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MANAGEMENT OF ANKYLOGLOSSIA (USING DIODE LASER) :A CASE REPORT

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INTRODUCTION

Ankyloglossia, also known as tongue-tie, is a congenital anomaly characterized by an abnormal ,short lingual frenulum. Ankyloglossia can lead to speech disorders, poor oral hygiene and bullying during childhood and adolescence. after oral prophylaxis objective was to release the tongue tie which was causing problems in maintaining oral hygiene and speech difficulties.

speech problems can occur when there is limited mobility of the tongue due to ankyloglossia. the difficulties in articulation are evident for consonants and sounds like “s, z, t, d, l, j, zh, ch, th, dg” and it is especially difficult to roll an “r”.pioneers in the field of periodontology and maxillofacial surgery have suggested many techniques to manage patients with ankyloglossia. techniques include the use of a surgical blade, electrocautery, and lasers. diode lasers. they provide excellent wound sterilization along with hemostasis and reduced postoperative pain.

CASE REPORT

A 24 year old healthy male patient reported to the department of Periodontology and Oral Implantology of Dr D Y Patil School of dentistry with pain, red erythematous gingiva lingually due to improper oral hygiene maintenance in the region of 31,41 due to abnormal lingual frenum attachment.(FIGURE 1)

Intraorally it was seen that the patient had anklyloglossia (Class II) according to Kottlow’s assessment.(FIGURE2) The patient was able to protrude the tongue beyond the lower lips, pre-operatively it was 42mm from the corner of the mouth.(FIGURE 3)

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The patient was undertaken for a frenectomy procedure under local anesthesia 2% lignocaine hydrochloride 1:80,000, adrenaline by using Diode laser. Diode laser (980 nm) was used for the frenectomy procedure. the tip was initiated by firing it into a piece of cork at 2 W in a continuous mode. The diode laser was applied in a contact mode with focused beam for excision of the tissue the laser tip was moved from the apex of frenum to the base in a brushing stroke, cutting the frenum. the attachment of the frenum to the alveolar ridge was also excised to prevent any further tension on the gingiva. after excision, the area was cleaned. tongue movement was checked by protrusion to assess complete elimination of the frenum. no suturing was done(FIGURE 4); post operatively the protrusion of the tongue was assessed using a metallic scale. Protrusion of the tongue immediately post surgery was 52 mm (FIGURE 5) the patient was prescribed Tab Enzoflam twice a day for three days and was recalled after 1 week (FIGURE 6) and then after a month for follow up. (FIGURE 7)

DISCUSSION

Frenum is a fold of tissue or muscle connecting the lips, cheek, or tongue to the jawbone. It is also known as frenulum, frenulums, frenula, frenums, or frena. Ankyloglossia, commonly known as tongue tie, is a congenital anomaly characterized by an abnormally short/tight lingual frenulum, which restricts mobility of the tongue tip. Though the ankyloglossia or tongue tie is not a serious manifestation, it may lead to a host of problems including infant feeding difficulties, speech disorders, and various mechanical and social issues related to the inability of the tongue to protrude. Lingual frenectomy is advised for the management of ankyloglossia.

The incidence of ankyloglossia in various reports ranges from 0.02% to as high as 4.8% of termnewborns [1].

Etymologically, ‘‘ankyloglossia’’ originates from the Greek words ‘‘agkilos” (curved) and ‘‘glossa”

(tongue)[2]

The ankyloglossia can be classified into four classes based on Kotlow's assessment as follows: Class I, mild ankyloglossia 12-16 mm; class II, moderate ankyloglossia 8-11 mm; class III, severe ankyloglossia 3-7 mm; and class IV, complete ankyloglossia <3 mm.[3]

The pathogenesis of ankyloglossia is not known. Ankyloglossia can be a part of certain rare syndromes such as X-linked cleft palate[4]. Most often ankyloglossia is seen as an isolated finding inan otherwise normal child. Maternal cocaine use is reported to increase the risk of ankyloglossia to more than threefold [5]

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A significant association between frenal involvement and gingival recession has been reported in theliterature [6].

Diode lasers are compact and portable in design, with efficient and reliable benefits for use in soft tissue oral surgical procedure. Laser light is monochromatic, coherent, and collimated; therefore, it delivers a precise burst of energy to the targeted area. Histologically, laser wounds have been found to contain significantly lower number of myofibroblasts .[7]

This results in less wound contraction and scarring, and ultimately improved healing. Laser-assisted frenectomy provides better postoperative perception of pain and function than with the scalpel technique.[8]

Laser-assisted lingual frenectomy is easy to perform with excellent precision, less discomfort, and short healing time compared to the conventional technique. Patient was comfortable and there wasabsolutely no bleeding.

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 tissues lingual to the anterior teeth; and
4. The lingual frenum should not create a diastema between the mandibular central incisors.

Therefore, management of ankyloglossia should be considered at any age depending on thepatient's history of speech, feeding, mechanical or social difficulties. [9]

Post-operative exercises[10] following tongue-tie surgery were not intended to increase musclestrength, but to: i) Develop new muscle movements, particularly those involving tongue-tip elevation and protrusion, inside and outside of the mouth, ii) Increase kinaesthetic awareness of the full range of movements the tongue and lips can perform, iii) Encourage tongue movements related to cleaning the oral cavity, including sweeping the insides of the cheeks, fronts and backs of the teeth, and licking right around both lips.

CONCLUSION

Diode laser prevents bleeding and swelling and is associated with minimal or no postoperative pain. thus, use of diode laser in soft tissue surgical procedures can be considered asbeneficial and comfortable to the patient

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FIGURE 1 A: PRE-OPERATIVE VIEW

FIGURE 1 B: PREOPERATIVE VIEW

FIGURE2: KOTTLOWS ASSESSMENT 10mm (MODERATE ANKYLOGLOSSIA)

FIGURE 3: PRE OPERATIVE VIEW EXTENSION OF TONGUE 42mm

FIGURE 4: COMPLETION OF FRENECTOMY USING DIODE LASER

FIGURE 5: POST OPERATIVE VIEW OF EXTENSION OF TONGUE 52mm

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FIGURE 6: 1 WEEK FOLLOW UP

FIGURE 7: 1 MONTH FOLLOW UP