ANKYLOGLOSSIA: FROM TIED TO UNTIED- A CASE SERIES

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Abstract

Ankyloglossia is a congenital condition which shows the short, tight lingual frenum attached to the tip of the tongue. It also restricts the movement of tongue and causing difficulty in speech. Due to restricted movement of the tongue ankyloglossia also called "tongue tie". Lingual frenulum frenectomy is the only treatment option for the management of ankyloglossia. In this case series two cases of tongue tie were successfully treated by two different treatment modalities. In first case we used advanced technique diode laser for the frenectomy and the second case was treated by conventional surgical frenectomy. Laser technique has their benefits over the conventional surgical technique. Laser frenectomy less time consuming and provides bloodless field during and after the surgery and it also promote fast healing in comparison to conventional surgical frenectomy.

Key Words: Ankyloglossia, Tongue Tie, Lingual frenulum frenectomy, Laser frenectomy.

INTRODUCTION

The tongue is a muscular part of the oral cavity which plays an important role in speech. It helps in mastication and swallowing of the food. The tongue also affects the position of the teeth, periodontal tissue.[1] Ventral surface of the tongue attached to the floor of the mouth by frenulum. If this frenulum extends towards the tip of the tongue then it restricts the tongue movement, this condition we called "tongue tie". In other words tongue tie is the nonmedical term for a relatively common physical condition that limits the use of the tongue. The condition of the tongue in which tongue movement got restricted is actually called as ankyloglossia.[2] "Ankyloglossia" originates from the Greek words "agkilos" (curved) and "glossa" (tongue). Ankyloglossia is defined as a developmental anomaly of the tongue characterized by an abnormally short, thick lingual frenum resulting in limitation of tongue movement.[3] Wallace[4] defined tongue-tie as "a condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short frenulum linguae, often containing scar tissue." In this case series we discuss two cases of tongue tie in which one of the case is treated by diode laser and another was treated by the conventional surgical method of frenectomy.

CASE -1: Management of Ankyloglossia with Diode Laser

An 11 year old female patient reported to the department of Pedodontics and preventive dentistry, Jaipur with the chief complaint of difficulty in speech and impaired tongue movements. She was not able to touch the roof of her mouth with the tip of the tongue and facing difficulty in pronunciation of some words. On clinical examination (figure 1 & 2) it was observed that tongue movements were restricted and short lingual frenum was present. The patient was assessed for ankyloglossia and "free tongue length" was measured. According to Kotlow et al[2] criteria it was diagnosed as class II ankyloglossia with a free tongue length of 9mm. No relevant medical and family history was reported. There was no gingival recession in the lingual surface with respect to mandibular anteriors. LASER frenectomy[5] of the lingual frenum was planned and the patient was informed about the treatment procedure and informed consent was obtained. Routine blood investigation report was analyzed and was found to be within normal limits. Safety measures were taken for dentist, patient by wearing the recommended protective goggles.

Diode laser (figure 3 & 4) was used for frenectomy which showed minimal pain and healing was uneventful. After anesthetizing the lingual frenum locally, tongue traction was done with the help of a suture material. The diode laser beam was then applied lingually both laterally and vertically to the frenum to disrupt the mucosal continuity. Diode laser emitting 980 nm was used in continuous contact mode at 1.24 joules/second energy. Total time taken during the procedure was 5 minutes (figure 5). There was no bleeding present during the procedure and no post operative sutures were given. Follow up record showing improved tongue movement (figure 6).

Figure 1: Intraoral photographs

Figure 2: Ankyloglossia

Figure 3: Diode Laser Unit

Figure 4: Armamentarium

Figure 5: Surgical procedure: a) Local Anesthesia infiltration, b) Suture traction of the tongue, c) Intraoral picture during Laser surgery, d) Immediate post operative view.

Figure 6: One week follow up: a) healing of surgical site, b) improved tongue movement.

CASE -2: CONVENTIONAL SURGICAL LINGUAL FRENECTOMY

12 years old male patient reported to department of paediatric and preventive dentistry with chief complaint of difficulty in moving tongue inside and outside of the mouth. There was no relevant past medical and family history. Extra oral examination revealed that lower third of face showed increased length. Intra oral examination (figure 7 & 8) revealed constricted maxillary arch and spaced mandibular arch with mandibular anterior crowding. Clinical examination of tongue revealed short lingual frenum. Length of frenum from base of tongue was measured 7mm. it was classified in class III severe ankyloglossia of kotlow's classification. Hazel baker's[6] assessment tool was used to assess appearance and function of tongue (Table 1). Based upon this scale, score of 6 for appearance and 9 for function of tongue was obtained. Speech analysis of patient was done. Based upon clinical evaluation diagnosis of ankyloglossia was made. After patients and parents counseling, and written consent was obtained. Before performing conventional surgical frenectomy (figure 9) patient was admitted to the department on day care basis.

