

Comment on Submacular hemorrhage: A study among Indian eyes

Dear Editor,

We read the article "submacular hemorrhage: A study amongst Indian eyes by Rishi *et al.*,^[1] with interest, and would like to offer the following comments:

The authors included all patients with submacular hemorrhage (SMH) regardless of size, thickness, duration or etiology of SMH. Because presence of a choroidal neovascular membrane (CNVM) is the single most important variable that influences outcome,^[2,3] inclusion of age-related macular degeneration (AMD) and non-AMD eyes in the same report can produce misleading results.

To our knowledge, five publications have studied the natural history of SMH in eyes with AMD. Berrocal *et al.*, noted ≥ 2 line improvement in 40% eyes, and stable vision in 30% after a mean follow up of 29 months.^[2] Patients reported by Bennett *et al.*, had the worst initial (mean 20/1300) and final (mean 20/1700, $P = 0.49$) visual acuities, but were essentially stable after a mean (SD) follow up of 37.6 (33) months.^[3] The observation arm of Submacular Surgery Trial (SST) showed improved or stable (≤ 2 line loss) in 31% patients at three years, with no apparent benefit from surgery. "Successful outcome" defined as either improved or stable vision at two years was similar in surgery (44%) and observation (41%) arms.^[4] Thus, approximately 20-70% patients with SMH from AMD may

experience improved or stable vision with observation alone.

Compared to patients with AMD, those with non-AMD SMH have consistently done better with observation. Mean visual acuity improved to 20/35 (range 20/30-20/50) in traumatic SMH according to Bennett *et al.*^[3] Forty five percent non-AMD SMH eyes regained 20/40 or better vision according to Berrocal *et al.*^[2] If eyes with a CNVM are excluded, all except one eye in Berrocal's study improved to 20/40 or better. Thus, improvement in vision in 43-64% eyes noted by the authors might not have been much different from the natural history.

Besides the usual complications associated with pars-plana vitrectomy (PPV), including retinal detachment in 16% observed by the authors, similar to SST,^[4] vitrectomy increases clearance of intravitreal medications, making them less effective, or even ineffective as shown for intravitreal bevacizumab in vitrectomized eyes with diabetic macular edema.

In the pneumatic group, authors noted total displacement in 84% after a median follow-up of 6.5 months. Natural history arm of SST trial,^[4] showed that blood spontaneously absorbs after a median of 6 months. As the blood is usually displaced in inferotemporal direction, pneumatic procedure may actually force the blood into the fovea if significant part of SMH is located superonasal to the fovea. Fig 3b in the authors' study shows worse subfoveal hemorrhage compared to the preop photograph. A recent study found no benefit from pneumatic displacement compared to anti-vascular endothelial growth factor (VEGF) therapy alone in patients with SMH secondary to AMD.^[5]

While we are aware of the experimental studies that have demonstrated deleterious effects of subretinal blood and recognize that the idea of removing or displacing subfoveal blood might appear appealing, we would like to suggest that the conventional dogma that subfoveal blood needs to be removed or displaced in all cases to avoid permanent damage needs to be re-evaluated by well-designed randomized trials.

Kamal Kishore¹, Anthony S Ekong²

¹Department of Surgery, University of Illinois, College of Medicine, Peoria Campus, Peoria, IL, ²Department of Medical Retina and Uveitis, Illinois Retina Institute, Peoria, Illinois, USA

Correspondence to: Dr. Kamal Kishore.
5016 N. University Street, Suite 106,
Peoria, IL, 61614, USA.
E-mail: kamal.kishore1963@gmail.com

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