



### ANKYLOGLOSSIA TREATED USING SOFT TISSUE LASER: A CASE REPORT

Tapaswini Bag\*<sup>1</sup>, Laxmikanth Chatra<sup>2</sup>, Prashanth Shenai<sup>3</sup> and Veena K M<sup>4</sup>

<sup>1</sup>Senior lecturer, Department of Oral Medicine and Radiology, College Of Dental Science and Hospital, Devi Ahilya bai Vishwavidyalaya university, Indore, Madhya Pradesh, India.

<sup>2</sup>Senior Professor and head, Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka, India.

<sup>3</sup>Senior Professor, Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka, India.

<sup>4</sup>Professor, Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka, India.

**\*Corresponding Author: Dr. Tapaswini Bag**

Senior lecturer, Department of Oral Medicine and Radiology, College Of Dental Science and Hospital, Devi Ahilya bai Vishwavidyalaya university, Indore, Madhya Pradesh, India.

Article Received on 04/03/2017

Article Revised on 24/03/2017

Article Accepted on 14/04/2017

#### ABSTRACT

Ankyloglossia (AG) commonly known as tongue tie. This congenital anomaly characterised by an abnormal short lingual frenum attached to the floor of the mouth. Though the ankyloglossia is not a serious issue, but it may cause problems like feeding, difficulties, speech disorders and hamper the quality of life. Hence management of ankyloglossia should be considered at age which should include surgical management as frenectomy, frenotomy either by laser therapy or surgical excision. The purposes of this case report to describe about ankyloglossia, its management for the better clinical approach and improve the quality of life of the patient.

**KEYWORDS:** Ankyloglossia, Lingual frenectomy, Tongue –tie, Laser therapy.

#### INTRODUCTION

Ankyloglossia (AG) is Greek word, defined on the basis of inability to extend the tip of the tongue beyond the vermilion border of lips or a line joining the lip commissures along with speech impairment. It's also known as Tongue-tie. Frenum being short, muscular or fibrotic. The incidence of AG ranges from 0.02% - 4.8%. It is common in male as compared to female 3:1. There is no racial predilection. Here we have reported a case of a 10 years pediatric female patient who had severe restriction of her tongue movements; improper pronunciation. Patient had undergone frenectomy procedure by using soft tissue laser. Some of the experts categorically state that frenotomy should not be performed before 4 to 5 years of age.

#### CASE REPORT

A young female patient aged 10 years reported to the dental OPD with a chief complaint of difficulty in pronunciation of words and not be able to put her tongue out since childhood and also difficulty in speech since 5 years, it aggravates especially during speaking and reading. For the same reason, she consulted to dentist. There are no signs of discharge, bleeding, ulceration seen. [Figure 1] The past medical history was

non-contributory. Past dental history revealed that he had visited the dentist for the similar reason. Her personal history revealed she consumed mixed diet, tongue thrusting habit since childhood and patient oral hygiene was satisfactory. On oral examination, the patient was found to have short lingual frenum with restricted tongue movements. Frenal attachment: Inferior frenum attached to the lower border of tongue. [Figure 2] On palpation Lingual frenum was non-tender while retraction, no bleeding, protrusion of tongue resembles heart shape. [Figure 3] Frenal attachment: thin fibrous frenum which is approx 12 mm in diameter attached 1cm below tip of tongue. Measurement of frenum length: 12 mm, Mouth opening: 32 mm, 3 finger width: 35 mm. There was abnormal in frenal length. Based on history given by the patient and clinical examination Type-3 (Based on Anatomic Appearance) and Class - 1 (Distance of Lingual Frenum to The Tip of Tongue) Ankyloglossia was given as diagnosis. Patient was advised for surgical frenectomy of lingual frenum. Soft tissue laser was done under local anesthesia (frenectomy) followed by topical application of antiseptic gel Hexigel Ointment for 5 days. Patient was recalled after 5 days. [Figure 4 and 5] Partial healing was observed. The routine follow up at 4 weeks showed an extremely happy patient with improved tongue protrusion and normal speech.



