ologen® Collagen Matrix implant in pigmentary glaucoma: A case study

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The ologen® Collagen Matrix (Aeon Astron Europe B.V., Leiden, The Netherlands) is a collagen-glycosaminoglycan (GAG) copolymer matrix implant designed for glaucoma surgery. According to the manufacturer, the porous structure of ologen® Collagen Matrix enables fibroblasts and myofibroblasts to grow randomly into the pores to form a loose matrix of connective tissue and thereby reduce scar formation. After implantation, the device mostly degrades in approximately 180 days. Our 24-month randomized clinical trial suggested that ologen® Collagen Matrix could be a safe and effective alternative to Mitomycin-C (MMC) with similar long-term success rate in primary open-angle and exfoliation glaucoma.¹

Case study
In 2009, a 36-year-old woman with bilateral pigmentary glaucoma was referred to us. Her intraocular pressure (IOP) was above 40 mmHg with maximum therapy, deep papillary cupping, advanced visual field damage and best-corrected visual acuity (BCVA) 20/20 OU (for both eyes). In April 2009, she underwent trabeculectomy in her right eye (RE) and in her left eye (LE) in January 2010.

Methods
The technique used for the RE included a superior fornix-based conjunctival/tenons flap and scleral flap with 3.0 mm side incisions not completed up to limbus according to the ‘Moorfields Safer Surgery System’.² Pieces of weck-cell sponge soaked with MMC at a concentration of 0.2 mg/mL were placed under the conjunctiva surrounding the scleral flap and on the scleral bed to be left in the position for 2 min. Trabeculectomy was performed with a Crozafon-De Laage punch; the scleral flap was closed with one loose stitch and a ologen® Collagen Matrix implant (model number 830601: 2.0 mm in height x 6.0 mm in diameter) was then centred on top of the scleral flap and under the conjunctiva. The conjunctival flap was secured to the limbus with a tight 10-0 nylon running suture with buried knots. The filtration was assessed by injecting balanced saline solution (BSS) into a paracentesis. The same technique was used for the LE, but in this case no MMC augmentation was employed. The postoperative IOP, blebs, VA and complications were evaluated.

Results
In November 2011, 31- and 22-months after surgery respectively, the IOP was 11 mmHg in the RE and 10 mmHg in the LE, both without medications. The VA was 20/10 in both eyes with clear lenses. Both blebs were diffuse, but with a central avascular, cystic area in the RE in contrast to the normal vascularization in the LE (Figure 1).

Conclusions
In this case ologen® Collagen Matrix alone exhibited similar long-term success as MMC and ologen® Collagen Matrix created a more physiological bleb appearance than MMC.

References

Figure 1: Blebs photographs. Left: RE 31-months post-op; right: LE 22-months post-op.

Full details of the ologen® Collagen Matrix can be seen on page 16

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4 Comprehensive detection of ganglion cell loss with posterior pole asymmetry analysis
A new protocol for the SPECTRALIS SD-OCT, from Heidelberg Engineering, has been created that detects ganglion cell losses in the posterior pole to assist in early identification of glaucoma.

Implants
6 ologen Collagen Matrix implant in pigmentary glaucoma: A case study
ologen Collagen Matrix (Aeon Astron Europe) has been designed for glaucoma surgery and, through previous studies, has been suggested as a safe and effective alternative to MMC.

7 The light-adjustable lens and the demanding patient
In difficult cataract patients the light adjustable lens (LAL; Calhoun Vision) offers precise visual outcomes, according to Dr Brierly.

8 The presbyopia dilemma
Mr Quereshi discusses his experiences with the Light Adjustable Lens (LAL) from Calhoun Vision, highlighting the advantages and possible future opportunities.

Laser Surgical Platforms
9 SLT case studies
Three cases are described looking at SLT (using Lumenis equipment) as an initial therapy, replacement treatment and its repeatability.

11 SUPRACOR varifocal presbyopia treatment in pseudophakic patients
This case study is part of a prospective single site study for SUPRACOR (Technolas Perfect Vision) LASIK in pseudophakic eyes.

Surgical Instruments
13 Product focus: Geuder Xenotron III, the new light source
In this feature two professors discuss the benefits of the Xenotron III from Geuder.

14 A comparative study proves the higher efficacy and safety of easyPhaco
The results of a comparative study are revealed that demonstratel the intraoperative efficacy and postoperative outcomes of the easyTip 2.2 mm and the 20G CMP tip (both from Oertli Instrumente).

16 Product Profiles
Heidelberg Engineering
Aeon Astron Europe
Calhoun Vision
Lumenis Vision
Technolas Perfect Vision
Geuder
Oertli Instrumente