ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 11, pp.42390-42393, November, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A LEARNING CURVE IN MANAGEMENT OF ANKYLOGLOSSIA – A PROSPECTIVE SERIES OF 25 CASES

***,[1]Shilpi Tiwari, [2]Sudhakar Reddy and [3]Nandlal, B.**

[1]Reader, Peoples College of Dental Sciences, Bhopal
[2]Reader, Rajeev Gandhi Dental College, Bangalore
[3]Professor, JSS Dental College, Mysore

ARTICLE INFO

Article History:
Received 15th August, 2016
Received in revised form
30th September, 2016
Accepted 15th October, 2016
Published online 30th November, 2016

Key words:

Ankyloglossia, Lingusl Frenum,
Frenectomy.

ABSTRACT

Ankyloglossia (more commonly called "tongue-tie") is a congenital anomaly characterized by an abnormally short lingual frenum, which may restrict tongue tip mobility. Ankyloglossia in the pediatric age group is a subject of ongoing controversy among various professional individuals as well as specialty groups. Oral surgeons, pediatricians, speech therapists, Otolaryngologists and lactation consultants may all voice different opinions regarding the various aspects of ankyloglossia (AG). This prospective case series on 25 children is designed to throw a light on the important aspects related to tongue tie in a simplified manner, thus helping dental practitioners to effectively and efficiently deal with this condition.

Citation: Shilpi Tiwari, Sudhakar Reddy and Nandlal, B. 2016. "A learning curve in management of ankyloglossia – A prospective series of 25 cases", *International Journal of Current Research*, 8, (11), 42390-42393.

INTRODUCTION

Ankyloglossia (more commonly called "tongue-tie") is a congenital anomaly characterized by an abnormally short lingual frenum, which may restrict tongue tip mobility (Lalakea and Messner, 2003). Etymologically, "ankyloglossia" originates from the Greek words ''agkilos" (curved) and ''glossa" (tongue) (Suter and Bornstein, 2009). It can be observed in neonates, children, or adults (Lalakea *et al*., 2003) and it is associated with various syndromes like Smith-Lemli-Opitz syndrome, Orofacial digital syndrome, Beckwith Weidman syndrome, Simpson-Golabi-Behmel syndrome and X linked cleft palate (Darshan and Pavithra, 2011). Ankyloglossia can affect feeding, speech, and oral hygiene as well as have mechanical/social effects (Lalakea *et al*., 2003). An infant with AG may experience difficulty latching on to the nipple and may compress the nipple against the gum pad instead of the tongue, resulting in nipple pain and an inefficient, inadequate seal (Messner and Lalakea, 2000). Ankyloglossia in the pediatric age group is a subject of ongoing controversy among various professional individuals as well as specialty groups. Differences of opinion regarding its definition, clinical significance, need for surgical therapy and timing of treatment may all be found in literature. Oral surgeons, pediatricians, speech therapists, Otolaryngologists and lactation consultants may all voice different opinions regarding the various aspects of ankyloglossia (AG) (Ari Kupietzky and Eyal Botzer, 2005). Thus the aim of this study is to describe step by step management of ankyloglossia in a simplified manner.

****Corresponding author: Shilpi Tiwari,***
Reader, Peoples College of Dental Sciences, Bhopal

PATIENTS AND METHODOLOGY

Twenty five children diagnosed with ankyloglossia and needed surgical management were treated by surgical frenectomy procedure (Table 1). Inclusion criteria was children aged 6 to 15 years with free tongue length of less than 16 mm. Exclusion criteria was medically compromised children and children with involvement of audio logical or neurodevelopmental factors. General characteristics of the patients, presenting sign and symptom (Table 2), and rates of recurrence (Table 3) were studied. Intraoral examination was done and length of free tongue was determined by placing a dental instrument at the insertion point and approximating the tip of the tongue. A boley gauge is then used to measure this distance. Based on free tongue length all the cases were classified under kotlow's classification preoperatively (Lawrence A. Kotlow, 1999). Looking into the minor nature of the surgery and significant potential of problems associated with ankyloglossia surgical frenectomy was planned for these cases.

