

Bleb Revision

Glaucoma Today asked three surgeons when they revise a bleb.

BY KAREN JOOS, MD, PhD; JONATHAN S. MYERS, MD; AND BARBARA SMIT, MD, PhD

KAREN JOOS, MD, PhD

I revise a bleb when necessary, with four categories prompting action:

- a leaking bleb (postoperative or delayed)
- hypotony maculopathy with an ischemic bleb that is not leaking
- intolerable dysesthesia
- a poorly functioning encapsulated bleb

If a bleb is leaking significantly immediately postoperatively, it is closed on the same clinical day with a Vicryl suture (Ethicon, Inc., Somerville, NJ). I would likewise suture a slight ooze that did not spontaneously resolve within 1 week. For delayed bleb leaks, I would aggressively treat and clear any blebitis (if present) prior to conjunctival advancement. Otherwise, the patient would be scheduled for bleb revision as soon as possible.

Usually, I find that a 160° limbal peritomy centered on the bleb permits adequate undermining along the sides of the bleb and posterior to the bleb before I peel the epithelium off the ischemic bleb. Additional posterior undermining of the tissue then occurs. A healthy conjunctival edge is trimmed and advanced to the abraded corneal edge, where I attach it with a central 8–0 Vicryl horizontal mattress suture. Conjunctiva is drawn taut nasally and temporally and attached to the limbus with horizontal mattress sutures.

Symptomatic, delayed-onset hypotony with an ischemic overfiltering bleb is treated in a similar fashion. A piece of donor sclera is useful to reinforce a gelatinous-appearing flap or full-thickness hole.

Often, dysesthesia resolves with adequate lubrication and treatment of the underlying dry eye, and a lubricating gel is often beneficial in this regard. Blebs are revised when lubricating therapy fails. The last such patient I treated had a small isthmus connecting to a nasal elevation. The isthmus was successfully closed with a 10–0 Vicryl (V980G, CS90-6 spatula needle [Ethicon, Inc.]) compression suture with fluid extracted from the elevation. The patient experienced immediate and continued relief.

I will needle an encapsulated, poorly functioning bleb and perform a subconjunctival injection of 5 mg 5-fluorouracil (5-FU) on the day I observe the problem, if possible, before further scarring occurs. Additional 5-FU

injections are usually performed inferiorly 4 days and 1 week later.

JONATHAN S. MYERS, MD

The term *bleb revision* can refer to a variety of procedures that can be used in a host of clinical scenarios. Bleb needling, a form of revision, can be quite helpful to surgeons' efforts to save blebs failing early in the postoperative period as well as for cases of late failure. In either scenario, I seem to achieve greater success with mitomycin C (0.4 mg/mL) than 5-FU when I inject the antifibrotic (prior to needling) superiorly between the conjunctiva and Tenon's capsule, 8 to 10 mm from the limbus, and massage the agent into the superior 180° of bulbar conjunctiva.

For late bleb leaks, I find mobilizing a fornix-based conjunctival/Tenon's flap to the limbus to be extremely effective. This maneuver can be performed with or without excision of the underlying bleb. Trimming the bleb to reduce its height or performing cautery to shrink the bleb and denude the epithelium is quite helpful. The importance of having freely mobile tissue cannot be overstated, so adequate dissection is critical to avoid wound dehiscence, diplopia, and ptosis. A slit in the posterior aspect of the original bleb can help direct flow posteriorly, thereby reducing the risk of early leakage at the limbus or anterior extension of the bleb.

Superior dysesthetic blebs that extend onto the cornea can be trimmed at the limbus, usually without cautery or suturing. Interpalpebral dysesthetic blebs, such as those that sit on the lid margin, can be shrunk with light cryotherapy (< 10 seconds) applied in rows to limit and reduce the interpalpebral extension of the bleb.

Inadvertent blebs can be hard to close, but doing so is another form of bleb revision. Cautery to eliminate any epithelial ingrowth, with sclera or Tutoplast Pericardium Patch Grafts (IOP Inc., Costa Mesa, CA) secured by overlying mattress sutures, can be combined with excisional bleb revision to close most cases. In my experience, early postoperative pressure spikes are often a good sign for long-term success.

BARBARA SMIT, MD, PhD

I consider needle bleb revision in all patients with failing blebs or bleb dysesthesia. Because I perform this proce-

dures at the slit lamp in the office, it is less costly and time-consuming for the patient than a trip to the OR. This approach is less invasive than additional incisional surgery such as repeat trabeculectomy or the placement of a tube shunt, but these options can be pursued subsequently if needling fails.

Four major criteria must be met before I try needling a bleb. First, gonioscopy must show a patent-appearing sclerotomy. Although I sometimes enter the anterior chamber with the needle during the procedure, I do not expect to be able to successfully open a sclerotomy that is obviously occluded with iris or scar tissue. Second, there must be some residual elevation of the bleb. Others have reported the successful needling of completely flat blebs.¹ I find, however, that needling is less likely to be successful for these blebs and that the procedure is more likely to be complicated by inadvertent puncturing of the conjunctiva with resultant leaks. I therefore prefer to move to a different surgical site in these eyes. Third, the patient should not be anticoagulated with Coumadin (Bristol-Myers Squibb Co., Princeton, NJ). The IOP immediately after bleb needling is less predictable than after trabeculectomy or tube shunt surgery. Successful bleb needling can frequently lead to early marked hypotony, because there may be little restriction of flow initially. These patients are therefore at greater risk of hemorrhagic choroidal detachments, which can be catastrophic for individuals on Coumadin. Finally, the patient must be able to tolerate an in-office procedure without sedation. □

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