

## Commentary: Decoding the Ex-PRESS® implant

Even though conventional trabeculectomy remains the treatment of choice for the glaucoma surgeon, time and again attempts to modify and improve surgical outcomes and decrease the risk of complications continue. However, for any new device/procedure, the potential benefits ('efficacy'; and 'risk of complications'), should outweigh the additional cost to existing strategies. On the other hand increased non-surgical options and fewer new surgical procedures pose challenges to the novice surgeon.

The Ex-PRESS glaucoma surgery mimics trabeculectomy but uses a non-valved stainless steel device with a standardized ostium potentially giving reproducible outflow.<sup>[1]</sup> Initial use of this device as a full thickness procedure with sub-conjunctival plate resulted in high rates of hypotony and exposure.<sup>[2]</sup> Modifications later suggested that the device implantation within partial thickness sclera allowing flow adjustment by tightening the scleral flap.<sup>[2]</sup> The surgical technique is minimally invasive as it requires a small point of entry, no internal block dissection or surgical iridectomy. The device is reported to provide lower short term rates of hypotony and choroidal effusions and faster recovery of visual acuity to baseline levels.<sup>[3]</sup> Despite this, hypotony rates with sub-scleral implantation of the device were higher in first 11 patients due to learning curve as reported by de Jong.<sup>[4]</sup>

The present by Tojo *et al.* study looked at the factors affecting bleb morphology after Ex-PRESS surgery.<sup>[5]</sup> These provide additional parameters for objective assessment of the bleb, on similar lines to what we do clinically. The obvious comparison of the Ex-PRESS bleb would be to conventional trabeculectomy. Bleb morphology *per se* may help predict the post-operative course and bleb failure and guide bleb revisions.<sup>[6]</sup> Of particular interest are bleb height, bleb volume, bleb wall reflectivity and thickness. Both ultrasound biomicroscopy and anterior segment OCT can be used, however the latter is of special interest as it is quick and requires no contact with the globe.

Majority of patients were either pseudophakic or underwent simultaneous cataract surgery and approximately 20% had a prior glaucoma surgery.<sup>[5]</sup> Age, simultaneous cataract surgery and post-operative IOP variably affected the height, thickness and volume of blebs at the one year follow-up. Relatively younger subjects despite larger bleb volumes had lower surgical success.<sup>[5]</sup> But with an average follow up of 28 months, Good *et al.* reported less vascularity and height but more diffuse blebs in Ex-PRESS as compared to trabeculectomy using Moorfields Bleb Grading System in intermediate period but these differences did not sustain till last follow up.<sup>[1]</sup> This suggests that bleb modulation is an ongoing process.

Glaucoma surgery with Ex-PRESS with regards to IOP lowering is at most comparable to standard trabeculectomy but

long term superiority is questionable.<sup>[3]</sup> Complication rates are similar or sometimes lower with Ex-PRESS and the advantages were stated to be "incremental rather than revolutionary".<sup>[3]</sup>

Hopefully, we get answers to some of these questions in this paper. We also need to justify the increased cost of the newer procedure to patient benefit especially when resources are finite. However, for an individual patient, a balanced approach is still required to identify the best possible strategy.

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Access this article online	
Quick Response Code:	Website: www.ijo.in
	DOI: 10.4103/ijo.IJO_686_19

Cite this article as: Panday M. Commentary: Decoding the Ex-PRESS® implant. *Indian J Ophthalmol* 2019;67:1447.