Repair of Exposed Porous Polyethylene Implants Utilizing Flaps from the Implant Capsule

Hatem A. Tawfik, MD,[1] Hamida Budin, MD,[1] Jonathan J. Dutton, MD, PhD[2]

Purpose: To determine the feasibility of the use of flaps from the capsule surrounding porous polyethylene implants in repairing large or recurrent implant exposures.

Design: Retrospective, noncomparative, interventional case series.

Participants: Sixteen patients with exposed porous polyethylene implants.

Methods: Vertical and horizontal flaps were created from the implant capsule. These flaps were used to create a double layer of closure to seal the exposure. All patients had a minimum follow-up of at least 12 months.

Main Outcome Measures: Repair of the exposure without recurrence during the follow-up interval, and assessment of complications.

Results: At the last follow-up visit, the socket was completely healed in all but 2 patients. In 1 of them, the implant was subsequently exchanged. Other complications included motility loss, conjunctival cyst, and granuloma formation.

Conclusions: The use of the implant capsule to salvage exposed porous polyethylene implants is an effective technique; it is associated with some complications that can be minimized by careful case selection.
Ophthalmology 2005;112:516–523

Porous implants have enjoyed tremendous popularity in the past 10 to 15 years. Unfortunately, their use may be fraught with complications, particularly to the inexperienced surgeon. The most notable of these complications is implant exposure. Exposure of porous orbital implants usually requires intervention in the form of various pedicled flaps or grafts, but proper management enjoys no consensus in the medical literature. For the past 5 years, we have been using flaps from the fibrous capsule that forms around porous polyethylene (PP) implants to repair large, recurrent exposures over the implant surface.

Patients and Methods

All patients who underwent repair of exposed PP implants with flaps from the implant capsule between July 1999 and June 2001 were included in this study. The technique and results were evaluated retrospectively, and institutional review board approval was not required. Informed consent was obtained from all patients or the patients' parents.

Sixteen exposures were repaired during the study period. All patients were informed of the experimental nature of the procedure and of the possibility of recurrence or motility loss. Only patients with large or recurrent exposures were operated on with flaps from the implant capsule. Patients with primary or small exposures (<3 mm in diameter) were excluded from the study, and an alternative procedure was chosen, most commonly direct layered closure. Early in the study, a visibly infected or discolored implant surface was not considered an exclusion criterion, but, later, only a clean white anterior surface of the implant was considered appropriate for inclusion.

Surgical Technique

One week before surgery, all patients were instructed to permanently remove their prosthesis, which was replaced by a conformer, and to start topical tobramycin eye ointment twice daily and oral amoxicillin/clavulanate antibiotic combination. All surgeries were performed with the patients under general anesthesia. In 1 of the earlier patients in our study (patient 15), excision of the discolored anterior surface of the implant was done with a no. 11 Bard-Parker blade. No structural modification of the implant was performed in any other patient. After routine prepping and draping (Fig 1), the implant coverings, including the conjunctiva, Tenon's capsule, and the implant fibrous capsule, were sharply dissected from the implant surface with Westcott scissors (Fig 2). This dissection extended along the entire surface of the implant and was continued in the plane created between the implant and its coverings as far back as the equator of the implant. The insertions of the extraocular muscles were severed in the process, and, thus, the implant surface was completely bared from its anterior apex to its

Originally received: April 28, 2004.
Accepted: September 20, 2004. Manuscript no. 240319.

[1] Department of Ophthalmology, Ain-Shams University, Cairo, Egypt.

[2] Department of Ophthalmology, University of North Carolina, Chapel Hill, North Carolina.

Presented in part at: American Academy of Ophthalmology Annual Meeting, November, 2000, Dallas, Texas, and the American Society of Ophthalmic Plastic and Reconstructive Surgery Annual Meeting, November, 2000, Dallas, Texas.

The authors have no proprietary interest in the study.

Correspondence to Hatem A. Tawfik, MD, 5 Ibn Elnafis Street, Off Makram Ebeid Street, Nasr City, Cairo, Egypt. E-mail: hatem35@yahoo.com.