Procedure for frenectomy

A written informed consent was taken prior to start of procedure. Routine blood investigations were carried out. Under all aseptic conditions Local anesthetic (2% lignocaine hydrochloride and 1:80,000 adrenaline) was administered which included bilateral lingual nerve block along with local infiltration. Tongue traction suture was given to improve visibility, control and stabilization of tongue during procedure. Two hemostats were placed. One was at the anterior attachment of frenum to the tongue and second at the inferior attachment to the ridge. Then a cross diamond shaped incision was made along the edges of both hemostats. Sub mucosal dissection on either side to undermine lingual and sublingual mucosa was carried out. Complete care was taken to avoid damage to submandibular duct orifice. Interrupted sutures were placed (3-0 black silk) in vertical manner (Malik, 2002). Antibiotics and analgesics were prescribed to prevent post-operative infection and pain. The favorable outcome of the procedure was apparent immediately and the extent of release could be assessed during the intervention itself. No major intra-operative or immediate post-operative complications were noted. Complete step by step frenectomy procedure is depicted in Fig. 1.

Follow up: Mean follow up period was kept one year for all cases. Sutures were removed after 1 week .After one week patients were sent for speech therapy sessions and post operative exercises were advised. Further follow up was done at 1 month, 3 month, 6 month, 12 month and patients were noticed with improved speech, free tongue movement and protrusion several mm beyond the lower lip.

Post Operative Exercises

The following exercises were advised (Gohil Meera *et al*., 2013)

i) Stretch the tongue up towards the nose, then down towards the chin and repeat,
ii) Open the mouth widely and touch the big front teeth with the tongue with mouth still open, iii) Shut the mouth and poke it into left and right cheek to make a lump: for 3 to 5 minute bursts, once or twice daily for 3 or 4 weeks post-operatively.

The purpose of post operative exercises following tongue tie is (Tuli and Singh, 2010)

1. To develop new muscle movements, particularly those involving tongue-tip elevation and protrusion, inside and outside of the mouth.
2. To increase kinesthetic awareness of the full range of movements the tongue and lips can perform. In this context, kinesthetic awareness refers to knowing where a part of the mouth is, what it is doing, and what it feels like.
3. To 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.

RESULTS

This prospective study was carried out on 25 children aged 6 to 15 years diagnosed with ankyloglossia (Table 1). Out of 25 children 17 were males and 8 were females, that showed high predilection of ankyloglossia in male patients. The main reported symptoms for these patients were difficulty in speaking (13), mechanical problems (07) and esthetics /social issues (03) (Table 2). Clinical examination for all patients was done and they were classified according to kotlow's classification (Table 3&4). All patients underwent surgical frenectomy. No major intra-operative or immediate post-operative complications were noted. Minor immediate post-operative complications were Hematoma in the floor of the mouth, Pain and Restricted tongue movements (Table 5). Mean follow up period was 1 year. There were no cases of recurrence except in one case of kotlow's class II in which revision was done again due to restricted tongue movement (Table 4).

Table 1. Patients data in relation to their age

Age range	No. of patients (%)
0-5 YEAR	0 (0%)
6-10 YEAR	15
11-15 YEAR	10
16-20 YEAR	0 (0%)
>20 YEARS	0 (%)

Table 2. Reported symptoms of ankyloglossia

Associated problem	No of patients (%)
Difficulty in speaking	14 (56%)
Mechanical problems	0 8 (32%)
Esthetics and social issues	03 (12%)

Table 3. KOTLOW'S Classification of Ankyloglossia

Clinically acceptable, normal range of free tongue=>16 mm
Class I: mild ankyloglossia=12-16 mm
Class II: moderate ankyloglossia=8-11 mm
Class III: severe ankyloglossia=3-7 mm
Class IV: complete ankyloglossia=<3 mm

Type 4. Ankyloglossia type with recurrence

Kotlow's Class	NUMBER OF patients	Recurrence
Class I	05	00 (0%)
Class II	08	01 (12.5%)
Class III	12	00 (0%)
Class IV	00	00

Table 5. Post operative complications after frenectomy

S.No.	Post operative complications	No of patients (%)
1	Hematoma in the floor of the mouth	0 2 1- class II 1- Class III
2	Pain	05 2- (Class II) 3-(Class III)
3	Restricted tongue movements	1- (CLASS II)
4	Partial dysplasia	00 (0%)

DISCUSSION

AG incidence varies from 0.02% to 5%, depending on the study, definition of AG, and population examined (Ballard *et al*., 2002; Messner and Lalakea, 2000). It is more common in males than in females (Morowati *et al*., 2010). Similarly in our study incidence of ankyloglossia in males is more than in females with 2.1:1 male to female ratio. AG is the result of a failure in cellular degeneration leading to a much longer anchor between the floor of the mouth and the tongue (Messner and Lalakea, 2000). The possible Sequelae of AG remain

