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**Duke University residents’ review of “Impact of failure of trabeculectomy with mitomycin-C”**

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**Impact of phacoemulsification on failure of trabeculectomy with mitomycin-C**

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**Purpose:** To evaluate whether phacoemulsification after trabeculectomy affects post-op IOP.

**Setting:** Kumamoto University, Kumamoto, Japan

**Design:** Cohort study

**Methods:** The medical records of patients with primary open-angle glaucoma or pseudoexfoliation glaucoma who had trabeculectomy with mitomycin-C were reviewed. The primary endpoints were condition A (persistent post-op IOP 21 mm Hg or higher or additional glaucoma procedures with or without medications) and condition B (post-op IOP 18 mm Hg or higher or additional glaucoma procedures with or without medications). Multivariable analysis was performed using the Cox proportional hazards model.

**Results:** The records of 178 patients (178 eyes) were reviewed. The mean follow-up was 37.0 months. For condition A, the probability of treatment success at 1 year, 2 years, and 3 years was 97.9%, 95.0%, and 92.7%, respectively. For condition B, the corresponding probabilities of success were 92.3%, 84.1%, and 81.8%. Thirty-seven patients (37 eyes) had phacoemulsification after trabeculectomy; 10 of those patients had phacoemulsification within 1 year after trabeculectomy. Multivariable analysis showed that a higher IOP before trabeculectomy was a significant risk factor for condition A and condition B (*P* = .01 and *P* = .0006, respectively); phacoemulsification within 1 year after trabeculectomy was significantly associated with trabeculectomy failure for condition B (*P* = .04).

**Conclusion:** Post-op IOP in eyes with previous trabeculectomy may be affected by the IOP before trabeculectomy and phacoemulsification within 1 year after trabeculectomy.

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This month, I asked the residents at Duke to review this Japanese paper looking at whether phaco adversely affects the function of a prior trabeculectomy.

—David F. Chang, M.D., chief medical editor
undergone trabeculectomy. It is not possible based on this study to determine whether a more aggressive anti-inflammatory post-op regimen would have decreased the risk of surgical failure.

An additional limitation of the study is the inclusion of patients with both POAG and PXG. It is not possible to determine based on the data presented whether the glaucoma diagnosis played any significant role in the patients’ post-op outcomes. Although the univariable analysis was not significant, it is not clear if the study was adequately powered to detect a difference. Furthermore, additional analyses would be useful to address the impact of other factors such as why different MMC dosages were used in the study, the amount of phaco power required during surgery (reflects density of cataract), and whether there is a difference in failure rates among limbus or fornix-based incisions. Finally, the exclusion criteria, which include pre-trabeculectomy IOP less than 21 as well as any prior ocular surgery, may limit the generalizability of these conclusions to glaucoma patients that do not meet these criteria.

In summary, this study provides important considerations prior to performing phacoemulsification surgery in post-trabeculectomy patients. The authors report that higher pre-trabeculectomy IOP and phacoemulsification within 1 year after trabeculectomy are important risk factors for trabeculectomy failure. Due to the limitations noted above, the study cannot address some important clinical questions such as whether a more intensive anti-inflammatory regimen after phacoemulsification helps prevent surgical failure and whether it would be beneficial for patients who develop cataracts soon after trabeculectomy to defer phacoemulsification until 1 year post-trabeculectomy. Future prospective randomized trials will be required in order to address these questions and provide important guidance for clinicians.

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blocker. Propranolol 10 mg can help the hand tremor and tachycardia that accompanies surgical anxiety. A drop of sublingual timolol ophthalmic solution can also work. But don’t try it the first time on the morning of your case. Test it a few days in advance to make sure that you can tolerate the medication.

Intraoperative: 1) Surgeon comfort is key. Correct body and hand position is critical in controlling a tremor. 2) Before the patient is prepped the resident should position the patient and microscope and make sure the foot pedals of the microscope and phaco machine are in a good position. 3) Wrist fatigue can cause a tremor. During the case the surgeon’s wrist should be supported either on the patient’s cheek or brow or on a wrist rest affixed to the stretcher. 4) Holding the instruments too tightly causes muscle cramps, finger fatigue, and a tremor. Taking a break for a few relaxing breaths and finger stretches help. Holding instruments too close to the tip decreases the range of motion and fluidity of movement with the fingers, again leading to wrist and finger fatigue. 5) Sometimes I just hold a resident’s hand to calm the tremor and guide the instrument through a difficult step. Once I feel the resident relax and take over the maneuver I let go—surgical training wheels.

References

Editors’ note: The doctors mentioned have no financial interests related to this article.

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Traditional Ink Minis are available in Sterile and Non-Sterile