Figure 7: Intraoral photographs

Profound local anesthesia was obtained. Tongue was retracted with the help of suture material. Using scalpel and no. 15 surgical blade wedge shaped tissue was removed and hemostasis was achieved. Sutures were placed and patient was advised to practice good oral hygiene. Patient was recalled after 7 days (figure 10). Healing was uneventful. Sutures were removed. Patient was advised tongue exercises and was referred to speech therapist. At six months (figure 11) of follow up there was significant improvement in normal range of tongue movement and speech of the patient. As form follows function, there was reduction in crowding and better alignment of dentition in the arch. At nine months (figure 11) follow up following results were obtained.

Figure 8: Ankyloglossia

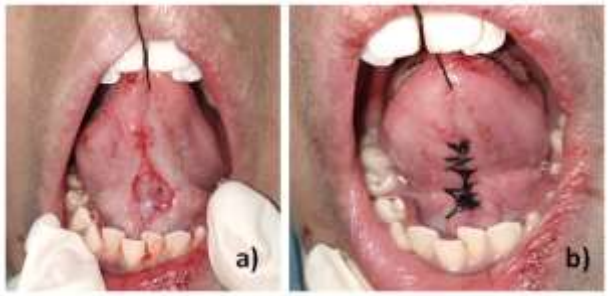

Figure 9: Conventional surgical lingual frenectomy: a) flame shaped incision of lingual frenum, b) suture at base of tongue.

Figure 10: One week follow up

Figure 11: Six months follow up

Table 1: Pre and Post operative characteristics of tongue tie.

Characteristics	Pre-operative score	Post-operative score
Free tongue movement	7 mm	15 mm
Kotlow's category	Class III (severe)	Class I (mild)
Hazel bakers's function score	9	14
Hazel baker's appearance score	6	9
Speech	Defective	Improvement
	speech	

DISCUSSION

In the anatomical definition of tongue tie or ankyloglossia we can include descriptive and absolute measurements. In the descriptions category extent of lingual frenulum were include foe example where it attached to tongue and where it attached to the inferior alveolar ridge. Description measurement also includes the frenulum elasticity and the tongue appearance uplifting movement. In the category of absolute measurements length of the lingual frenulum and free part of the tongue were measured. Lingual frenulum measurement was taken when the tongue is lifted upward direction. The part of the tongue measured as a free tongue length from anterior to the lingual frenulum attachment of ventral tongue surface to the tongue tip. [7].

According to wallace[4], functional definition includes it as a condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short frenulum.

Hazel bakers assessment tool[6] was used to assess the functional movement of the tongue as well as appearance of the tongue also determined by this tool. In this tool, scores are given to each movement of the tongue and appearance of the tongue. If the functional and appearance score is below 11 and 8, then surgical invention should be considered.

Lingual frenulum frenectomy is the only treatment option for the management of ankyloglossia. In this case series two cases of tongue tie were successfully treated by two different treatment modalities. In first case we used advanced diode laser for the frenectomy and the second case was treated by conventional surgical frenectomy. Laser technique has their benefits over the conventional surgical technique. Laser frenectomy less time consuming and provides bloodless field during and after the surgery and it also promote fast healing in comparison to conventional surgical frenectomy.

Tongue tie also affects the speech. Certain words which start from "I", "s", "d", "t" and "th" were asked to pronounce by the patient. The clinician should check the pre and postoperative pronunciation of these words and if they found any defective speech then they should refer the patient to the therapist for the speech therapy. Speech therapist advised some tongue exercise to guide the tongue muscle which helps in the speech modification. This exercises includes licking the upper lip, touching hard palate with the tip of tongue, and side-to-side movements should be explained to the patient for enhanced tongue movements.[8-12]

CONCLUSION

Tongue ties a simple congenital condition which affects number of infants/ children. This case series offers the surgical management of tongue ties by two methods; first bloodless and painless method in which we used diode laser and second conventional surgical frenectomy

method in which surgical blade used to perform the surgery. Both methods are equally effective but the result of diode laser was more acceptable in case of infant/ children because of its painless, bloodless and fast healing nature.

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