Figure 1: Intra-oral examination of both upper and lower arch.



Figure 2: Patient showing Ankyloglossia.



Figure 3: Heart shape on tongue protrusion.

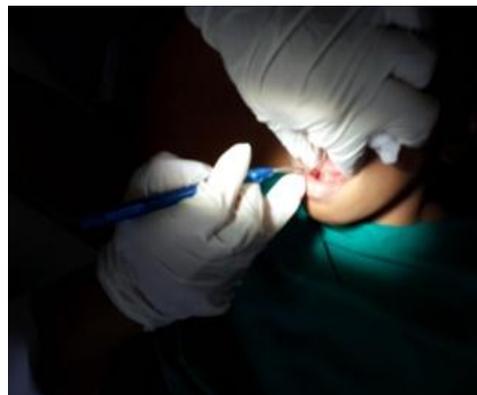


Figure 4: Frenectomy by soft tissue LASER.



Figure 5: Tongue elevation during recall visits after 5<sup>th</sup> and 7<sup>th</sup> day.

## DISCUSSION

Ankyloglossia represents a typical interdisciplinary problem concerning different specialities in dentistry. Studies have shown the association between AG and gingival recession of lower anterior teeth.<sup>[1,2,3]</sup> AG influences the mobility of the tongue (eating and speaking), oral hygiene of the patient. Due to restricted movements, patient exhibit speech difficulties in pronunciation of certain consonants. Speech defects include defects in the letters T, D, N and L in sounds and words such as ta,te,time,water,cat and unintelligibility of speech. Ankyloglossia results in jaw deformities such as mandibular prognathism, midline diastema, oral motor dysfunction and gingival recession. Ankyloglossia is a congenital anomaly characterised by an abnormally short lingual frenulum where tongue gets attached to the floor of mouth.<sup>[4, 9, 10]</sup>

### Clinical significance

Majority of cases of ankyloglossia resolve spontaneously / asymptomatic. It leads to difficulties in breast feeding, articulation problems, gingival recession, open bite and abnormal facial development. Patients have midline mandibular diastema. It was associated with speech abnormalities, especially lisping and articulation of the sounds: "l,r,t,d,n,th,sh and z". Various syndromes associated with Ankyloglossia Opitz syndrome, Orofacial digital syndrome, Beckwith-wiedemann syndrome, Fraser\*s syndrome, kindler syndrome, Vander Woude syndrome, X-linked cleft palate, Meckel syndrome.<sup>[6,15]</sup>

### Depending upon free tongue length, Ankyloglossia can be classified by Kotlow's 2004

- Normal range of free tongue >16mm
- Class 1: Mild ankyloglossia 12-16mm
- Class 2: Moderate ankyloglossia 8-11mm
- Class 3: Severe ankyloglossia 3-7mm
- Class 4: Complete ankyloglossia < 3mm

### Based on anatomical appearance, Ankyloglossia can be classified

- Type 1: frenum attaches to the tip of the tongue in front of alveolar ridge.
- Type 2: attaches 2-4 mm behind tongue tip and attaches on alveolar ridge.

- Type 3: attaches to the mid- tongue and mid floor of mouth, tight and less elastic, appear as "heart shape"
- Type 4: attaches against the base of the tongue

### Clinical Assessment

Inspection of the tongue and its functions at its first dental visit. Parents should be advised regarding presence and severity of AG and made aware of potential feeding, speech, dental problems. The clinician /dentist should examine the tongue appearance when it is lifted as the infant cries / tries to extend the tongue. While lifting, frenum should be palpated and its elasticity determined. Attachment of frenum to the tongue should be normally approx 1cm posterior to the tip.<sup>[14]</sup>

