

Postoperative Positioning After Macular Hole Surgery

BY GIULIO BAMONTE, MD

Editor's note: This blog was posted on June 10, 2013, to www.eyetube.net. Occasionally, we will feature content from our bloggers for retina in Retina Today. Giulio Bamonte, MD, contributed the following, which discusses varying perspectives on positioning after macular hole surgery.



The utility of postoperative positioning after macular hole (MH) surgery might seem a boring subject, but it has been the topic of discussion among retina surgeons for many years. I think it would be safe to say that if I asked 10 surgeons their opinion on the issue,

I might receive 10 different opinions. For example, during my fellowship in Amsterdam, we advised patients to remain in a seated position for 5 days and to sleep half-seated for 5 nights. During my experience at the University of Maastricht, strict facedown positioning for 1 full week was the norm. In contrast, in The Hague, we simply advise patients to avoid supine positioning for the first 5 days after MH surgery.

Proponents of facedown positioning suggest that the tamponade must provide a mechanical "flotation force" at its apex against the macular hole, which is achieved while patients are face down.¹ It has been shown, however, that the most important effect of the gas bubble is to keep the macula dry, thereby providing a scaffold to support the formation of bridging preretinal membranes. In this context, buoyant force is of minor interest in contrast to surface tension, which is constant along the entire surface of the gas-retina interface. The position of the eye after intraocular tamponade should not influence the surface tension around the MH if the volume of intraocular gas is sufficient and the patient's gaze does not turn upward.²

In 1997, Tornambe et al³ reported favorable results after MH surgery without facedown positioning, and



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a search of the literature reveals that the trend seems to indeed be currently moving toward facedown positioning for fewer hours and days.³⁻⁵ However, 3 reviews have been recently attempted on the subject, and each concluded that there are insufficient data from which to draw firm conclusions.⁶⁻⁸

It seems clear that small holes (less than 400 μm in diameter) close in almost 100% of cases, with no difference between the 2 positioning regimens.⁹ Bigger holes are more challenging, however, and studies regarding the usefulness of postoperative prone positioning thus far have been controversial. Guillabey et al⁹ found a statistically significant difference between those who postured after surgery (95.1% closure rate) and those who did not (79.5%), among patients with MH >400 μm . On the other hand, in a study by Forsaas et al,¹⁰ also on holes bigger than 400 μm in diameter, no statistical difference was found between the patients randomized in the nonposturing group and patients randomized to strict prone positioning.

The length of time needed to heal the MH is likely to be short. Jumper et al¹¹ has shown that early closure of MH is related to MH size, and holes with a diameter of <400 μm were sealed after 1 day. Eckardt et al,¹² using

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air as tamponade and facedown positioning, showed that 90.9% of all MHs (including stage 3 and 4) in their series had closed by the third postoperative day. Among the 3 failures, 2 eyes in their study required a second operation with air tamponade and 3 more days of facedown positioning to achieve closure. In 1 eye in which the hole had existed for more than 2 years, the hole remained open despite repeated surgery.

Obviously, bigger and older holes might require a longer period than smaller holes to close. However, some of them would never close despite all efforts. One of the determinant factors to achieve MH closure is therefore to allow the edges of the MH to remain dry long enough to achieve apposition, which, when it occurs, takes usually less than 1 week. Whether this is obtained while staying up straight or facedown, it should not make a major difference as long as there is sufficient intraocular gas for the required amount of time. Nonexpansible concentrations of SF₆ and C₃F₈ have been shown to accomplish this task.

An important requirement is, however, that the patient does not assume a supine position until closure of the MH. This is usually not a problem during day hours, but it might be more difficult overnight. The consequence of supine positioning is that intraocular fluid will be able to soak into the hole, leading to ruptures of nascent bridging membranes and having a negative impact on the closure.

Interestingly, in the series of Forsaa et al¹⁰ patients in the nonsupine positioning group were instructed to fasten a tennis ball to the back of their nightshirt. Patients in the facedown positioning group were instead subjected to strict hospitalized bedridden positioning. No statistical difference was found between the 2 groups in the series, suggesting that providing a way to prevent inadvertent supine positioning during sleep might be sufficient to achieve the same results as continuous facedown positioning, with obvious benefits for patients in term of comfort.

Regardless of current opinions on positioning after MH surgery, patient compliance must be considered. Facedown positioning is difficult to maintain, if not sometimes impossible, for reasons such as obesity, old

age, arthritis, and other causes of immobility, as it can increase the immobilization period, leading to thrombosis, embolism, and neurologic complications.¹³⁻¹⁵ These factors may play a significant role on effective compliance in everyday practice, reducing the value and effectiveness of postoperative facedown positioning.

SUMMARY

In conclusion, postoperative facedown positioning after MH surgery is both unpleasant for patients and probably unnecessary in the great majority of cases. The benefits of facedown positioning in term of closure rates might be outweighed by the disadvantages in regard to patients' discomfort and acceptance of the practice. ■

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