

THE TREATMENT OF ANKYLOGLOSSIA WITH FRENECTOMY: CASE REPORT*

ANKİLOGLOSSİNİN FRENEKTOMİ İLE TEDAVİSİ: OLGU SUNUMU*

Arş. Gör. Dt. Ebru SAĞLAM*

Arş. Gör. Dt. Nesrin SARUHAN**

Yrd. Doç. Dr. Gülnihal EMREM DOĞAN*

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ABSTRACT

Ankyloglossia, generally known as tongue-tie. It is a congenital anomaly that may cause feeding and speech problems. Surgical intervention involves frenotomy, frenectomy or frenuloplasty options. In this presented case, we have aimed to reported a male with ankyloglossia who had speech problem was treated with frenectomy.

A 14 year-old male patient who had orthodontic treatment for class III malocclusion was referred in our department with difficulty in speech. The patient who had Class IV ankyloglossia according to Kotlow's classifying assessment method was treated with a frenectomy and was referred for speech therapy. Frenectomy is a quite safe and efficient procedure used to release the tongue.

Key Words: Ankyloglossia, Treatment

ÖZET

Ankiloglossi; genellikle dil bağı olarak bilinir. Beslenme ve konuşma problemlerine neden olan konjenital bir anomalidir. Cerrahi girişimler; frenotomi, frenektomi ve frenuloplasti seçeneklerini içermektedir. Bu vaka raporunda, konuşma problemi olan ankiloglossili erkek hastanın frenektomi ile tedavisini sunma amaçlanmaktadır.

Class III maloklüzyon için ortodontik tedavi gören 14 yaşındaki erkek hasta konuşma güçlüğü ile bölümümüze başvurmuştur. Kotlow sınıflandırma metoduna göre Sınıf IV ankiloglossisi bulunan hasta frenektomi ile tedavi edildi ve konuşma terapisine yönlendirildi. Frenektomi dilin serbestleştirilmesinde kullanılan oldukça güvenli ve etkili bir prosedürdür.

Anahtar Kelimeler: Ankiloglossi, Tedavi

INTRODUCTION

"Ankyloglossia" take it's source from "agkilos" (curved) and "glossa" (tongue) etymologically. This term is also used for different clinical situations: When the tongue is fused to the floor of the mouth, but also if the lingual frenulum is only short and thick with mild impairment of tongue mobility. The first use of the term ankyloglossia dates back to the 1960s, when Wallace 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."¹ In the literature, the prevalence of ankyloglossia reported range from 0.1% to 10.7%.²

Free tongue is described as the distance between the tip of the tongue and junction of lingual frenulum into the floor of the mouth. Clinically, normal value of free tongue is greater than 16 mm. According to Kotlow's observation, ankyloglossia can be four types depending on clinically available free tongue (protrusion of tongue).

Kotlow's Classification

Type	Tongue Movement
Clinically acceptable, normal value of free tongue movement	>16 mm
Class I: Mild ankyloglossia	12 to 16 mm
Class II: Moderate ankyloglossia	8 to 11 mm
Class III: Severe ankyloglossia	3 to 7 mm
Class IV: Complete ankyloglossia	< 3 mm

*Department of Periodontology, Ataturk University Faculty of Dentistry

**Department of Oral and Maxillofacial Surgery, Ataturk University Faculty of Dentistry

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Here, we present a case which is Class IV ankyloglossia according to Kotlow's classifying assessment method and its treatment with frenectomy using scalpel.

CASE REPORT

A 14 year-old male patient with ankyloglossia who had orthodontic treatment for class III malocclusion was referred our department with difficulty in speech. Clinically, the patient presented a thick and short lingual frenulum with anterior insertion. On intraoral examination, it was found that the individual had ankyloglossia classifying as Class IV according to Kotlow's (Fig. 1-2).



Figure 1. Pre-operative view shows extension of tongue

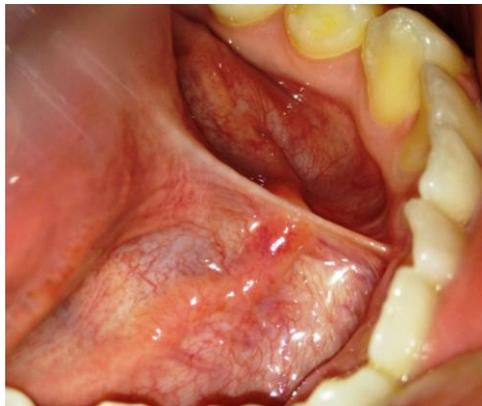


Figure 2. Pre-operative lateral view shows ankyloglossia

Frenectomy operation was made using a scalpel method under local anesthesia. After extraoral and intraoral antiseptics, the bilateral lingual nerve blocks and local infiltration in the anterior area were performed with 2% lidocaine with 1:100,000 epinephrine. A 3-0 silk suture on the tip of the tongue was used for traction. The frenulum was held with a small curved hemostat with the convex curve facing the ventral surface of the tongue. The first incision was made with a #15c blade following the curvature of the hemostat, cutting through the upper aspect of the frenulum. The second incision was made at the lower aspect of the frenulum, fairly close to the floor of the mouth. The frenulum was excised, leaving a diamond-shaped wound (Fig. 3). Connective tissue and muscle fibers where floor of mouth coupled with the tongue were cut a little with scissors and tension was removed, so that tongue was dissected. The wound margins were undermined with the tips of blunt-ended dissecting scissors. Then with hemostat, we released the muscle fibers so as to achieve a good tension free closure of the wound edges after which the wound edges were approximated with (3-0) black braided silk sutures for the tissues to heal by primary intention thereby minimizing the scar tissue formation (Fig. 4).

