Floaters are one of the most common presenting complaints in our retina clinics and perhaps in ophthalmology in general. Floaters not associated with retinal pathology can be highly symptomatic, so we need to address patient concerns in a tactful way. Retina specialists are obligated to discuss the treatment risks, benefits, and alternatives (specifically observation versus vitrectomy) with patients in a balanced and evidence-based manner consistent with the standard of care. To do so can be challenging when dealing with a very symptomatic patient. Furthermore, our community lacks consensus regarding the management of symptomatic vitreous floaters, making the discussion with a symptomatic patient even more difficult. Although surveys indicate that retina specialists are performing vitrectomy to treat symptomatic floaters, the frequency with which we are implementing vitrectomy for this condition is unclear.

In this column, Dr. Carl Danzig from the Rand Eye Institute in Deerfield Beach, Fla., provides an up-to-date summary of the literature regarding the management of symptomatic vitreous floaters. His insights regarding this controversial topic will be very interesting to the retina community.

Vitreous floaters are common. Most every ophthalmologist treating adults sees new and existing patients with a chief complaint of floaters in the office on a daily basis. Yet, treatment options for bothersome floaters have traditionally been quite limited. Robert Machemer introduced pars plana vitrectomy (PPV) in the early 1970s, and with the progressively decreasing gauge size, the idea of PPV for floaters has become a hot topic of conversation. Of the 683 respondents from the U.S. and Canada in the 2013 American Society of Retina Specialists Preferences and Trends Survey, 69% report performing PPV for vitreous opacities. Results were similar in 2012, when the question was first asked in the survey. The survey does not ask the gauge used or the frequency this procedure is performed for floaters.

In the June edition of the journal *Retina*, Sebag et al1 and Mason et al2 describe using 25-gauge sutureless PPV for the treatment of visually impacting vitreous floaters. Both sets of authors identify posterior vitreous detachment (PVD) as the most common cause of floaters, while other causes include vitreous syneresis, asteroid hyalosis, and myopic vitreopathy. In both articles, the authors demonstrate favorable outcomes with their surgical interventions.

Sebag et al present a two-part study consisting of a prospective efficacy analysis and a retrospective safety profile. The study
enrolled 114 eyes of 99 patients: 38 healthy control eyes and 76 eyes with floaters. The authors identify decreased contrast sensitivity in patients with floaters as a possible indication for PPV. As part of the efficacy study, contrast sensitivity function was evaluated using the computer-based Freiburg Acuity Contrast Testing system. 25-gauge PPV was performed only after 24 months of observation after the onset of bothersome floaters. Peripheral vitrectomy was not performed, nor was a PVD induced, during any surgery in the study.

Sebag et al’s efficacy study results show normalization of contrast sensitivity at 1 week postoperatively. In this group, 15 of 16 subjects experienced complete resolution of floater symptoms. From a safety perspective, there were no cases of endophthalmitis, intraocular hemorrhage, glaucoma, retinal tear, or retinal detachment (RD) postoperatively, with a mean follow-up of 17.5 months. One patient developed an epiretinal membrane and underwent subsequent PPV with membrane peeling. In the phakic group, eight of 34 eyes (of patients ranging in age from 53 to 66 years) required cataract extraction at an average of 14.9 months postoperatively. One of 19 patients with no preoperative PVD developed a PVD 13 months after the initial surgery. This patient underwent a repeat PPV for bothersome floaters.

Mason et al present a retrospective chart review of 168 eyes of 143 patients who underwent sutureless PPV for symptomatic floaters over a 3-year period. According to the authors, before being considered for surgical intervention, most patients were examined over multiple visits. Preoperatively, 73% of patients described the severity of their daily symptoms as “severe” or “very severe.” Patient ages ranged from 41 to 87 years, and the mean follow-up time was 18 months. Pseudophakic patients constituted 67% of subjects. In all subjects, 25-gauge PPV was performed; peripheral vitrectomy was only performed around retinal breaks. A PVD was induced in 12 of 80 eyes that did not have a preoperative PVD. Over 88% of patients participated in a post-surgical quality-of-life survey.

