

OBTURATING A PRESSURE DRAINING DEFECT OF HARD PALATE

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Submitted on: January 2015
Accepted on: January 2015
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Abstract: Skeletal defects of the oral cavity are commonly associated with deficient development and are commonly encountered as clefts in dental practice. The level of abnormality in such events may order from mild to extreme and with progress in dental surgery and Prosthodontics are successfully corrected/ rehabilitated presently. However, there are rare occurrences where the defect is so mild that it affects a miniscule of a particular function, thereby resulting in neglect by the patient. This article describes one such case of a cleft palate where due its miniature size affected the power of sucking by the patient. Successful closure of such defect with obturator prosthesis has also been described.

Keywords: *sucking, pressure, suction, atmospheric pressure, obturator*

1. Introduction

Sucking is the ability to draw a liquid into the mouth by movements of the tongue and lips that create suction. A reflex that is inherited in human beings, yet so unimportant unless affected by developmental anomaly. Being a precursor to mastication, sucking is an important aspect of child feeding and for adults it may have either mild or severe repercussions depending upon the condition. Sucking besides facilitating feeding in the neonatal period is also an important determinant of facial growth in terms of shape and size.¹⁻⁷ Transition to adulthood emphasizes development of proper mastication and

deglutition although sucking continues to play its role in consuming liquids. Feeding difficulties in adults on the other hand have been associated mainly with cleft palate and in non-syndromic cases; the underlying problem is thought to be failure to generate negative intraoral pressure (suction) during feeding. 8, 9 rarely these clefts are so miniaturized that they hardly pose any problems in feeding except minor nasal regurgitation of orally consumed drinks that are freely flowing. Viscous liquids on the other hand may or may not leak into nasal cavity. Physiologically, irrespective of their size they do not allow to build sufficient intra oral negative pressure to allow an

individual to suck. This article presents a case of miniaturized cleft palate that caused problems in suction of liquids and was successfully corrected by an obturator.

Clinical Report

A male patient in his early twenties was referred to the department of Prosthodontics with a history of childhood cleft of the palate. Associated with chief complaint was the patient's inability to drink soft drinks using a piece of a straw; however, he had no difficulty when drinking without it. History of present illness revealed that the patient had not suffered from any feeding problems in childhood. Medical and dental histories were nonsignificant. Extra oral examination revealed bilaterally asymmetric faces with

right side cheek and molar contours affected and slightly depressed. Intra oral examination disclosed a severely constricted maxillary arch, especially in the region of premolars (**Fig. 1A**). Close clinical examination revealed exaggerated palatine rugae in the anterior region with slightly inflamed tissue. Upon reflection of the tissues a small cleft was seen that was hardly about 2 to 3 mm in diameter. The soft tissue around the opening was inflamed with highly sensitive mucosa. The patient had porcelain fused to metal four units fixed partial denture in relation to maxillary anteriors fabricated about 1 year back. Treatment plan included oral prophylaxis,



Figure 1: (A) Intra oral view of the miniature cleft (B) Diagnostic casts (C) Acrylic plate with three wrought wire clasps (D) Obturator in place

Followed by the fabrication of a definitive obturator that would be retained by wrought wire clasps.

Preliminary impressions using irreversible hydrocolloid (CA 37; Cavex, Haarlem, Holland) were made and a cast was poured into it (**Fig 1B**). After surveying the diagnostic casts, the design of the obturator was finalized and included three wrought wire clasps (1 bell pin clasp and two 'c' clasps) engaging favorable undercuts on the buccal surface of posterior teeth. The position of the clasps was determined by esthetics and the presence of favorable

undercuts. Wax pattern was made on the palatal surface of the cast, which was then later replaced by the heat cure acrylic resin (DPI, India) (**Fig 1C**). After necessary trial the obturator in the form of an acrylic plate was inserted (**Fig 1D**). The patient was demonstrated how to insert and remove the obturator prosthesis. The obturator prosthesis was successfully able to maintain intraoral suction pressure upon sucking by closure of the cleft.

Discussion

Cleft palate is often associated with a constellation of problems that need to solve

for successful rehabilitation. Difficulty in eating, suckling problems in childhood and impaired sucking in adulthood besides problems in esthetics, phonetics are commonly encountered in such patients.¹⁰
¹¹ Sucking is not an important aspect of feeding behavior, it also plays important role in the expression of one's emotions especially in situations of foreplay. Cases as one described in this article fall in the category of such suffering individuals where the complications of a clinical condition are neither extreme nor they functionally impair. This very reason does not allow such individuals to seek treatment because the functional impairment is so less. Although this patient had a severe condition of malocclusion but he never sought treatment for such cause.

The present generation is very fond of soft drinks and fast food and consumption of such liquids is extremely high. Therefore, it is not surprising that in the near future complaints will come related to drinking of such beverages. The patient's problem in this case was related to drinking soft drink with straw. Upon suction, he would find it impossible to build suction pressure because of continuous leakage of air through the cleft. Moreover, when we use the straw, it is directed or kept in the region between the tongue and the palate and then the pressure is built by the tongue against the hard palate. With the extreme contraction of the horizontal group of tongue musculature, the tongue contract to squeeze the air present in between the tongue and the palate. Once this air is completely sucked, the air inside the straw comes out from the straw and draws the liquid at its tip. The presence of a cleft does not allow building the pressure and closure with an obturator restores the situation. Although not impaired taste, small undetectable and untreated defects like these allow passage of food into the nasal cavity or vice versa thereby affecting perception of taste.¹²

Conclusion

Although sucking is less significant when overall mastication is studied, still studies need to be directed towards understanding the mechanism in normal mouth which ultimately would lead to better understanding in abnormal conditions.

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