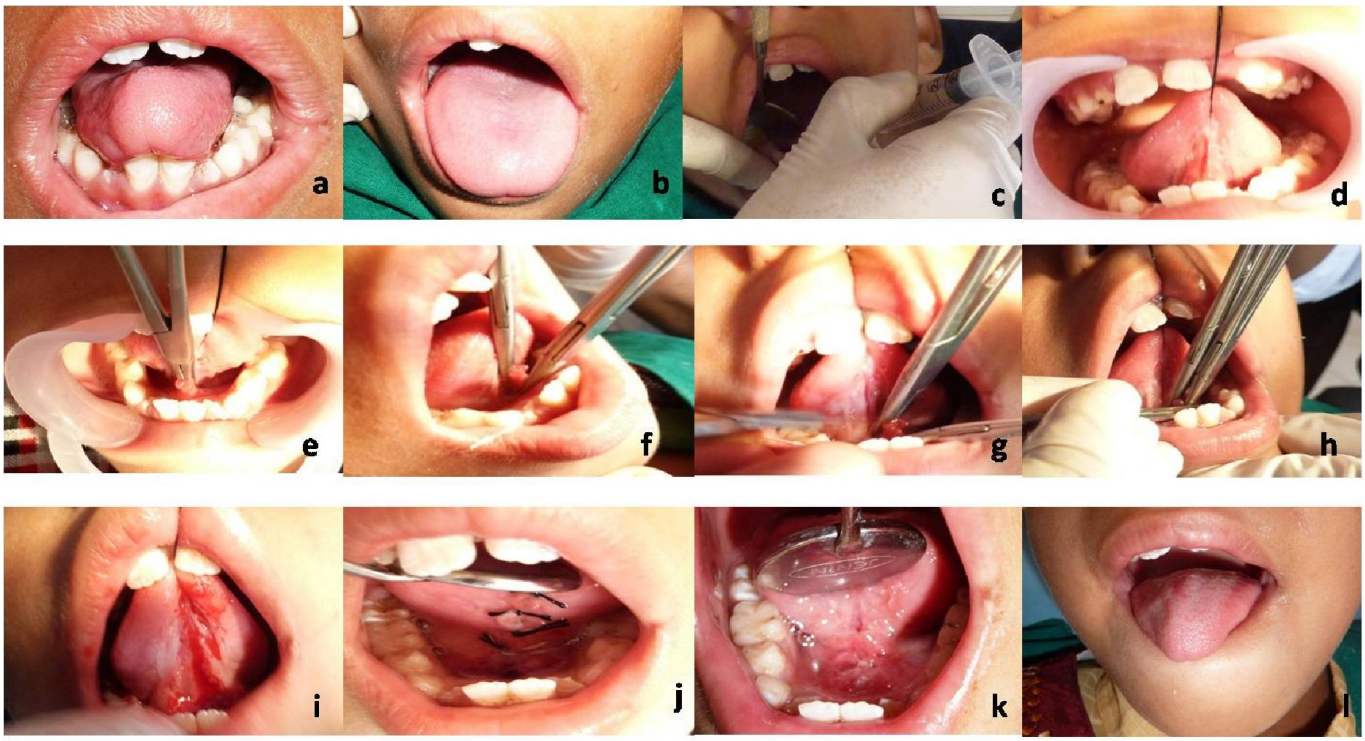

Fig 1-a &b) preoperative intra oral view showing limited tongue movement ,c-Bilateral Lingual Nerve Block With Local Infiltration d) Tongue Traction Suture Placed, e) 1st Hemostat Placed At Anterior Attachment Of Frenum To Tongue , f) 2nd Hemostat Placed At Inferior Attachment To The Ridge, g) Incision Along The Edge Of First Hemostat, h) Incision Along The Edge Of Second Hemostat , i) Cross Diamond Incision Made ,j) Interrupted Suture Placed, k) post operative picture after one week showing healing wound , l) free movement of tongue after surgery.

