Ultrasound biomicroscopy and optical coherence tomography imaging of filtering blebs after deep sclerectomy with new collagen implant.

Aptel F, Dumas S, Denis P.

Department of Ophthalmology, Edouard Herriot Hospital, Lyon - France. aptel_florent@hotmail.com

Abstract

PURPOSE: To identify the clinical and anatomic characteristics of filtering blebs after glaucoma surgery with a new biodegradable collagen implant, Ologen, using ultrasound biomicroscopy (UBM) and Visante anterior segment optical coherence tomography (OCT).

METHODS: The authors conducted a prospective interventional case series in 15 eyes with open-angle glaucoma. The authors performed limbal-based deep sclerectomy with Ologen implantation in the scleral bed. UBM, Visante anterior segment OCT, and a complete ophthalmic examination were performed at each follow-up visit, at 1 day, and 1, 4, and 12 weeks postoperatively.

RESULTS: Intraocular pressure (IOP) was significantly reduced (p<0.001) from a mean preoperative value of 24.2+/-6.8 mmHg (n=2.82 glaucoma medications) to a mean postoperative value of 8.1+/-1.2 (n=0), 8.5+/-1.3 (n=0), 11.7+/-3.2 (n=0), and 14.2+/-3.9 mmHg (n=0.33) at 1 day, and 1, 4, and 12 weeks, respectively. Lower IOP correlated with bleb height and low trabeculocorneal membrane thickness (r=0.79, p<0.01, r=0.91, p<0.001) based on UBM examination. Lower IOP correlated with thin bleb wall, large subconjunctival fluid spaces, and low bleb tissue reflectivity (r=0.81, p<0.01, p<0.001, and p<0.001) based on OCT examination. No postoperative complications were reported.

CONCLUSIONS: UBM and OCT examinations are useful methods to evaluate outflow mechanisms after glaucoma surgery. Deep sclerectomy with Ologen implantation seems to be an effective and well-tolerated method to reduce IOP.