiene, gingival recession of mandibular anterior teeth, malocclusion, salivary profusion and difficulty in stability of mandibular prosthesis<sup>3</sup>. The cumulative effect of these barriers often has negative impact on self-esteem and confidence, and emotional or behavioural problems during childhood, adolescence and even adulthood.

This article presents a case report of diagnosis and management of ankyloglossia using electrocautery in a preschool child.

## CASE REPORT

A 4-year-old boy reported to the Department of Pediatric and Preventive dentistry presented with difficulty in speech and movement of the tongue. Intraoral examination revealed restricted tongue movements with short lingual frenum. When patient was asked to protrude his tongue, reduced movements were observed with inability to protrude the tongue to cover the lower lip completely and to touch incisive papilla on the palate. A V-shaped notch during protrusion was noted and child showed speech difficulties in pronouncing "t", "d", "l" etc (Fig 1-3). Measurement of the frenum was carried out with a divider and scale and it was 8.5mm which gave the diagnosis of class II ankyloglossia (Kotlow's classification). Lingual frenectomy was indicated under electrocautery and was conducted with parental consent. After antisepsis, local anesthesia was given on either side of the frenum. A suture thread was passed through the tongue tip for traction after applying topical anesthesia (Fig 4). An electrocautery unit was used (Fig 5) for the incision of lingual frenum (Fig 6).

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Fig 1. Limited upward extension of tongue



Fig 5. Electrocauterization unit and tips



Fig 2. V Shaped notch on the tip of the tongue on protrusion



Fig 6. Incision of lingual frenum done



Fig 3. Limited movement of tongue



Fig 7. Margins of the frenum undermined



Fig 4. Suture was passed through the tip of the tongue for traction



Fig 8. Immediate post op reveals free movement of tongue



**Fig 9. Three days post-operative view showed presence of slough in the operated site indicating healing process**



**Fig 10. Two weeks post-operative view showed complete healing of tissues**

Immediately after incision, attachment of muscle fibers were separated using finger pressure (Fig 7). There was no requisite for sutures. Analgesic was prescribed and tongue exercises were advised which includes physical therapy, stretching of the tongue toward the nose and then downward, to open the mouth widely and try to touch the upper front teeth, licking of the upper lip from one side to other and vice versa. Speech therapy was advised which has to be continued at least for 3 months. Postoperative period was uneventful. Tongue showed improved movement immediately after the treatment (Fig:8). Three days post-operative view showed presence of slough in the operated site indicating healing process (Fig 9). After two weeks complete healing of the tissue was noted with respect to the functional tongue (Fig 10).

## DISCUSSION

The Exact etiology of ankyloglossia is unknown. Familial ankyloglossia has been reported with X-linked and autosomal dominant inheritance with no TBX22 mutations. Certain syndromes associated with tongue tie are Van der Woude,

Beckwith-Wiedemann, Oral-facial digital syndrome, Ehlers-Danlos syndrome. Proper diagnosis and intervention of ankyloglossia at early stages are important, because various consequences ranging from restriction of tongue movement to impairment of mandibular growth may occur. It may cause breastfeeding difficulties in nursing mothers, poor milk transfer and nipple damage which may result in early weaning and low weight gain in babies. In preschool children, articulation of speech is the most common indications for lingual frenulum surgery<sup>4,7,8,9</sup>. Articulation of some of the tongue sounds- such as "t", "d", "l", "th" and "s" will not be accurate. Inappropriate chewing and swallowing of food can increase the chance of gastric distress and bloating, snoring and bed wetting at sleep in children with tongue tie. Dental caries can occur due to inefficient sweeping action on the teeth, malocclusions like open bite due to thrust created by tongue tie and tooth mobility due to long term tongue thrust can also occur<sup>8</sup>.

In normal condition, the attachment of frenum to the tongue should be approximately 1cm posterior to the tip and the frenum's attachment to the inferior alveolar ridge should be proximal to or into the genioglossus muscle which is present on the floor of the mouth. According to Kotlow, the term "free-tongue" is defined as the length of tongue from the insertion of the lingual frenum into the base of the tongue to the tip of the tongue. Kotlow's classification of tongue tie is as follows- Class I: Mild Ankyloglossia (12- 16mm), Class II: Moderate Ankyloglossia (8-11mm), Class III: Severe Ankyloglossia (3-7mm) and Class IV: Complete Ankyloglossia (Less than 3mm)<sup>1,12</sup>. The clinically acceptable, normal range of free tongue movement is greater than 16 mm. In our case, measurement of the free tongue was 8.5mm ie, Moderate ankyloglossia.

On clinical evaluation, Lingual frenum extended from tip of the tongue to alveolar ridge of the mandibular central incisors. There was a single cleft in the tip of the tongue when patient was asked to lift the tongue and the frenum was moderately elastic. The protrusion of the tongue limited just behind the vermilion border of lip and there was a v-shaped notch at the tongue tip. Various techniques have been suggested to manage patients with ankyloglossia like conventional frenectomy, electrocautery, and use of lasers<sup>2</sup>. Electrocautery involves currents, passed through the tissues of the body to achieve a controllable surgical effect. Using electrocautery for the present cases offered the advantages of minimal time consumption, reduced operator fatigue, hemostasis while cutting with no requirement of sutures. Improved visibility to the surgical site due to less bleeding during the procedure is an added advantage which in turn enhances the manipulation of tissue. Conventional method of frenectomy procedures using a scalpel is often accompanied by postsurgical pain and discomfort due to blood loss, wide surgical wound and necessity of suturing. Surgical intervention at early age reduces long-term complications. Electrocautery when compared to laser frenectomy, collateral tissue damage was less in electrocautery group. And also, the laser unit is more expensive than an electrocautery unit and the speed of treatment is faster with electrocautery. There is no need for safety eye glasses as in case of lasers<sup>3</sup>. The prime objective of electrocautery is to produce a clean incision and/or coagulation with minimal lateral heat<sup>5</sup>. But electrocautery carries some drawbacks like unpleasant odour, possibility of bone damage, dangerous in explosive environment, contraindicated in

pacemakers<sup>10</sup>. The case presented in this paper was treated with frenectomy using electrocautery which resulted in favourable treatment outcome and parent satisfaction with improved tongue movements and correction of speech problems.

### Conclusion

The consequences of ankyloglossia are reflecting in their function at different stages of life and many patients with ankyloglossia might not complain about the difficulty caused by it. Hence it is important to guide the parent/patient so that appropriate treatment at right time could be carried out for infants and children.

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