Prosthodontic Rehabilitation of Oroantral Defects with Interim Obturator: A Case Report

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Abstract
Oroantral fistula (OAF) represents an acquired communication between the oral cavity and maxillary sinus. It commonly arises from dental extractions, trauma, pathology, or maxillary surgical resections. If left untreated, OAF can cause sinus infections, hypernasal speech, nasal regurgitation, and impaired mastication. Prosthodontic rehabilitation with obturators provides an effective non-surgical solution, particularly when surgical closure is delayed or contraindicated. This case report describes the prosthodontic management of a 57-year-old male presenting with oroantral fistulas in the left maxillary region. An interim obturator was fabricated and delivered, restoring functional efficiency and patient comfort.

Keywords: Oroantral fistula, interim obturator, maxillofacial prosthetics, prosthodontic rehabilitation, maxillary defect

Introduction

Oroantral fistula (OAF) is a pathological communication between the oral cavity and maxillary sinus. It may result from extraction of maxillary posterior teeth, chronic infection, trauma, or surgical resections [1]. Symptoms include nasal regurgitation, impaired phonetics, recurrent sinusitis, and psychosocial discomfort.

Management may involve surgical closure, prosthetic obturation, or a combination of both. Prosthetic rehabilitation with obturators aims at restoring the separation of oral and nasal cavities, improving speech, mastication, and esthetics while reducing infection risks [2,3]. Based on timing, obturators are classified as immediate (surgical), interim, or definitive [4]. Interim obturators are delivered after initial healing has begun, serving as a transitional prosthesis until a definitive prosthesis can be fabricated.

This article presents a case of successful prosthodontic rehabilitation of an oroantral fistula using an interim obturator in a partially edentulous patient.

Case Presentation

A 57 years old male patient, reported to the Department of Prosthodontics for prosthetic rehabilitation of the oral defect. He complained of regurgitation of fluid from nose, feeding difficulty and nasal tone of voice, also expressed discomfort while speaking and swallowing. His dental history revealed debridement of necrotic bone and extraction of maxillary left and right anterior and posterior teeth due to chronic osteomyelitis of maxilla.

On intraoral examination, 4 oroantral fistulas were present in the left maxillary anterior and posterior region, about 2-5 mm in diameter (Figure 1). Extraoral examination showed no remarkable findings.

After thorough evaluation, prosthodontic rehabilitation with an interim obturator was planned. The primary objective was to provide closure of the defect, restore function, and improve phonetics, while maintaining adaptability during the healing phase.

A maxillary impression was made using polyvinyl siloxane impression material after carefully packing the defect with sterile gauze. The impression was poured in dental stone to obtain a diagnostic cast. On the cast, the wax pattern was made covering the defect region, with the retentive clasps on the second premolar and first molar. A heat-cure acrylic resin interim obturator was fabricated on the cast, ensuring adequate extension to seal the oroantral communication. The Teeth were not incorporated in the prosthesis, as the design was focused on closure of the communication and adaptability during the healing phase. The prosthesis was polished and inserted intraorally.

Post-insertion instructions were given, and the patient was recalled after 24 hours and again after one week. On follow-up, the patient reported relief from nasal regurgitation, improved clarity of speech, and better masticatory efficiency. Regular recalls were scheduled to monitor healing and evaluate prosthesis adaptation.

Figure 1: Maxillary occlusal intraoral view

Figure 2: Frontal Intraoral View

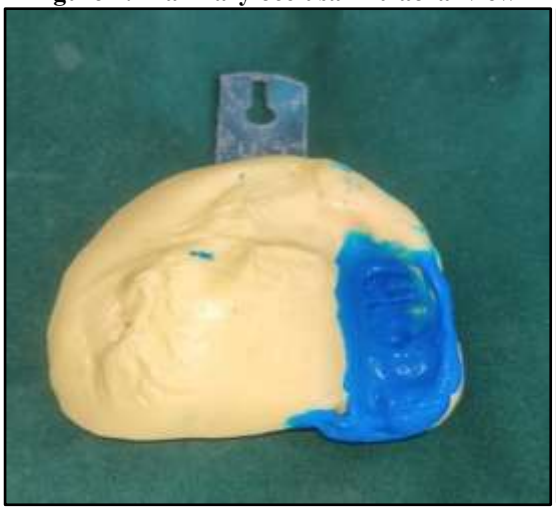

Figure 3: Primary impression of maxillary arch

Figure 4: Final Cast

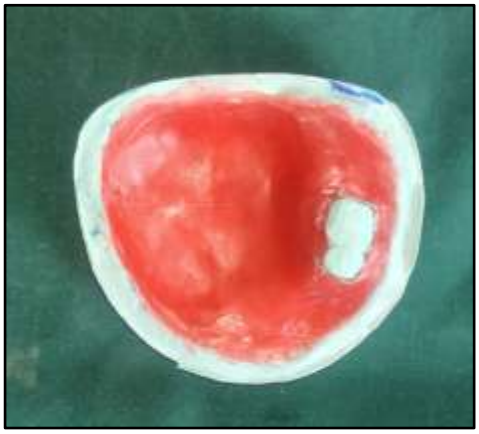

Figure 5: Wax up done on cast with retentive clasps

Figure 6: Lab Procedure for fabrication of interim obturator with heat cure acrylic resin

Figure 7: Insertion of Interim Obturator

Discussion

Oroantral fistula is a well-recognized complication, most commonly occurring after extraction of maxillary posterior teeth because of the close anatomical relationship between the maxillary sinus and tooth roots. Other etiologies include trauma, infection, osteomyelitis, or surgical resection of maxillary pathology [4]. In the present case, the patient developed multiple oroantral fistulas following chronic osteomyelitis and subsequent extractions, which is consistent with the pathogenesis described in earlier reports [2,3].

While surgical closure is traditionally considered the treatment of choice, situations exist where immediate surgery is not feasible due to tissue healing needs, systemic factors, or patient preference. In such cases, prosthodontic rehabilitation using obturators become an effective alternative [5]. Obturators act as a barrier between the oral cavity and the maxillary sinus, thereby preventing nasal regurgitation, improving speech, and restoring functional mastication [6]. Interim obturators, like the one provided in this case, are especially valuable during the healing period. They can be easily relined or adjusted to adapt to tissue changes, ensuring continued functional support until definitive rehabilitation is possible [1]. The absence of teeth in this design simplified adaptation and avoided occlusal loading, with the focus directed towards closure of the defect and improving patient function. This treatment approach is well supported by clinical literature emphasizing the transitional role of interim prostheses in maxillofacial rehabilitation [1–3].

The improvement reported by the patient in speech clarity, reduction of nasal regurgitation, and enhanced mastication aligns with findings from studies by Dholam et al. and Kornblith et al., which demonstrated that obturators contribute significantly to oral function, social reintegration, and quality of life [7]. Moreover, the classification principles by Aramany [8] provide a framework for planning definitive obturators in partially edentulous patients, which would form the next stage of treatment once tissue stabilization occurs.

Conclusion

This case highlights the importance of prosthodontic management in patients with oroantral fistula when surgical closure is delayed or not feasible. An interim obturator successfully restored oral functions, reduced patient discomfort, and improved quality of life during the healing phase. Such prostheses not only provide immediate rehabilitation but also act as a bridge toward definitive treatment, ensuring both functional and psychological well-being.

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