Gingival augmentation for osseointegrated implant prostheses

University of Texas Health Science Center, Dental School, San Antonio, Tex.; Temple University, School of Dentistry, Philadelphia, Pa.; Washington, D.C.

As experience with the prosthodontic aspects of osseointegration grows, it is apparent that not every patient can adapt to the prosthesis design. The hygienie-efficient elevated design can create speech problems in the maxillae from redirection of air and compromise of lip support in the mandible. Although most patients overcome initial problems with control of chewed food material, some will require prosthetic modifications to manage food impaction.

Inherent in the design of the implant-supported prosthesis is an access space apical to the cervical region of the displayed dentition (Fig. 1). The lip support normally afforded by a conventional denture flange is absent and can be cosmetically significant in profile, particularly in the mandibular arch. A false gingival veneer can be created to reestablish lip contour while allowing adequate access for hygiene.

METHOD

The implant abutments are blocked out lingually with a soft bead wax (Fig. 2). An elastic material (Impregum, Premier Dental Co., Norristown, Pa.) is injected into the labial sulcus around the implants and prosthesis (Fig. 3), and is border-molded while setting. The set material, when removed from the mouth, will have enough firmness and elastic memory to be poured without further backing (Fig. 4).

An autopolymerizing acrylic resin veneer is created in the master cast with resin incorporated in all cast undercutst (Fig. 5). The artificial stone cast is removed from the resin segmentally or by shell blasting, and the abutment regions are relieved so that no metal undercuts are engaged and tissue contact is passive. The distal extensions of resin around the canine and premolar denture teeth are left intact so that the veneer will snap into place engaging these undercuts only (Fig. 6).
Fig. 8. Reestablished facial profile with gingival veneer in place.

Fig. 9. Soft gingival veneer can be flexed into position and retained with projections between abutments.

Fig. 10. Air escape is minimized with veneer in place.

Fig. 11. Esthetics should not be compromised in regions of gingival display.

Fig. 12. Fixed hybrid prosthesis functional in all aspects except the patient's ability to control food impaction.

Either of the hard or flexible veneers is easily removed, and both can provide the lip support required for an acceptable profile (Figs. 7 and 8).

**DISCUSSION**

**Speech**

The conventional hybrid maxillary fixed-implant prosthesis will create an entirely new air-distribution pattern during speech because of the access channels around the abutments. Although most patients will phonomatically adjust to this phenomenon, some will require blockage for adequate intelligibility. The blockage can be accomplished through procedures similar to those outlined previously by closing the air spaces prosthetically and still allowing the necessary access for hygiene (Figs. 9 to 11). The processed soft gingival veneer is particularly well suited for this purpose.

The newly-placed bulk of material in the anterior maxillary region with the hybrid prosthesis may also create a functional barrier to acceptable speech due to
patients, however, will require overdenture therapy to deal adequately with dead spaces of the subframework (Figs. 12 and 13). Patient expectations should be evaluated and modified during the interview phase of therapy so that potential problems with food control are understood initially.

SUMMARY

A method of solving some problems inherent with osseointegrated implant prosthesis has been presented. A removable flange can reestablish lip support or block escape of unwanted air while allowing the access necessary for competent hygiene procedures. Overdentures may be indicated to provide the prosthetic gingival surface necessary for adequate food control or speech.

Reprint requests to:
DR. STEPHEN M. PAREL
UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER
DENTAL SCHOOL
SAN ANTONIO, TX 78284

Fig. 13. Overdenture for patient in Fig. 12 with permanent soft reline supported by six osseointegrated fixtures. Overdenture was necessary to assure patient satisfaction with implant service.

tongue impingement or the uneven palatal surfaces created. Overdenture therapy may be advisable if this problem becomes intractable.

Food entrapment

For patients unable to cope with food impaction, a similar veneering procedure can be attempted. Most