# Long term follow up of a Biodegradable Subconjunctival Collagen- Glycosaminoglycan Matrix In Revisions Of late –Onset Glaucoma Filtering Bleb Leaks.

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## Introduction

The use of Ologen™ an implantable biodegradable collagen - glycosaminoglycan matrix to modulate tissue repair process and improve morphology of the filtering bleb in primary trabeculectomy is currently a known practice in glaucoma surgery.

Our purpose was to describe use of Ologen™ an for bleb revision in patients with avascular cystic blebs associated with bleb leaks or discomfort following trabeculectomy with Mitomycin C and also to asses the Long term surgical outcome and wound healing reaction with its use in a retrospective case series .

## Methods

Seven eyes of seven patients with an avascular cystic bleb configuration associated with a bleb leak or dysesthesia that underwent bleb revisions with Ologen™ with at least 18 months of follow up were included in a retrospective review of cases . One patient had a prior conjunctival graft for bleb leak 4 years prior to this revision.

All patients included had excision of avascular conjunctival tissue and limbal advancement of the conjunctiva after placing Ologen over the scleral flap with no adjunctive use of antimetabolite. None of the patients had additional sutures placed in the scleral flap. Data collected included patient demographics, pre and post operative vision, intraocular pressure and external photos of pre and post operative bleb morphology .

