

Surgical And Prosthetic Management of Suction Cup Induced Palatal Perforation: Case Report

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ABSTRACT

Construction of complete dentures with adequate retention is a complex procedure. Various techniques have been tried to improve the retention of dentures. Use of suction cup in maxillary denture is one of the techniques to improve retention. Suction cup provides retention and stability by inducing negative pressure on the mucosal surface. Palatal Suction cups which provide high retention are not being recommended because of their pathological effects on the palatal tissues. Here a case report of complete denture with suction cup induced palatal perforation which was surgically treated is presented.

Key words: Denture retention, Palatal perforation, Suction cup

CASE REPORT

A male patient aged 65 years reported to the department with the complaint of a hole in upper jaw, presence of nasal twang in voice, loose-fitting denture. History revealed that he constructed his denture 20 years back and the defect was present since last one year. Patient was wearing the denture entire day and night and was removed only for cleaning. Examination of the palate revealed a curvilinear perforation of the palatal region approximately 4x3 cm in size [Table/Fig-1]. Inspection of the denture showed a suction cup [Table/Fig-2] and presence of attrited denture teeth [Table/Fig-3]. Also there was presence of crossbite on one side, under extended borders, poor retention and stability of denture and poor denture hygiene [Table/Fig-4]. Rubber suction cup was replaced every month. On palpation margins were non-tender and except for the palatal lesion all surrounding tissues appeared normal. When patient was asked to gargle water it came through his nose.

A maxillary impression was made for record. The treatment planned was surgical closure of the perforation and construction of a new

complete denture after healing of the area. Another maxillary primary impression was taken for construction of surgical stent. Primary cast was scraped in the perforation area and was blocked with wax. Then a surgical stent was made of clear heat cure.

Patients medical history was uneventful and blood investigations were within normal limits. Also serological investigations showed a negative report for venereal diseases. Under local anaesthesia relieving incisions were placed on the alveolar ridge and around the perforation [Table/Fig-5]. The margins of the perforation were excised to remove the epithelial lining. A full thickness palatal flap was raised and rotated over the defect. Then the ends of perforation were sutured using catgut 3-0 suture. Surgical stent was positioned in the palate after surgery. Post-surgical healing was uneventful. When the patient was examined after 1 month for evaluation, there were no signs of inflammation. New maxillary and mandibular denture were constructed 1 month after the surgery [Table/Fig-6 & 7]. The perforation had healed completely and all the surrounding tissues appeared normal after one year [Table/Fig-8].



[Table/Fig-1]: Palatal perforation



[Table/Fig-2]: Maxillary denture with suction cup



[Table/Fig-3]: Attrited maxillary and mandibular denture



[Table/Fig-4]: Crossbite on one side and poor denture hygiene



[Table/Fig-5]: Incision placed on the alveolar ridge and around the perforation



[Table/Fig-6]: Denture in centric occlusion



[Table/Fig-7]: Patient with new denture



[Table/Fig-8]: Healed palate one year after surgery

DISCUSSION

Complete dentures can induce both hard and soft tissue changes [1–3]. Resorption of the alveolar bone leads to a situation where the denture although well retained by the rubber disc, rocks around the mid palatal area, exerting excessive pressure [4]. This negative pressure leads to the loss of palatal bone as seen in this case. These complications can be more severe if the prosthesis is not constructed properly, just like lesions induced by poor prosthesis fit, improper occlusal relationship [5]. and continuous presence of denture with suction cup. It is known that these dentures have a destructive effect on the oral tissues, which can result in perforation of the palate [6,7]. Leaving the denture out of mouth provides time for the tissues to heal and further prevent the tissues from ill effects.

The management of palatal perforation caused by suction cup begins with educating the patient about the ill effects of continuous use of suction cup denture. The closure of palatal perforation is primarily by surgical means. There are various methods of surgical closure depending on size and destruction of tissues around the perforation. These options are local advancement flaps viz. palatal flaps or tongue flap, distant pedicle flaps like buccal fat pad, temporoparietal fascial flap. In this case a palatal flap was raised

and preferred due to the absence of soft tissue thickness around the perforation.

Despite its known ill effects, many clinical practitioners are still using suction cups in the maxillary denture as the retentive aids. So, practitioners should be well aware of the older methods of denture retention and render appropriate treatment to stop progression of the existing pathology and provide environment for the healing to take place.

REFERENCES

- [1] Zarb GA, Bolender CI (eds). *Bouchers prosthodontic treatment for edentulous patients*, ed 9. St Louis: Mosby, 1985. p. 28-47.
- [2] Bergman B, Carlsson GE. A longitudinal two year study of a number of full denture cases. *Acta Odontol Scand.* 1964; 22: 3-26.
- [3] Stewart JCB, Zarbo RJ (eds). *Oral pathology: Clinical Pathologic Correlations*, ed 3. Philadelphia: Saunders, 1999. p. 176-216.
- [4] Stafford GD. Perforation of the palate due to a suction disc on a denture. *Br Dent J.* 1974; 136: 240.
- [5] Ordulu M, Ermes Y, Ates M, Aktas I, Yelchin S. Oronasal communication caused by a denture with suction cups: A case report. *Quintessence Int.* 2006; 37: 659-62.
- [6] Cayetano O, Boone ME. Suction cups on maxillary dentures: Report of case. *J Am Dent Assoc.* 1987; 115: 577.
- [7] Shalhoub SY. Palatal perforation related to faulty denture construction. *J Oral Med.* 1985; 40:49-50.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Apr 23, 2013**
Date of Peer Review: **May 27, 2013**
Date of Acceptance: **May 23, 2013**
Date of Online Ahead of Print: **Aug 19, 2013**
Date of Publishing: **Sept 10, 2013**