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CLINICAL REPORT

Prosthetic rehabilitation of an edentulous patient with an oronasal fistula

Mike Y. T. Law, BDS, MDS, AdvDip(Pros),[a] Robin W. C. Chung, BDS, MDS,[b] and Otto L. T. Lam, BDS, BSc, PhD[c]

ABSTRACT

The presence of an oronasal fistula presents a challenge to maxillary complete denture fabrication because leakage of air from the nasal cavity through the fistula prevents the formation of an adequate border seal. Although surgical repair or dental implants are possible solutions, these options are invasive and sometimes not feasible. This clinical report illustrates an alternative prosthetic solution by integrating a small retentive component into a maxillary complete denture. (J Prosthet Dent 2015;113:347-349)

An oronasal fistula is an epithelialized communication between the oral and the nasal cavity and may be caused by a genetic defect such as cleft lip and palate, an infection such as osteomyelitis, or trauma induced by wearing a maxillary complete denture with a suction cup.[1] Classifications have been proposed based on the size[2] and site of the defect.[3] A large defect may affect speech and cause nasal regurgitation, while a small defect may be asymptomatic. The presence of an oronasal fistula complicates the provision of a prosthesis for edentulous patients because no natural teeth are present to provide retention; thus, retention depends primarily on atmospheric pressure combined with intimate tissue contact and a peripheral border seal.[4] The clinical technique for achieving the correct extension of the labial and buccal borders and creation of a proper postpalatal seal is described elsewhere.[5] With an oronasal fistula, even a technically perfect maxillary complete denture cannot achieve a suction effect as a result of the breakage of the seal from air passing through the fistula. Treatment options may include surgical closure of the fistula before fabrication of the complete denture or an implant-retained fixed dental prosthesis or overdenture. These options, however, involve surgery, and some patients may refuse or be medically unfit for such procedures. This clinical report illustrates an alternative method for fabricating a maxillary complete denture with adequate retention for a patient with a small oronasal fistula.

CLINICAL REPORT

A 63-year-old edentulous Chinese woman presented with a 1 mm fistula at the midline near the incisive canal (Fig. 1). The patient had been diagnosed with osteomyelitis 22 years previously and had received a sequestrectomy and complete dental clearance. The oronasal fistula developed some time afterward. The patient had been provided with complete dentures on 2 occasions but complained of poor retention and reported pain and discomfort. The patient was receiving antihypertensive medication as well as steroids for systemic lupus erythematosus. A clinical examination revealed that both maxillary and mandibular edentulous arches were severely resorbed. The patient refused surgical treatment and requested new complete dentures with improved retention.

Border molding was performed with modeling plastic impression compound (Impression Compound; Kerr Corp) before preliminary impressions with alginate (Aroma Fine Plus Fast Set; GC Corp) were made. Close-fitting custom impression trays were fabricated, and definitive impressions were made with zinc oxide eugenol paste (Kelly's ZOE Impression Paste; Waterpik Inc). In order to capture the soft tissue undercut accurately within

[a]Postgraduate student, Department of Oral Rehabilitation, Faculty of Dentistry, The University of Hong Kong, Hong Kong.
[b]Clinical Lecturer and Fellow, Department of Oral Rehabilitation, Faculty of Dentistry, The University of Hong Kong, Hong Kong.
[c]Assistant Professor, Department of Oral Rehabilitation, Faculty of Dentistry, The University of Hong Kong, Hong Kong.

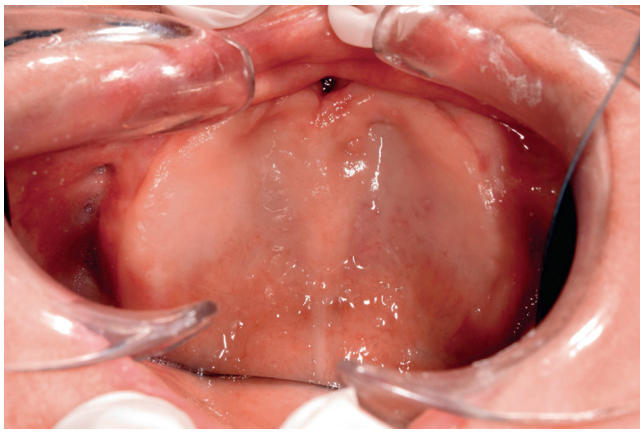

Figure 1. Oronasal fistula at midline near to incisive canal.

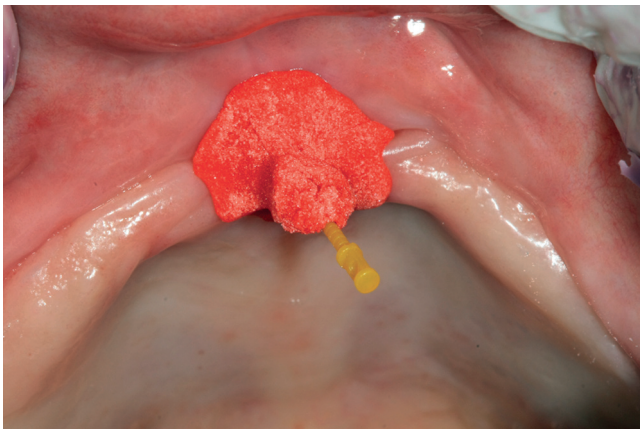

Figure 2. Addition of pattern resin and insertion of impression post into fistula.