controversial, and the range of suggested complications is great, the more common ones include difficulty in feeding and speech (Lalakea M. Lauren and Messner, Anna, 2003). It can also prevent the tongue from contacting the anterior palate. This can then promote an infantile swallow and hamper the progression to an adult-like swallow which can result in an open bite deformity. It can also result in lower incisor deformity and mandibular prognathism, this happens when the tongue contacts the anterior portion of the mandible with exaggerated anterior thrusts (Gohil Meera *et al*., 2013). There is a significant association between gingival recession and ankyloglossia (Trott and Love, 1966). Beyond these children may be teased by their peers for their anomaly. Social issues include the inability to lick ice-cream, play a musical wind instrument, and even kiss (Ari Kupietzky and Eyal Botzer, 2005). When looking into minor nature of the surgery and potential Sequelae of AG, it may be appropriate to consider surgery for children with significant tongue tie at any age including infants, toddlers and young adults. Also there is no way to predict which children going to develop symptoms and which may outgrow their condition. Though early intervention in many cases may be unwarranted but delaying intervention until obvious difficulties emerge may unnecessarily lead some children to face social embarrassment and additional speech therapy sessions. There are various Treatment modalities for treatment of tongue ties such as Observation, speech therapy, frenotomy, frenectomy, z plasty, laser surgery and electrocautery (Heller *et al*., 2005). The cases presented in this paper were treated with surgical frenectomy procedure. A wide range of complications has been suggested in literature for frenectomy procedure. Intra-operative complications of frenectomy procedure include injury to superior alveolar nerve and injury to Wharton's duct while post operative complications include hematomas in the floor of mouth, pain, restricted tongue movements, partial dysplasia. Among these in our cases Minor immediate post-operative complications noted were Hematoma in the floor of the mouth, Pain and Restricted tongue movements.

Conclusion

Tongue tie or ankyloglossia is a common condition affecting infants and children. The condition is controversial with diversity of opinions on its various aspects including its clinical assessment and management. This paper was designed to throw a light on the important aspects related to tongue tie in a simplified manner, thus helping dental practitioners to effectively and efficiently deal with this condition. Nevertheless, it's very important that exact and accurate information should be given to parents and caretakers regarding potential sequel and benefits of timely management.

REFERENCES

Ari Kupietzky. Eyal Botzer. 2002. Ankyloglossia in the Infant and Young Child: Clinical Suggestions for Diagnosis and Management. *Pediatric Dentistry*, 27(1):40-46.

Ballard JL, Auer CE, Khoury JC. 2002. Ankyloglossia: Assessment, incidence, and effect of frenuloplasty on the breast-feeding dyad. *Pediatrics*, 110:e63.

Darshan, H.E., P.M. Pavithra. 2011. Tongue Tie: From Confusion to Clarity-A Review. *International Journal of Dental Clinics*, 3(1): 48-51.

Gohil Meera, Padhiyar Navneet, Gohil Ankit. 2013. Surgical Management of Ankyloglossia. *Journal of Research in Medical and Dental Science*, 1(2):77-79.

Heller J, Gabbay J, O'Hara C, Heller M, Bradley JP. 2005. Improved ankyloglossia correction with four-flap Z-frenuloplasty. *Annals of Plastic Surgery*, 54(6):623.

Lalakea M. Lauren, Messner, Anna H. 2003. Ankyloglossia: The adolescent and adult perspective. *Otolaryngology – Head and Neck Surgery*, 128:746-752.

Lalakea ML, Messner AH. 2003. Ankyloglossia: Does it matter? *Pediatr Clin North Am*., 50;381-397.

Lawrence A. 1999. Kotlow. Ankyloglossía (tongue-tie): A diagnostic and treatment quandary. *Quintessence International*, 30(4):259-262.

Malik N. 2002. Text book of oral and maxillofacial surgery, first edition, New Delhi, Jaypee brothers medical publisher, 39.

Messner AH, Lalakea ML. 2000. Ankyloglossia: Controversies in management. *Int J Pediatr Otorhinolaryngol*, 54:123-131.

Messner AH. And Lalakea ML. 2000. Ankyloglossia: Incidence and associated feeding difficulties. *Arch Otolaryngol Head Neck Surg*., 126:36-39.

Morowati S, Yasini M, Ranjbar R, Peivandi AA, Ghadami M. 2010. Familial ankyloglossia (tongue-tie): A case report. *Acta Med Iran*, 48(2):123–4.

Suter VGA and Bornstein MM. 2009. Ankyloglossia: Facts and Myths in Diagnosis and Treatment. *J Periodontol*., 80:1204-1219.

Trott JR. and Love B. 1966. Ananalysis of localized gingival recession in 766 Winnipee High School students. *Dent Pract Dent Rec*., 16:209-213.

Tuli A. and Singh A. 2010. Monopolar diathermy used for correction of ankyloglossia. *J Indian Soc Pedod Prev Dent*., 28:130-133.

****