

Conjunctival advancement for management of hypotony maculopathy after trabeculectomy

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DESCRIPTION

Glaucoma is a chronic progressive optic neuropathy and the leading cause of irreversible blindness worldwide.¹ The only known modifiable risk factor to halt its progression is intraocular pressure (IOP).² Therefore, setting and achieving a target IOP are of prime importance. This is initially attempted with medical measures; the failure of which requires some form of surgical intervention. Trabeculectomy is the gold standard for glaucoma filtering surgery, in which aqueous humour flows into the subconjunctival space leading to an elevation of the conjunctiva, referred to as a 'filtering bleb'. The success of trabeculectomy is frequently augmented by the use of mitomycin C (MMC).³ MMC is an antifibrotic agent. Cotton sponges are soaked in MMC 0.1–0.5 mg/mL and applied between the sclera and conjunctiva for 1–5 min. Subsequently, the sponges are removed and the area of application is washed thoroughly with a balanced salt solution. MMC prevents excessive postoperative scarring and thus reduces the risk of failure of trabeculectomy. However, MMC is associated with bleb thinning in the long term, which increases the risk of bleb leak, hypotony and bleb-related infections.⁴ The current literature shows variability in the reported incidence of these complications. Bindlish *et al*, in their retrospective review of primary trabeculectomy with MMC and laser suture lysis, reported an incidence of bleb leaks of 14.6%, blebitis in 5.7% and endophthalmitis in 0.8% of eyes during 1–3 years of follow-up.⁵ A study by DeBry *et al* estimated the 5-year probability of developing a bleb leak, blebitis and endophthalmitis as 17.9%, 6.3% and 7.5%, respectively.⁴ Bleb leak is a major risk factor for bleb-related infections.⁶ One study



Video 1 Surgical technique of bleb-sparing epithelial exchange.

reported that trans-conjunctival oozing and point leaks at least 3 months after trabeculectomy with MMC occurred in 2%.⁷ Small leaks can be sealed with soft bandage contact lenses, cyanoacrylate glue or autologous fibrin glue,^{8,9} but studies have shown that bleb revision is associated with better outcomes and reduced risk of intraocular infections as compared with those managed more conservatively.¹⁰ Myopia, conjunctivitis, upper respiratory infection, intraoperative use of MMC, antibiotic use in the postoperative period and blepharitis have also been associated with an increased risk of bleb-related infection.^{7,11} Surgical bleb revision has a protective effect against bleb-related infection when such risk factors are present.¹¹ We present a patient with a thin cystic leaky bleb who underwent bleb revision surgery with a successful outcome.

A male patient with primary congenital glaucoma in his early 20s presented with gradual, painless, progressive diminution of vision in the left eye, 13 years after he underwent trabeculectomy with MMC. On clinical examination, visual acuity was 4/60 with an IOP of 4 mmHg in the left eye. A thin cystic bleb (figure 1A) was observed on slit-lamp examination with positive Seidel's test (figure 1B) and evidence of hypotonic maculopathy

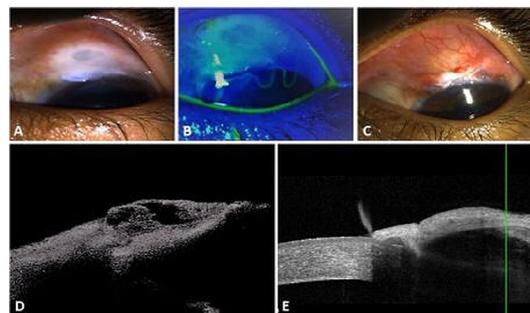


Figure 1 (A) Clinical photo showing thin cystic bleb. (B) Seidel's test showing streaming leak. (C) Clinical photo showing diffuse bleb on postoperative 1 week. (D) Anterior segment optical coherence tomography (AS-OCT) showing thin multicystic bleb. (E) AS-OCT showing thick, diffuse bleb at 1 week.

Learning points

- ▶ Trabeculectomy is the gold standard filtering surgery for glaucoma, and its success is frequently augmented by mitomycin C.
- ▶ The use of mitomycin C may lead to thin, cystic blebs, which increases the risk of bleb-related infections.
- ▶ Early detection and surgical management of leaking bleb with conjunctival advancement are critical to prevent sight-threatening complications.



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in the fundus. Anterior segment optical coherence tomography (AS-OCT) demonstrated a multicystic bleb with thin overlying conjunctiva (figure 1D). Considering the risk of infection due to active leak, bleb revision was performed using a 'bleb-sparing epithelial exchange technique' (video 1).¹² The IOP was 12 mm Hg at 1 week postoperatively with a diffuse bleb on clinical examination (figure 1C). AS-OCT also showed a diffuse bleb with a thick overlying Tenon and conjunctiva (figure 1E). Visual acuity was improved to 6/18 at 3 months.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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