ISSN 0161-6420/05/$–see front matter
doi:10.1016/j.ophtha.2004.09.030

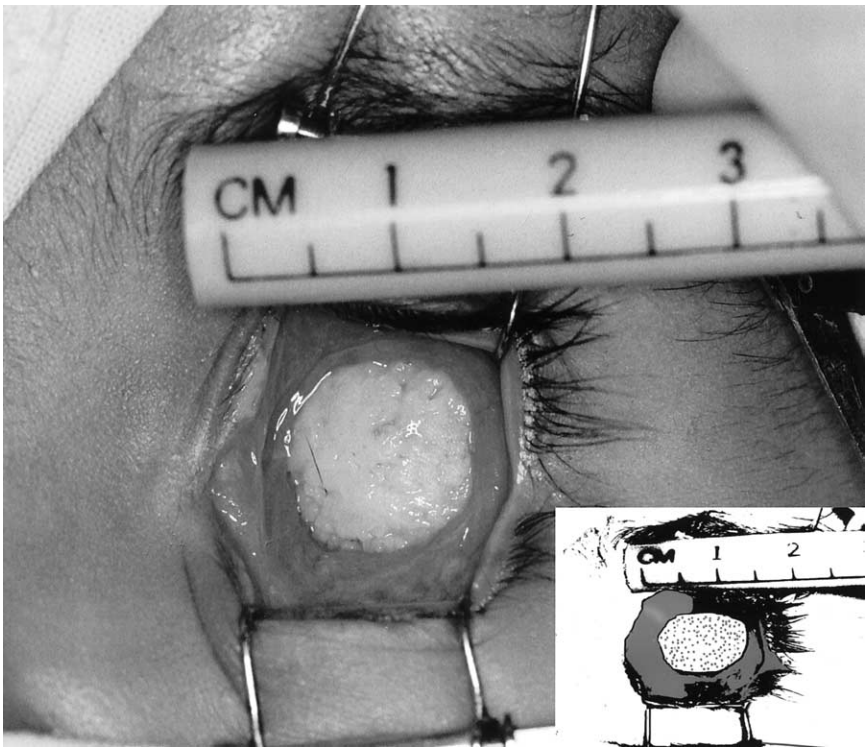

Figure 1. Exposed porous polyethylene implant with an eyelash impacted on the anterior implant surface.

equator. Brisk bleeding was usually encountered in this step but was easily controlled with pressure.

The conjunctiva and Tenon's capsule were then grasped with a toothed forceps and everted. The edge of the fibrous capsule immediately overlying the implant and beneath Tenon's capsule was grasped with another toothed forceps. By use of traction and countertraction, the implant capsule was gently dissected from the overlying Tenon's capsule and conjunctiva, so that the capsule was

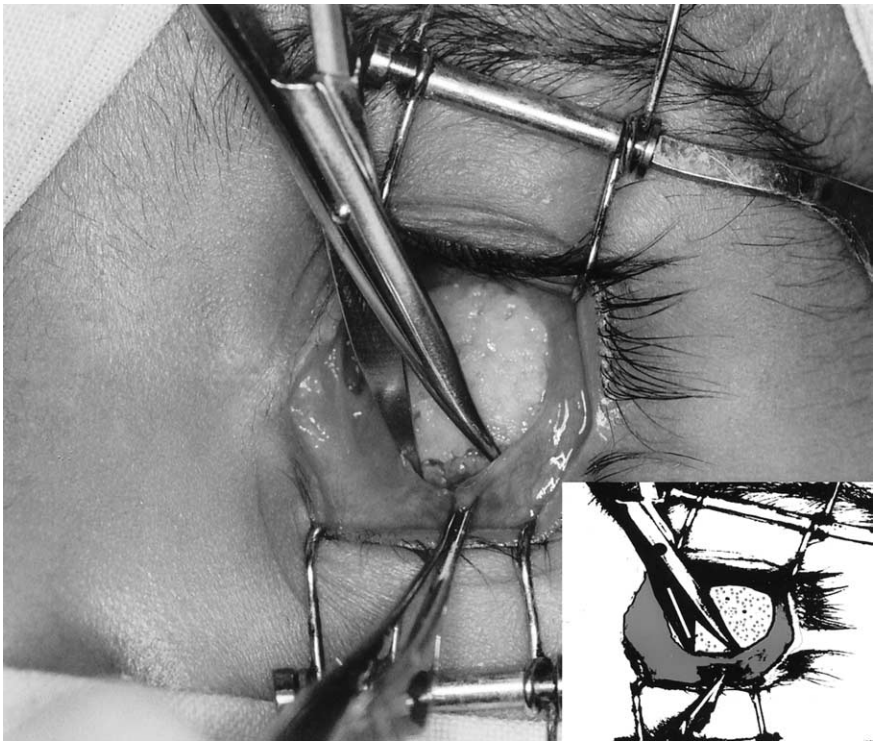

Figure 2. The implant coverings, including the conjunctiva, Tenon's capsule, and implant capsule, are sharply dissected from the implant surface.