

## A Pressure Cup Denture Pre-eminent to Oronasal Communication: A Case Report.

### Abstract:

In this case report, we present a surgical closure of 62 years old women diagnosed with oronasal communication using posteriorly based palatal rotational flap. For obtaining the satisfactory outcomes for construction of complete denture with adequate retention in maxilla use of the suction cups is one of the technique. Palatal suction cups induce negative pressure on mucosal surface and provides the high retention excruciating to palatal perforation. An oronasal fistula is a pathologic epithelium-lined communication between the nasal and oral cavities. An obturator is placed to prevent from further infection. There are various methods of surgical closure depending on the size and destruction of tissues around the fistula. Palatal obturators are frequently used in the initial treatment of postoperative palatal fistulae to address the associated problems experienced with speech and swallowing.

**Keyword :** An obturator; Surgical Closure.

### Introduction:

A break in the structural integrity of the palate leading to oronasal communication is called palatal fistula.[1] Etiological factors include a congenital/genetic defect such as cleft lip and palate, Possible etiologic factors of oronasal fistulas include congenital defects, trauma,[2] inflammatory processes,[3] infectious processes,[4] incomplete or unsuccessful closure of cleft palate, patent nasopalatine foramen,[5] postsurgical defect following excision of a benign or malignant tumor,[6] and defects following radiotherapy or overzealous use of electrocautery[7], an infection such as osteomyelitis or trauma induced by wearing a maxillary complete denture with a suction cup. A suction cup because of its constant pressure on the palatal mucosa can lead to the necrosis of the palatal mucosa and the bone leading to communication between the oral cavity and nasal cavity [8].

Palatal fistulas are often symptomatic, depending on their size, and location.[10] Symptoms include hypernasality of

phonation due to audible nasal air escape during speech, leakage of fluids into the nasal cavity, and lodging of food with the risk of infection. [11]

There are various types of flaps to close the defect according to the size of the oronasal opening. Palatal flap, nasolabial flap, a buccal fat pad, and tongue flap are the loco-regional flaps that can be used to close the fistula[12]. Myofascial flaps, forehead flaps and temporoparietal facial flaps are the distant flap types. All these flaps have advantages and disadvantages.[13]

The requirements of the patient are taken into account when determining the closure method. Surgical repair of the

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**Received :** 3 June, 2021, **Published :** 31 August, 2021

Access this article online	
<b>Website:</b> www.ujds.in	<b>Quick Response Code</b> 
<b>DOI:</b> https://doi.org/10.21276/ujds.2021.7.2.23	

**How to cite this article:** Sardar, Sardar Singh Yadav. (2021). A Pressure Cup Denture Pre-eminent to Oronasal Communication: A Case Report. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 7(2):.113-116

oronasal fistula is technically challenging[14]. Inadequate tissue used to close oronasal fistula or the presence of scar tissue as a consequence of previous surgery, makes second surgery procedure difficult. In this patient with oronasal fistula, we used the rotational flap technique.[15]

Palatal obturators are frequently used in the initial treatment of postoperative palatal fistulae to address the associated problems experienced with speech and swallowing.[16]

### Case Report:

A female patient aged 62 years reported to the department with a complain of fluid discharge from nose since 2 months. According to the history given by patient, she got her denture constructed 10 years ago which was based on suction cup.



( Figure - 1)

Patient has been constantly wearing the denture since 10 years until she notice the change in her voice along with the depression in the mid- palatal area since past 2 months. There was constant pain, irritation, nasal discharge along with change in the voice pattern. So, the patient reported for the definitive treatment.

On examination of palate, there was a defect present on mid-palatal measuring approximately 2.5 × 3cm in size, and there was through and through visualization into nasal cavity.



(Figure-2).

