Open Macular Holes are Lost Opportunities
Colin A. McCannel, MD - Jules Stein Eye Institute, UCLA, Los Angeles, California

In this issue, Yek et al 1 (https://doi.org/10.1016/j.oret.2017.10.012) demonstrate in a fairly large dataset that reoperation for initially failed macular hole surgeries was met with a high success rate both in terms of anatomic closure and visual acuity improvement. The implication of their reported 85% macular hole reoperation closure rate and significantly better visual acuity outcomes at 2 years is that reoperation must always be considered. Even the patients in their cohort who did not undergo a second surgery to close the macular hole, in my opinion, could have benefited from some degree of closure success and possibly better final vision.

Achieving the most normal anatomy by appropriate surgical intervention is necessary for best and stable function. However, the natural history of macular holes is fairly well understood. Over time, gradual enlargement, increasing retinal atrophy at the hole’s edge, and finally retinal pigment epithelium atrophy in the bed of the hole can occur. These changes result in progressive decline in visual acuity. Although most of the published literature suggests that vision stabilizes at 20/200 to 20/400, these data are limited by relatively short follow-up duration of less than 5 years.2

Although I am not aware of reports on the natural history of unopened macular holes past 5 years, when one carefully examines reports on chronic macular hole surgery, eyes with macular holes of a duration longer than 5 years often have visual acuities far worse than 20/400.3 Additionally, ophthalmologists who managed patients in the 1990s, before the widespread use of macular hole surgery, will attest to continual progressive decline to worse than 20/400 visual acuity in at least some patients. To minimize or avoid decline of macular function, there may benefit to operating on most, if not all, macular holes, even if visual acuity is not expected to improve much, or at all. Furthermore, because people are living longer, there is a small, but increasing, likelihood that the worse-seeing eye could become the better-seeing eye as a result disease or trauma.

With these thoughts in mind, any unoperated macular hole, whether primary or the result of failed previous surgery, is a potential lost opportunity to stabilize or improve sight. Vitrectomy for macular hole, including reoperations, should always be considered. Yek et al clearly demonstrate that closure success is not elusive after previously failed surgery and that visual acuities can improve substantially.

It would be remiss not to discuss primary surgery for macular holes in the context of operating on failed attempts to close macular holes. First and foremost, every surgeon ought to evolve his or her technique to maximize the success of the first surgery, because that is the intervention with the highest likelihood of resulting in hole closure and best visual acuity. At this stage of our field’s evolution, closure rates for idiopathic, recent-onset macular holes should be expected to exceed 90%.

As holes become larger and are of less recent onset, success rates may decline. But at no point should a macular hole be considered a lost cause, because closure may be accomplished followed by stabilization or improvements in visual acuity. Ways to maximize success in general, whether in primary or reoperation surgery, are not to delay surgery unnecessarily, to peel the internal limiting membrane after staining, to use a gas bubble, rather than silicone oil,4,5 and to prescribe at least some period face-down positioning.

If the likelihood of success of surgery is deemed very low because macular hole size or duration, previous failure of closure, or other factors, the surgical approach needs to be adjusted. Such adjustments may include using or extending face-down positioning or considering newer emerging surgical techniques. These include the inverted internal limiting membrane flap6 and its variations, transplantation of internal limiting membrane into the hole,1 or even transplantation of a neurosensory retinal patch from the periphery into the base of a macular hole.8 Although the latter technique has limited published experience, one might consider it if repeated failure of closure has occurred, because in the absence of well-proven excellent treatments, less well-proven treatments (or techniques) become increasingly more reasonable to consider using. Of course, optimally, any new technique would undergo a careful prospective clinical trial to demonstrate its benefits and to discover its disadvantages, but such an approach is not always feasible for rare situations and has not been a common path for the development of modern eye surgical techniques.

In summary, Yek et al report excellent surgical results after macular hole repair surgery for previously failed macular hole surgeries in New Zealand and Australia. These data should encourage retina surgeons to move forward with reoperations of failed macular holes to stabilize and perhaps improve vision. The alternative—abandoning an open macular hole and allowing the visual acuity to deteriorate slowly—must be the exception.

References


---

**Footnotes and Financial Disclosures**

Financial Disclosure(s): The author(s) have made the following disclosure(s): C.A.M.: Financial support, Advisory board — Dutch Ophthalmic Research Company (DORC), Genentech/Roche.

Supported in part by an unrestricted grant from Research to Prevent Blindness, Inc., New York, New York; and the Jules Stein Eye Institute, Los Angeles, California.

Correspondence: Colin A. McCannel, MD, Jules Stein Eye Institute/UCLA, 100 Stein Plaza, Los Angeles, CA 90095. E-mail: cmccannel@jsei.ucla.edu.