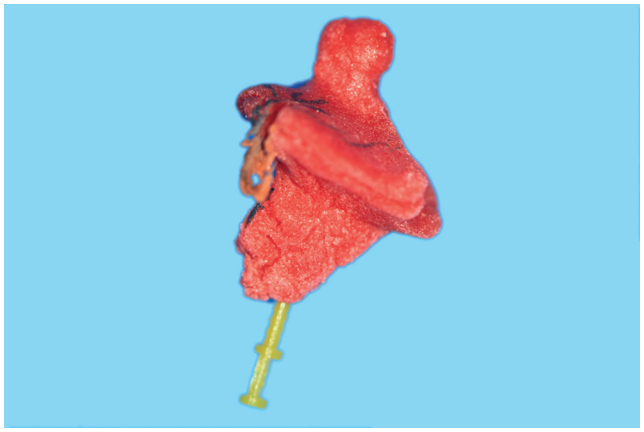

Figure 3. Set impression pattern after removal from fistula.

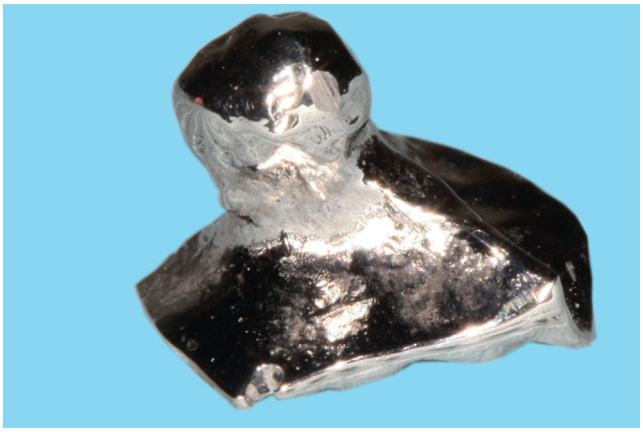

Figure 4. Pattern cast in cobalt-chromium alloy.

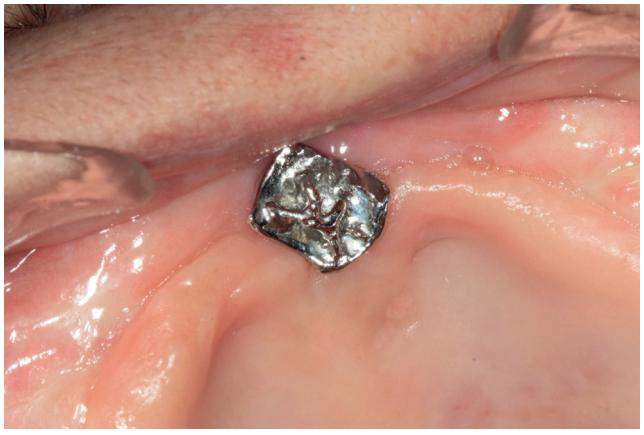

Figure 5. Clinical evaluation of cast retentive component during delivery stage.

Figure 6. Maxillary denture relieved to avoid contact with retentive component.

the fistula, a plastic burnout post (Parapost XP; Coltène/Whaledent) with an appropriate diameter was chosen. The post was coated with an autopolymerizing pattern resin (Duralay; Reliance Dental Mfg Co) and then inserted gently and carefully into the fistula (Fig. 2). The impression pattern was evaluated when polymerized to ensure the undercut area had been captured (Fig. 3). The pattern was then cast in cobalt-chromium alloy (Ingot Alloy Economy; Nobilium) to become a retentive component of the maxillary prosthesis (Fig. 4). The standard procedures for

Figure 7. Pickup of retentive component with autopolymerizing resin.

Figure 8. Definitive maxillary complete denture following occlusal adjustment and polishing.

fabricating complete dentures in balanced articulation were carried out. At the delivery stage, the cast retentive component was evaluated before the pickup process (Fig. 5). The processed maxillary denture was relieved to avoid any contact with the retentive component (Fig. 6). The component was then attached with an autopolymerizing resin (Unifast; GC America Inc). The denture was polished and the occlusion was adjusted (Figs. 7, 8). The patient has been followed up for 6 months, with the patient reporting improved retention compared with that provided by her previous conventional complete dentures.

DISCUSSION

The described method of fabricating a maxillary complete denture with a retentive component is straightforward and avoids the need for surgery. The border seal achieved is satisfactory, provided that the border extensions and postpalatal seal are correctly formed according to standard procedures. Denture hygiene procedures are the same as conventional complete dentures, and no special skills or cleaning aids are required. A longer-term follow-up of this patient would be needed in order to evaluate the changes to the retention and the soft tissues surrounding the fistula, which may be under pressure when the dentures are in function. Although surgical repair of the defect and implants may provide an improved treatment outcome, this clinical report describes a practical alternative in circumstances where the patient declines surgery or where surgical procedures are otherwise contraindicated.

SUMMARY

This clinical report describes a noninvasive prosthetic treatment for an edentulous patient with a small oronasal fistula. By using a plastic post and autopolymerizing resin to pick up the undercut area of the fistula, a cast retentive component can be added to a maxillary complete denture to achieve a border seal and provide adequate retention.

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Corresponding author:
Dr Otto L. T. Lam
4A22, Oral Rehabilitation, Faculty of Dentistry
The University of Hong Kong, Pokfulam Rd
HONG KONG
Email: ottolam@hku.hk