

# An acrylic resin prosthesis for obturation of an orocutaneous fistula

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Malignancies in the head and neck region can be treated by surgery, chemotherapy, radiation therapy, or a combination of these modalities.<sup>1,2</sup> A major complication of chemoradiation therapy following surgery may include osteoradionecrosis and, as a consequence, an orocutaneous fistula.<sup>3-6</sup> The fistula may impair mastication, swallowing, and speech.<sup>4,7,8</sup> Secretion of liquids, saliva, air, and food debris through the fistula is a major problem since it affects normal oral function.<sup>8</sup>

The treatment of choice for closure of an orocutaneous fistula is hyperbaric oxygen therapy followed by surgical intervention.<sup>4-6</sup> The systemic health of patients with head and neck cancer does not always permit surgery.<sup>5,6</sup> Prosthetic closure of the fistula can be either intraoral, extraoral, or a combination of both.<sup>7</sup> Extraoral prosthetic closure requires adherence to the soft tissue with skin adhesive,<sup>7</sup> but the constant drooling and secretion through the fistula does not permit use of an adhesive for the extraoral prosthesis.<sup>7</sup> To obturate the fistula, an individual acrylic resin device may be fabricated to eliminate, as much as possible, secretion and drooling through the fistula.

A 60-year-old white woman underwent complete excision of an acinic cell carcinoma in the right parotid region, including right eye enucleation, mandibulectomy, and radical neck dissection, followed by chemoradiation therapy. The patient presented to the Department of Maxillofacial Prosthetics, Hadassah Medical Center, upon completion of chemoradiation therapy, exhibiting exposed bone and titanium mesh on the right lateral aspect of the mandible and floor of the mouth (Fig. 1). Debris and secretions were accumulating in the fistula, causing irritation and inflammation. Speech became impaired due to air leakage through the fistula. Eating and drinking became difficult due to constant liquid drainage through the fistula. The patient was diagnosed with osteoradionecrosis of the area. Surgical intervention was not recommended at this stage due to her low white blood cell and platelets count, and suspicion of brain metastasis.

An intraoral device was fabricated, as an interim solution, until surgery would be possible. The device, which serves as an obturator for the fistula and restores normal oral function, is supported and retained by the teeth. Clasps were used to engage the abutment teeth to assist



Fig. 1. Orocutaneous fistula. Lateral view.

with retention. The device is easy to manufacture and manipulate by the patient and prevents leakage of fluids, air, and debris through the fistula. The patient is able to remove the device as necessary to maintain good oral hygiene. Other advantages include good patient adaptation to the device and minimal irritation to the soft tissue. Since the fistula can become wider, it is important that the extension of the device can be relined as tissue changes occur. The intraoral device does not manage the esthetic problem, which may be resolved with an extraoral prosthesis. The technique for fabricating a provisional acrylic resin device for obturation of an orocutaneous fistula is described below.

## PROCEDURE

1. Lubricate the fistula with liquid paraffin (Paraffin Oil, Pharmacy Service, Hadassah Medical Center, Jerusalem, Israel) before making the impression. Make an impression of the mandible and the area of the fistula with irreversible hydrocolloid (Alginate Impression Material, Aroma Fine DF III, Fast Set; GC Corp, Tokyo, Japan).
2. Prepare a cast (Microstone Golden; Whip Mix Corp, Louisville, Ky) from the impression.
3. Design the device on the cast, considering the path of insertion, retention, support, and stability.
4. Fabricate the device from heat-polymerized acrylic resin (Vertex; Dentimex BV, Zeist, The Netherlands) by investing and processing. Use orthodontic wire (Remanium Spring hard 0.8-mm wire; Dentaurem, Ispringen, Germany) for clasps.

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J Prosthet Dent 2007;97:179-80.



**Fig. 2.** Acrylic stent with extension to fistula.

5. Lubricate the fistula with liquid paraffin before making the impression. Make an impression of the fistula with impression wax (Impression Compound, Green; Kerr Corp, Orange, Calif). Reline the impression with resilient reliner (GC Reline Soft; GC Dental Products Corp, Aichi, Japan) and prepare a cast of the extension.
6. Fabricate the extension of the device in the fistula area with heat-polymerized acrylic resin (Fig. 2) using the split-cast technique.<sup>9</sup>
7. Insert the device; ensure obturation of the fistula, and make corrections as needed.

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0022-3913/\$32.00

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doi:10.1016/j.prosdent.2006.11.010

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