Postoperatively, 94% of the study participants described their experience as a “complete success.” An iatrogenic retina break was discovered in 12 of 168 eyes (7.1%). During follow-up, there were no cases of RD or new retinal tears, nor were there any cases of choroidal hemorrhage or endophthalmitis. Visually significant cataracts requiring phacoemulsification developed in nine of 40 phakic eyes after vitrectomy.

Henry et al provide an editorial on this subject in the same issue of Retina, asking, “Is there such a thing as minimally invasive vitreoretinal surgery?” Henry et al identify Sebag and Mason as having successful outcomes while understanding the safety concerns in this patient population with generally good preoperative visual acuities. The authors compare these two articles to prior studies with higher incidences of cataract formation, RD, and cystoid macular edema, although many of these studies involved larger-gauge PPV. Henry et al expound on the role of the surgeon in balancing beneficence with nonmaleficence. Mason et al assert, “From the patient’s perspective, the ophthalmologist who has ruled out abnormality such as retinal breaks has failed to address their health and quality of life.” However, Henry et al argue that vitreous floaters often improve spontaneously. Moreover, Mason et al note that “most patients were evaluated on multiple visits prior to consideration of surgical intervention.” Therefore, it follows that some patients were only examined once prior to considering PPV. Furthermore, if 73% of patients described their preoperative symptoms as “severe” or “very severe” in the quality-of-life survey, as reported by Mason et al, then by corollary, 27% of patients described their symptoms as “moderate,” “mild,” or “none.” Hence, a significant number of patients received surgery for symptomatic floaters of moderate severity or less. Henry et al question Sebag’s justification for PPV, wondering whether “reduction in contrast sensitivity [is] enough of an indication to support this procedure.” In addition, they argue that it is somewhat surprising that hundreds of patients would present to these centers over a relatively short period of time and be impaired to such an extent as to warrant PPV.

Henry et al credit Mason et al for identifying that only a small subset of patients with floaters will have their activities of daily living affected to the degree of impairment. In all patients in whom PPV is being considered for floaters (or any surgery, for that matter), a proper informed consent is imperative. Henry et al express concern about this patient subset being open to “abuse.” Moreover, the short- and long-term risks of PPV along with retrobulbar anesthesia are not insignificant.

These are not the first scientific articles addressing this topic. In 2000, Schiff et al presented a small case series of six patients (over an 8-year period) who underwent PPV for floaters. The results were favorable, with the patients confirming symptomatic improvement after surgery, and the authors thus concluded that there may exist a small subset of patients who would benefit from PPV for vitreous opacities. More robust studies were published in 2011. In the journal Acta Ophthalmologica,
Schulz-Key et al report a Swedish study with overall success with mostly 20-gauge PPV in 73 eyes of 61 patients. The most frequent complication was cataract formation, with 60% of phakic patients (23 of 38 phakic eyes) requiring cataract surgery during follow-up. The authors note a 5.5% risk of RD during long-term follow-up (2 to 4 years). In the *American Journal of Ophthalmology*, Tan et al present 116 cases in the Netherlands of PPV for vitreous floaters. The authors found a 16.4% rate of iatrogenic retinal breaks, and a 2.5% rate of RD. They emphasize the imperative meticulous inspection of the peripheral retina at the conclusion of surgery to minimize the occurrence of postoperative RD.

Many authors have noted that visual acuity measurements in the office setting do not correlate well with the degree of distress described by some patients with symptomatic floaters. We all recognize that we cannot dismiss a patient who presents to us with symptomatic vitreous opacities; however, patient education regarding observation versus surgical intervention is of paramount importance when managing this condition. Undoubtedly, the use of PPV to manage floaters remains a controversial subject, and the community needs to reach a consensus regarding standard of care for this condition.

**REFERENCES**


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