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Case Report

Fabrication of an interim prosthesis for a patient with palatal perforation: A Case Report

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ABSTRACT

Introduction: The aim of this paper is to present a case with a palatal perforation and fabrication of an interim prosthesis for the patient for his functional needs like speech and mastication.
Case Presentation: A 54 year old patient reported to the Department of Prosthodontics with a mid - palatal perforation and difficulty in speech and mastication. After examination and surgical consult an interim prosthesis was planned for the patient until the definitive surgical treatment was undertaken.
Discussion: The palate being a complex part of the oral cavity with a variety of tissue types give rise to a variety of pathologies. Palatal perforation can be defined as a communication between the nasal cavities and the oral cavity. There are various potential causes of palatal perforation. Understanding these conditions requires appreciation of the different tissues native to the palate and their complexity and a planned treatment plan for correction of these perforations either surgically or prosthetically.

INTRODUCTION

Palatal perforation can be defined as a communication between the nasal cavities and the oral cavity. There are various potential causes of palatal perforation. Failure of the palatal shelves to close during the sixth week of prenatal period results in cleft palate. Maternal alcohol consumption and cigarette smoking, folic acid deficiency, teratogenic drugs, certain viruses, corticosteroid use and anticonvulsant therapy are some of the environmental factors known to cause cleft palate [1]. Palatal perforation is also seen in autoimmune diseases like lupus erythematous, sarcoidosis, Crohn's disease and Wegener granulomatosis [2]. Tumors can extend from maxillary sinus or nasal cavity and perforate the palate [3]. Sometimes following a surgical procedure such as tumor surgery, corrective surgeries or intubation can cause palatal perforation. Rare cases in which rhinoliths lead to palatal perforation have also been reported in literature [4]. The aim of presenting this case is to emphasize that, such rare type of traumatic injury could be an etiological factor causing perforation of hard palate.

Case Report

A 54 year old male patient reported to the Department of Prosthodontics at Army College of Dental Sciences, Secunderabad with a chief complaint of a hole in the upper mouth and difficulty in speaking and swallowing.
On taking the history patient reported the incidence of road traffic accident 10 years back due to which he suffered facial and dental injuries and had undergone surgical corrections for his facial and dental injuries at that time. Secondary to his surgical correction a

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perforation was formed in the mid –palatal region and because of his transferable occupation a definitive correction was not done for the palatal perforation.

On clinical examination perforation of size 1cm was seen at the mid-palatal area. There was hoarseness of voice and troubled pronunciations of words by the patient and patient's difficulty in swallowing and mastication was also observed. Patient didn't had any relevant medical history.

A surgical consult was taken from the Department of Oral and Maxillofacial Surgery and a corrective plastic surgery was planned for the patient later on.Until the definitive surgery takes place for the patient an interim prosthesis was planned for the patient for his functional needs like speech and mastication. An acrylic prosthesis was planned for the patient and fabricated in the following manner.

Fabrication of Interim Prosthesis

The following steps were undertaken in fabrication of the prosthesis:

1. Primary impressions were made with alginate impression material by covering the perforation with a sterilized gauze piece tied to a thread.
2. Cast was poured with type III gypsum and a wax up was done for the interim prosthesis.
3. Conventional procedure of flasking and curing was done.
4. Prosthesis was cured using heat cure acrylic resin (DPI).
5. Prosthesis was then finished, polished and delivered to the patient.

Patient's speech and mastication was evaluated and patient was recalled after 10 days for follow up. On recall patient was comfortable with his speech and swallowing and reported a pleasant feedback for the interim prosthesis.