### Hazelbaker assessment tool for lingual frenum function (1998 version)<sup>[6,2,12]</sup>

#### Appearance parameter

Appearance of tongue when lifted:

- Score 2: round or square
- Score 1: cleft in tip of tongue
- Score 0: heart – shaped

### Attachment of lingual frenum to inferior alveolar ridge

- Score 2: attached to the floor of mouth
- Score 1: attached just below ridge
- Score 0: attached at ridge

### Treatment Approaches for Ankyloglossia

Frenectomy under anesthesia. Frenectomy is complete removal of frenum, including its attachment to the underlying bone and required for correction of abnormal diastema between maxillary central incisors. There are two techniques for frenectomy conventional technique and using soft tissue lasers.

### Complications

After frenectomy, it can cause infection, excessive bleeding, recurrence due to excessive scarring develops postoperatively, glossoptosis due to excessive tooth mobility, life threatening partial airway obstructions.

### Prognosis

To improve the quality of life of Ankyloglossia patient, a timely surgical management followed by speech therapy

is very important. Tongue-tie is a significant clinical entity, when symptomatic, should be treated as early as possible. Surgical treatment (LASER) is safe and effective.

## CONCLUSION

Tongue tie affects a considerable number of infants and children. All newborn infants should have an initial oral evaluation as early as birth. These case reports offer guidelines which can be used by general and pediatric dentists for diagnosis and treatment of a tongue restriction resulting from ankyloglossia.

## REFERENCES

1. Sedano HO, Crreon Freyre I et al. clinical and dental abnormalities in Mexican children. *Oral surg, oral med oral pathol*, 1989; 68: 300-311.
2. Kotlow LA. Ankyloglossia (tongue tie): a diagnostic and treatment quandary. *Quintessence int*, 1990; 30: 259-262.
3. Wallace AF. Tongue-tie. *Lancet*, 1963; 2: 377-378.
4. Shafer W, Hine M, Levy BM, Tomich CE. Developmental disturbances of oral and para oral structures. In: *A text book of oral pathology*. 4<sup>th</sup> ed. Philadelphia: Saunders, 2003; 2-85.
5. Williams WN, Waldron CM. Assessment of lingual function when ankyloglossia (tongue tie is suspected). *J Am Dent Association*, 1985; 110: 353-356.
6. L. A. Kotlow, "Ankyloglossia (tongue-tie): a diagnostic and treatment quandary," *Quintessence International*, 1999; 30(4): 259–262.
7. Entnet.org [Internet] American Association of otolaryngologist: head and neck surgery: fact sheet, 2012; <http://entnet.org/HealthInformation/Ankyloglossia.cfm>.
8. Mayur S. Bhattad, M. S. Baliga, and Ritika Kriplani. Hindawi Publishing Corporation; *Case Reports in Dentistry*, 2013; 1-6.
9. Neville Damm Allen Bouquot; *Oral and Maxillofac Pathology*. 2nd edition.
10. Regezi, Scuibba, Jordan. *Oral Pathology-Clinical Pathologic Correlations-2012*; 5th edition.
11. Sutter VG, Bornstein MM. Ankyloglossia: facts and myths in diagnosis and treatment. *Journal of Periodontology*, 2009; 80(8): 1204-19. (Abstract only).
12. NHS National Institute for Health and Clinical Excellence NICE, *Interventional procedures overview of division of ankyloglossia (tongue tie) in babies with difficulty breastfeeding*.
13. Brightman V, Greenberg Burket's oral medicine: diagnosis and treatment. 9<sup>th</sup> ed. Ontario: BC Decker, 2001; 240-298.
14. Burdick AB, Ma LA, Gao NN, Van Der Woude syndrome in two families in china. *J Craniofac Genet Dev Biol*, 1987; 7: 413-418.
15. Ewart NP. A lingual mucogingival problem associated with ankyloglossia: a case report *N Z Dent J*, 1990; 86: 16-17.