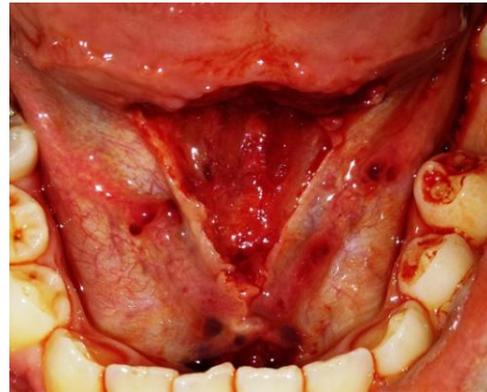


Figure 3. Intraoral image of excised frenulum



Figure 4. Primary closure



Figure 6. Post-operative 3 months

The postoperative period was uneventful with no delayed hemorrhage. Sutures were removed after 1 week which showed no scar tissue formation following which the patient was sent for speech therapy sessions. After 1 month from frenectomy free tongue was measured 13 mm. Thus, Class IV ankyloglossia was became Class I according to Kotlow's classifying assessment. After 3 months follow-up the tongue showed good healing and improvement was observed in speech (Fig. 5-6). The follow up of the patient keeps going.



Figure 5. Post-operative view shows adequate extension of tongue

DISCUSSION

Ankyloglossia is a congenital anomaly which is characterized by a short lingual frenulum is seen rare.^{3, 4} Clinically, the term has been used to describe different situations, such as a tongue that is fused to the floor of the mouth as well as a tongue with impaired mobility due to a short and thick lingual frenulum.⁵ The ankyloglossia affects tongue mobility, making both feeding and speech more difficult.⁶⁻⁸ When there is limited mobility of the tongue due to ankyloglossia speech problems can occur. The difficulties in articulation are evident for consonants and sounds like "s, z, t, d, l, j, zh, ch, th, dg,"^{9, 10} and it is particularly difficult to roll on "r"^{11, 12}

The exact cause of ankyloglossia is unknown, although it is likely to be due to abnormal development of the mucosa covering the anterior two-thirds of mobile tongue.⁸ Free tongue is described as the distance between the tip of the tongue and junction of lingual frenulum into the floor of the mouth.^{13, 14} Clinically acceptable normal value of free tongue is known to be 16 mm or more.¹⁵

There was a family history of ankyloglossia in up to 25% of patients, most concerning first-degree relatives. Genetics play an important role in this condition. Ankyloglossia can be seen in isolation or associated with syndromes such as Ehlers-Danlos, Beckwith-Wiedemann, Simosa, and orofaciogigital syndrome. The higher prevalence in males, along with genetic studies suggest a pattern of X-linked inheritance.^{16, 17}

The abnormal lingual frenulum can be classified as:

- 1. Anterior:** this category of frenulum has an anterior attachment near the tip of the tongue in the inferior surface of the tongue. Its position affects tongue mobility as well as the production of some sounds such as the alveolar tap.
- 2. Short:** its extension is short, and has greater impact on the tongue posture since the tongue remains on the floor of the mouth. In these cases, speech may be commonly produced with less extensive amplitude of movement of the articulators.
- 3. Short and anterior:** this type is less commonly found in the population. It yields greater impact on speech, since the tongue remains on the floor of the mouth and the movement of the anterior part of the tongue is restricted.^{12, 18}

Surgical techniques for the therapy of ankyloglossia can be classified into three procedures. Frenotomy is a simple cutting of the frenulum. Frenectomy is defined as complete excision, i.e., removal of the whole frenulum. Frenuloplasty involves various methods to release the tongue-tie and correct the anatomic situation.⁵ A possible corrective intervention is known as frenectomy, a quite safe and efficient procedure used to release the tongue and improve its lingual functions.^{19, 20} The most common indications of frenectomy are speech/articulation problems (64%), restricted movement (18%), and lactation/nourishing problems (8%).²¹

CONCLUSION

Tongue mobility can be supplied and speech problems can be solved following surgical interventions with frenectomy in ankyloglossia. Frenectomy with conventional method using scalpel is a relatively straightforward, safe, and cost-effective procedure with very low complication rates and speech therapy is a must if release of tongue-tie is done in adulthood.

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Yazışma Adresi

Dt. Nesrin SARUHAN
Atatürk Üniversitesi, Diş Hekimliği Fakültesi,
Ağız, Diş ve Çene Cerrahisi A D. Erzurum
Fax: 090 442 236 09 45
Tlf: 090 442 231 17 47
e-mail: dt_nesrin@yahoo.com

