Letter to the Editor: Difficulties During Peripheral Vitrectomy Under Air

Dear Editor,

I read with interest the article by Altan et al.1 on the results of peripheral vitrectomy under air in rhegmatogenous retinal detachment (RRD). Numerous factors need to be taken into consideration before interpreting the results of the current study.1 Though the air increases the field of view, scleral depression was needed in 17.5% cases in a study evaluating peripheral vitrectomy under air in RRD.2 Vitrectomy under air has a steep learning curve, and experience is an important factor. The current study1 also found iatrogenic retinal break in the initial three cases. It would be interesting to know the location of the iatrogenic breaks (entry site break or at another site) and the cause of such breaks. As the stereopsis is reduced, the chances of accidental retinal touch by the cutter or iatrogenic retinal break may be there. Foggling of the posterior capsule in pseudophakic eyes is another problem that was overcome in this study1 by coating the posterior capsule with the carboxymethyl cellulose. Foggling can also be prevented by cleaning the posterior capsule with the soft touch of the moist silicone tip. Another unwanted situation is air in the anterior chamber or tilting/subluxation/dislocation of the intraocular lens in cases with compromised posterior capsule or zonules. This can be prevented by injecting sodium hyaluronate 1% in the anterior chamber. Even with clear media, the reflection from the air interface may have to be avoided by a particular positioning of the endoilluminator. The air from the leaking ports can form multiple bubbles in front of the cornea, which may require repeated removal. Small retinal breaks may not be detected under air due to poor contrast and the air pressure on the retina. A sudden moment of hypotony is another difficult situation when the cutter is on in the air with a high vacuum level. Use of low vacuum and stoppage of the cutter for a brief duration may avoid this catastrophe.4 Nevertheless, vitrectomy under air is proving to be a relatively safe technique in experienced hands.1-3

The cause of periphlebitis in a single patient as a postoperative complication of vitrectomy for RRD may require discussion.

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REFERENCES

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Reply to Letter to the Editor: Difficulties During Peripheral Vitrectomy Under Air

I would like to thank the letter writer for their comments regarding our article.1 Referring to the article by Erdogan et al.2, it was commented that scleral depression may be necessary in some cases during vitrectomy under air. We did not feel the need of indentation in any case in our study group. The Leica RUV800 Panoramic Viewing System (Leica Microsystems, Wetzlar, Germany) with a widefield lens allows visualization up to pars plana under air in cases without pupillary, lenticular, or capsular problems. Posterior synechia, miotic pupil, capsular contraction, or peripheral lens opacities may prevent adequate visualization of vitreous base. These issues may be addressed with placing iris hooks after synchicholysis, phacoemulsification, and enlargement of the capsular opening with endoscissors. It is preferable to perform peripheral vitrectomy with scleral depression under fluid when peripheral vision is impeded.

Iatrogenic retinal breaks occurred in the inferior half, outside the entry ports in three initial cases. They occurred when the cutter port was rotated toward the retina and when it was not held steadily within the vitreous gel. The plane of the cutter port should be kept at 90° to the plane of the retina for safety. The probe tip should also be kept inside...
the vitreous gel during vitrectomy. Probe activation inside air and switching to vitreous gel may cause momentary traction to the vitreous and the retina. Vacuum levels between 100 mm Hg and 150 mm Hg (at 5,000 cpm) are safe and effective when working close to the retina with 23-gauge cutter under air. Levels under 100 mm Hg seem ineffective. Standard vacuum levels should not be used when shaving peripheral vitreous under air, otherwise it is possible to create retinal holes even in attached retinas (as seen in Reibaldi et al.3).

We prefer coating the posterior capsule with methylcellulose, which is a longer-lasting solution than cleaning the posterior capsule with a soft tip cannula.

We did not encounter problems such as intraocular lens luxation or air migration into the anterior chamber. Air migration may be prevented by the injection of sodium hyaluronate into the anterior chamber, as suggested by Reibaldi et al.3

Air bubbles emanating from microcannulae disappear in the majority of cases by lowering air infusion pressure. Small retinal breaks may not be detected under air due to poor contrast. We routinely apply 360° laser photocoagulation to prevent re-detachments due to missed and possible new breaks.

Sudden globe collapse is not an occurrence with our surgical parameters using devices with flow compensation. It is true that working close to the retina under air requires a certain amount of experience; however, it is always possible to switch back to vitrectomy under fluid, and this will be helpful in mastering the technique.

Periphlebitis developed in a 58-year-old male patient with no history of autoimmune disease and with a normal fellow eye. It developed 1 week after vitrectomy and 1,000 centistoke silicone oil injection. There were no retinal hemorrhages or exudates. Although endophthalmitis could not be completely ruled out, the picture did not resemble endophthalmitis. The patient was followed with a short course of oral steroids, and it regressed, leaving some vascular cuffing without visual consequences. Silicone oil was removed 2 months later, and the final visual acuity was 20/40 at 9 months after surgery.

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