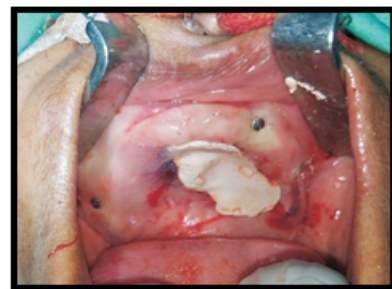
On Intraoral Inspection all surrounding tissues appeared normal in colour and texture; Palpation reveals that margins were inverted ,non- tender,. Medical history was uneventful, and blood investigations were within normal limits. Maxillary Occlusal radiograph showed loss of bone from the mid- palatine region. The Surgery was planned for closure of palatal defect by using the posterior based palatal rotation flap.

The patient was intubated under general anesthesia. Defect was analysed and normal tissue markings were done. Excision of the epithelial rim of fistula was done to allow mucosa approximation with the flap margins were refreshed, then the nasal mucosa was separated from normal mucosa. For the closure of the defect, flap marking was done; Semi-lunar incision was given and flap was raised by preserving the anterior palatine artery. Flap was rotated into position and sutured with multiple interrupted 3-0 vicryl suture .



(Figure-3).

The raw surface of palate covered with COE pack. As the patient was edentulous the palatal Obturator was supported with three screws of size 2mm – 12 mm stainless steel screws.



(Figure-4).

Intravenous antibiotics along with analgesics and dexamethazone were administered for period of three days followed by oral medication including antibiotics, analgesics and proton pump inhibitor (PPIs). Patient was advised for oral soft diet and recalled after a period of 5 days, 15 day , 1 month, 3 month, 6 month, successively.



(Figure 5)

### Discussion:

Veau in the early 20th century and more extensively by Millard[17] in 1962 in the repair of palatal clefts, the palatal island flap has been reported in the otolaryngology, plastic surgery, and oral surgery literature. In addition to the repair of palatal defects, the flap has been used to repair oroantral fistulae. Meticulous management of palatal fistulas caused by suction cup begins with educating the patient about the ill effects of continuous use of suction cup denture[18]. Palatal fistula beneath the suction cup under the maxillary upper denture is a challenge for reconstruction.

Oronasal fistulas were divided into three groups according to their size. The small fistula is classified as 1-2 mm, the middle fistula as 3-5 mm, and the larger fistula larger than 5 mm. [19] Rintala reported that the localization and dimension of the fistula are related to the severity of the symptoms.[20] Oronasal fistula closure techniques are grouped under 3 titles: 1- prosthetic closure, 2- closure with local flaps, 3- closure with distant flaps. The prosthetic closure was first described by Gillies and Fry in 1921.[21]

The palatal island flap is a mucoperiosteal flap based on the greater palatine artery. Derived from the descending palatine arteries, the pedicle arises from the greater palatine foramen medial to the second maxillary molar. It travels anteriorly through the hard palate mucosa toward the incisive foramen where it anastomoses with the nasopalatine artery. An extensive anastomotic plexus is formed medially allowing for use of nearly the entire hard palate mucosa based on a single pedicle. Innervation of the palatal mucosa is derived from branches of the second division of the trigeminal nerve that travel with the artery and allows for a sensate flap reconstruction.

The periosteum is adherent to the hard palate by the fibrous pegs of Sharpey, and the overlying mucosa is densely adherent to the periosteum. Once the mucoperiosteal flap is raised, it can be rotated up to 180° and then inserted into the defect. Single layer closure can be used for through and through defects due to the heaviness of the flap.[22]

As demonstrated in our case, these techniques should be monitored carefully to ensure the extrinsic pressure exerted by the bolster or prosthesis does not compromise the vascular pedicle. Some report that the denuded palate can be covered with a preformed prosthesis for patient comfort.[23]

Complications of hemorrhage, partial necrosis, and persistent fistula have been reported in 2% to 7% of cases. Described contraindications include age younger than 5 years, due to the consequences of midface growth restriction, and those patients with past medical and surgical

histories, including prior head and neck radiation, leading to the possibility of previous pedicle compromise.[24]

### Conclusion:

For successful repair of the palatal fistula induced by upper denture suction cup requires a well-supported, air-tight and tension-free closure. Palatal rotational flap because of its high vascular flap supply and less donor site morbidity, provides the successful prognosis with tension free closure of defect.

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