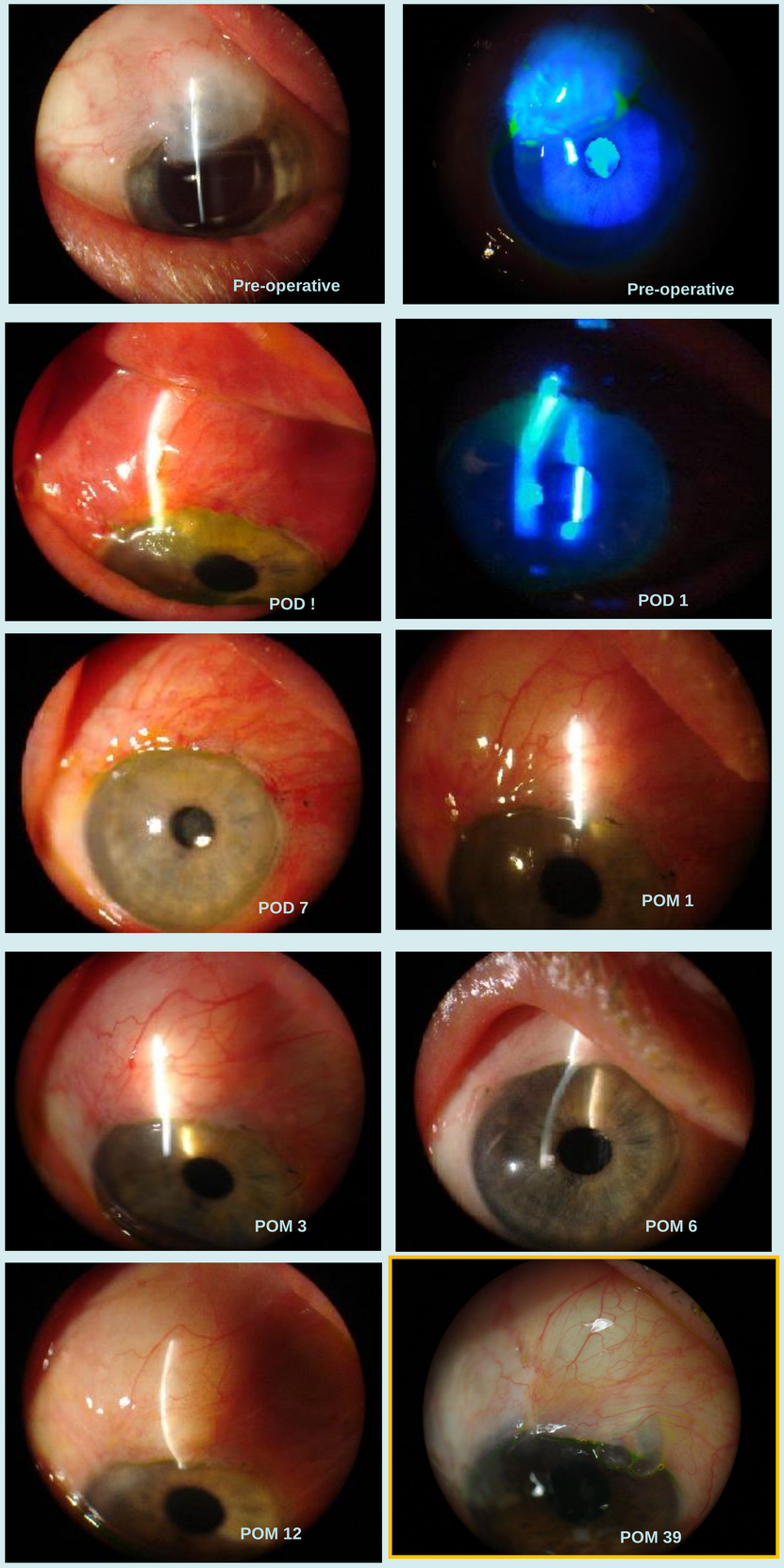
## Results

A total of seven eyes of seven patients with a mean age of 71.5 years that had revision of cystic avascular blebs with Ologen™ for bleb leaks and bleb dysesthesia were included in the review.

Patients had a mean preoperative IOP of 5.2mmHg (Range 0-10mmHg), and mean post operative IOP of 10.2 mmHg (Range 7-13mmHg) at last follow up. Average follow up postoperatively was 32.8 months (Range 21-39 months).

All patients were controlled off glaucoma medication at their last follow up visit with diffuse posterior mildly vascular blebs.

There were no early or recurrent bleb leaks in the follow up time frame.




## Discussion

Glaucoma surgery sometimes involves the treatment of patients with complex problems which could vary from routine trabeculectomy and tube shunts to revision of leaking blebs. Conjunctival advancement in patients with late bleb leaks has been found to have more successful outcomes with fewer intraocular infections than those managed more conservatively but, patients who undergo surgical revision occasionally redevelop over time an avascular or cystic configuration to their bleb likely due to prior antimetabolite exposure. The use of this technique will assist in providing surgical options in glaucoma surgery as we deal with complex cases that require an improved tissue modulation process.

Over long term period, the use of Ologen™ was seen to produce a more visually appealing bleb with higher pressure in previously hypotonus eyes. There were no significant complications from this technique and vision was maintained or improved for the long term in all patients.

## Conclusion

The use of Ologen™ proposes an additional surgical tool in the treatment of cystic avascular blebs with or without associated leaks. Following its use during surgical bleb revisions, there was an improvement in bleb morphology and appearance and maintenance of bleb function and intraocular pressure control in all patients for the long term. There was also an improvement in intraocular pressure in patients with hypotony .

## References

1.Tissue bioengineering for surgical bleb defects :an animal study. Hsu WC , Ritch R et al. Graefes Arch Clin Exp Ophthalmol.
2008 May ;246(5):709-17

2.Conjunctival advancement versus incisional treatment for late –onset glaucoma filtering bleb leaks. Burnstein et al. Ophthalmology 2002 jan;109(1) 7-5

3. Long term follow up of surgical repair of late bleb leaks after glaucoma filtering surgery.. Al-Shahwan et al. J Glaucoma 2006 Oct;15 (5):432 -6

4. Secondary subconjunctival implantation of a biodegradable collagen glycosaminoglycan matrix to treat ocular hypotony following trabeculectomy with Mitomycin C. Dietlein TS, Lappas A et al. Br J Ophthalmol. 2013 Aug;97(8);985-8