Discussion

Palate is an important part of oral cavity, the defect of which leads to nasal regurgitation of food, recurrent nose and ear infections and nasal speech. Pathologies affecting palate can be congenital or acquired. Acquired causes include idiopathic or due to traumatic, infectious, malignancy related, granulomatous disease. The case presented here was a case of perforation which occurred secondary to the surgical correction of facial and dental injuries. An interim prosthesis was planned to eliminate patient's problem of hoarseness of voice and difficulty in mastication until the definitive treatment. Interim prosthesis elevates and assists in restoring soft palate function. In most situations, it is used for its usefulness in achieving palatopharyngeal competency or enhances swallowing reflexes. Interim prosthesis can be used for short interval of time to provide esthetics, mastication, occlusal support and convenience prior to definitive treatment. Other type of prosthesis which can be planned in cases like these are open or closed hollow bulb obturator, hollow bulb obturator with magnet and button prosthesis.

Cases of traumatic perforation have been reported in literature. Hwang and Kim[5] reported a case of sub mucosal cleft palate in 27 year old women because of ingestion of hot food (thermal injury). Perforation and midline notching at the posterior edge of the hard palate was noted. A case of 69 years male patient was reported by Macleod[6] in which perforation of the hard palate secondary to pressure atrophy was noted .Ozul et al. [7] reported a case in which perforation of hard and soft palate is seen after a long intubation period.

Usually the treatment options for such defects comprises of sealing of the defect surgically, but before the definitive treatment patient needs a interim prosthesis for efficient speech and mastication.

The surgical technique is chosen according to the location and dimension of the lesion. For reconstruction of the defect, the literature describes surgical techniques like primary closure, use of local pedicled flaps, lingual grafts, temporal muscle flaps, oral adipose tissue grafting, von Langenbeck technique, Furlow double opposing Z palatoplasty, Veau-Wardill-Kilner or VY pushback palatoplasty.[8,9] Until a definitive surgical procedure is planned for such patients giving an interim prosthesis is a must and should not be avoided at any duration.

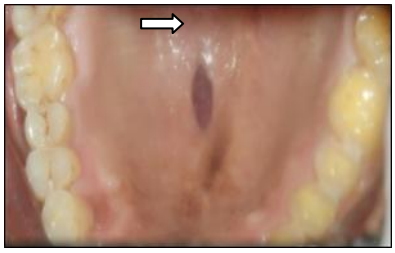

Figure 1: Pre-op Maxillary view showing the palatal perforation (see arrow)

Figure 2: mandibular occlusal view

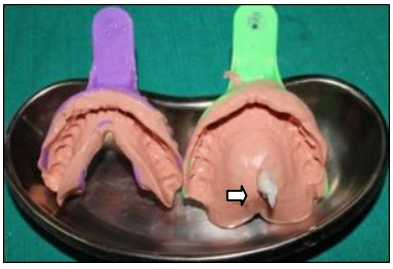

Figure 3: Primary impression made with alginate impression material. Also the perforation covered with sterilized gauze during impression making.(see arrow)

Figure 4: cast poured with type III gypsum. Palatal perforation blocked with wax as shown.

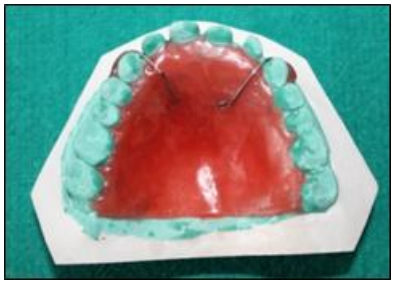

Figure 5: Wax- up done for interim prosthesis with clasp in place for retention of the prosthesis.

Figure 6: interim prosthesis in patient's mouth covering the palatal perforation.

Conclusion

Interim prosthesis offers as an alternative for patients with palatal perforations who do not wish to undergo surgery, in cases where the cost/benefit ratio is not favorable, in patients who cannot or do not wish to abandon the habit, or as a temporary measure before surgical treatment.[10]These prosthesis avoid nasal reflux, facilitating correct swallowing and sufficient speech performance. The only contraindication to such prosthesis is patient tolerance, since in some cases the prosthesis size required to fully seal the defect can cause nausea. Nonetheless interim prosthesis does serve the purpose and acts as an effective mean to perform functional needs like speech and mastication.

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