Collagen Matrix (Ologen) as a Patch Graft in Glaucoma Tube Shunt Surgery

JOHN STEPHENS
Affiliation(s): Dean McGee Eye Institute

Purpose/Relevance:
To determine the safety and efficacy of collagen matrix (Ologen) as a patch graft in glaucoma drainage surgery. Collagen matrix grafts do not need to be harvested from human donors and have improved cosmesis compared to sclera or pericardium.

Methods:
An institutional, retrospective review of 43 patients with at least 12 months follow up status post glaucoma drainage implant surgery were evaluated for signs of tube erosion after initial placement of collagen matrix patch graft.

Results:
41 of 43 eyes (95.3%) required no intervention for patch graft tube erosion. Average follow up was 32 months (range: 12-45). Tube erosion in two patients occurred at 4 and 26 months post op requiring revision.

Discussion:
Both patients with tube erosion had histories suggestive of poor wound healing and/or ocular inflammation. The first case was in an 86-year-old woman with open angle glaucoma and a history of iritis. Partial exposure occurred at one week and full exposure at 4 months. Revision with conjunctiva was successful for a total follow up of 32 months. The second was a 74-year-old woman with open angle glaucoma and long-standing diabetes mellitus with superior conjunctival scarring. Erosion occurred at 26 months. Revision with donor sclera was successful for a total follow up of 32 months.

Conclusion:
Collagen matrix patch grafts may be used successfully in glaucoma tube shunt surgery. They offer the advantage of not needing to be harvested from a human donor and provide better cosmesis than sclera or pericardium; however, like other grafts, there may be an increased risk of exposure in patients with a history of ocular inflammation or long-standing diabetes mellitus.

References:
40 Surgical Outcomes Following the Use of a Biodegradable Subconjunctival Collagen-Glycosaminoglycan Matrix in Revisions of Late-Onset Glaucoma Filtering Bleb Leaks

OLUWATOSIN U. SMITH 1, David G. Godfrey 1, Davinder S. Grover 1, Michelle R. Butler 1, Ronald Fellman 1
Affiliation(s): 1 Glaucoma Associates of Texas

Purpose/Relevance:
The use of Ologen®, an implantable biodegradable collagen-glycosaminoglycan matrix to modulate tissue repair processes and improve morphology of the filtering bleb in primary trabeculectomy is currently a known practice in glaucoma surgery.

Our purpose was to describe the use and assess the surgical outcomes and wound healing reactions after the use of Ologen® for bleb revisions in patients with avascular cystic blebs with associated bleb leaks following trabeculectomy with mitomycin C in a retrospective case series.

Methods:
Four eyes of four patients that underwent bleb revisions for bleb leaks with cystic avascular bleb configurations was included in a retrospective review of cases. One patient had a prior conjunctival graft for bleb leak 4 years prior to revision.

All patients had a excision of the avascular conjunctival tissue and then advancement of the conjunctiva after placing Ologen® over the scleral flap with no adjunctive use of an antimetabolite. None of the patients had additional sutures placed in the scleral flap. Data collected included pre and post operative intraocular pressure and external photos of post operative bleb morphology for review.

Results:
Patients had a mean preoperative IOP of 4.5mmHg (Range 0-14mmHg) and mean post operative IOP of 10.5mmHg at last followup. Average follow up postoperatively was for nine months with 2 patients being followed for up to one year. All patients were off medication at there last follow up visit with diffuse posterior mildly vascular blebs. There were no early or recurrent bleb leaks in the follow time frame. Mean age of patients was 71.5 years.

Discussion:
The use of 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. However, patients who undergo surgical revision occasionally redevelop over time a cystic configuration to their bleb likely due to exposure to antimetabolite in the past.

The use of Ologen® was seen to produce a more visually appealing bleb with higher pressure in hypotensive eyes. There were no significant complications from this technique and vision was maintained or improved in all patients.

Conclusion:
The use of Ologen® proposes an additional surgical tool in the treatment of cystic avascular blebs with associated leaks resulting in improvement in the bleb morphology and appearance following surgical bleb revision. There was improvement in intraocular pressure in patients with hypotony and maintenance of bleb function following surgery in all patients.

The longterm survival of bleb function using this technique is yet to be determined and continued follow up is required.

References: