

# Chapter 4. Graft-depleted Patient

- **Indications:** There are five potential donor sites for autogenous tissue in secondary (or tertiary) rhinoplasty: ear cartilage, septal cartilage, rib cartilage, and calvarial and iliac bone. Patients who have exhausted the usual donor sites or were unhappy with prior donor procedures may require alternative options. Septal cartilage is optimal because it has strength and is planar, making it easy to shape into grafts that resist warping. Ear cartilage lacks structural support, and rib cartilage is prone to warping and painful as a donor site. Autogenous cartilage is the first choice; however, when supplies are depleted, other options are necessary.
- **Irradiated cartilage:** Irradiated cartilage is abundant and avoids a donor site. Some report that irradiated cartilage resorbs and is prone to warping even up to four weeks after carving.<sup>1</sup> However, the same study showed no difference in warping between irradiated and non-irradiated cartilage. Other studies have demonstrated long-term use with minimal resorption and acceptable warping characteristics.<sup>2,3,4</sup>
- **Polydioxanone flexible plate:** This is a resorbable polymer used primarily as a suture but now is FDA approved in various thicknesses of sheet form (Figure 14-1). Small pieces of cartilage that would be otherwise discarded can be approximated and sutured to the foil, creating a larger useable piece of graft material. Additionally, the foil can be used as a septal extension stabilizing strut when sutured to the dorsum

and extending between the crura. The tip can be sutured to the foil to control projection and rotation.<sup>5</sup>

- **Bone:** In rare cases, bone has been used for indications that are traditionally treated with cartilage. Bone is prone to resorption, has a brittle feel, making it a less desirable graft material in most rhinoplasties. Cortical bone can be thinned and perforated to allow it to be used as a spreader graft in a cartilage depleted patient.<sup>6</sup>

## REFERENCES

1. Adams W, Rohrich R, Gunter J, et al. The rate of warping in irradiated and nonirradiated homograft rib cartilage: A controlled comparison and clinical implications. *Plast Reconstr Surg.* 1999;103:265–270.
2. Weber S et al. Irradiated costal cartilage in augmentation rhinoplasty. *Oper Techn Otolaryng.* 2007;18:274–283.
3. Strauch B, Wallach SG. Reconstruction with irradiated homograft costal cartilage. *Plast Reconstr Surg.* 2003; 111:2405.
4. Lefkovits G. Nasal reconstruction with irradiated homograft costal cartilage. *Plast Reconstr Surg—correspondence.* 2004;113:1291.
5. Boenisch M, Mink A. Clinical and histological results of septoplasty with a resorbable implant. *Arch Otolaryngol Head and Neck Surg.* 2000;126:1373.
6. Prado A, Andrades P, Guerra C, Wisnia P. Cortical and partially cancellous bone spreader grafts: An alternative for the treatment of cartilage depleted noses. *Plast Reconstr Surg.* 2008;121:2136.



**Figure 14-1.** Lateral operative photograph demonstrating use of a polydioxanone sheet.