Supraorbital Rim Contour Restoration with Porous Polyethylene Implant via Preexisting Scar

Isolated anterior wall fractures with displaced fragments require surgical correction to restore normal forehead contour. The anterior wall is returned to its anatomic position and stabilized with either suture, wire, or metal or resorbable plates, according to the surgeon's desire and the patient's age.¹ Treatment principles are emerging from published studies.² Many cases with solitary depressed anterior wall fractures require anterior wall restoration to obtain aesthetically acceptable contours.³

We present a 40-year-old man who had left supraorbital rim depression caused by blunt trauma 1 year previously. Anterior wall fracture of the left frontal

sinus was evaluated with computed tomography (CT; Fig. 1). He was treated by porous polyethylene Medpor (Porex Surgical, Inc., College Park, GA) sheet implant (1.5 mm thick; 50 mm wide × 76 mm long) via supraorbital preexisting scar to avoid coronal incision (Fig. 1). In the standard treatment modality of frontal sinus fractures, repair is best performed by way of a coronal approach, which offers excellent access.³ The patient did not want a coronal incision for the contour restoration surgery with implant. The patient did not want to autolog bone graft for restoration of the supraorbital rim contour due to the graft donor site morbidity. He was treated by porous polyethylene implant. The porous

Figure 1 Left supraorbital rim depression (top, left). Preexisting scar on the left supraorbital rim (top, right). Preoperative computed tomography (bottom, left). Medpor sheet implant was inserted the subperiosteal tunnel via the preexisting scar (bottom, right).

¹Department of Plastic Surgery, Eskisehir Military Hospital; ²Department of Plastic Surgery, Gulhane Military Medical Academy, Ankara, Turkey.

Address for correspondence and reprint requests: Yakup Cil, M.D., Department of Plastic Surgery, Eskisehir Military Hospital, 26020 Eskisehir, Turkey (e-mail: yakupcil@yahoo.com).

Craniomaxillofac Trauma Reconstruction 2011;4:59–60. Copyright

© 2011 by Thieme Medical Publishers, Inc., 333 Seventh Avenue, New York, NY 10001, USA. Tel: +1(212) 584-4662.

Received: March 27, 2009. Accepted after revision: November 12, 2010. Published online: February 18, 2011.

DOI: <http://dx.doi.org/10.1055/s-0031-1272897>.

ISSN 1943-3875.

Figure 2 Late postoperative view of frontal area.

polyethylene implants have biomaterial properties favorable for facial skeletal contour restoration.^{4,5} The frontal bar depression was accessed by way of preexisting scar (Fig. 1). First, the scar was removed and the subperiosteal space was entered along the supraorbital rim after incision of the periosteum medially (Fig. 1). Supraorbital soft tissues and neurovascular pedicles were carefully lifted out of the depression area. The porous polyethylene sheet implant overlapped the defect of depression edges. The implant was shaped to bridge the defect and was inserted below the periosteum without any fixation with screws or sutures (Fig. 1). Before implantation, the implant was soaked in antibiotic solution containing 1 g ceftriaxone. Oral first-generation cephalosporin was given every 12 hours for 5 days postoperatively. A compressive garment was used to stabilize the polyethylene implant for 1 week postoperatively. No infection was seen in the early or late postoperative period. At 12-month follow-up, the patient did not complain of any disturbance (Fig. 2). We have experienced these rules in our case:

1. Preexisting scar on the supraorbital area should not be exposed to protect the neurovascular bundle, which is important.
2. If access via the preexisting scar is used for contour restoration, preoperative CT evaluation must be precise to calculate the contour of the defect for the alloplastic material.

3. A compressive garment must be used to stabilize the polyethylene implant for 1 week if rigid fixation material is not used to stabilize the alloplastic material.

If the surgeon follows these rules, the surgical approach is less invasive and the operation can be performed without problems in selected cases.

Yakup Cil, M.D.¹
Muhitdin Eski, M.D.²

REFERENCES

1. Chen KT, Chen CT, Mardini S, Tsay PK, Chen YR. Frontal sinus fractures: a treatment algorithm and assessment of outcomes based on 78 clinical cases. *Plast Reconstr Surg* 2006; 118:457–468
2. Royhrich RJ, Hollier LH. Management of frontal sinus fractures. Changing concepts. *Clin Plast Surg* 1992;19: 219–232
3. Yavuzer R, Sarı A, Kelly CP, et al. Management of frontal sinus fractures. *Plast Reconstr Surg* 2005;115:79e–93e; discussion 94e–95e
4. Yaremchuk MJ. Facial skeletal reconstruction using porous polyethylene implants. *Plast Reconstr Surg* 2003;111:1818–1827
5. Eski M, Sengezer M, Turegun M, Deveci M, Isik S. Contour restoration of the secondary deformities of zygomaticoorbital fractures with porous polyethylene implant. *J Craniofac Surg* 2007;18:520–525