

Surface Topographies of Glaucoma Drainage Devices and Their Influence on Human Tenon Fibroblast Adhesion

Lars Choritz, et al. Surface Topographies of Glaucoma Drainage Devices and Their Influence on Human Tenon Fibroblast Adhesion. Investigative Ophthalmology & Visual Science, August 2010. 51, No. 8.

STUDY OVERVIEW

Evaluation of cell cultures in vitro to assess surface texture of commonly used glaucoma drainage devices - Molteno[®], Ahmed Glaucoma Valve[®] and Baerveldt[®] - and their influence on cell adhesion and growth of human tenon fibroblasts. Authors conclude that surface roughness correlates with tenon fibroblast adhesion and also with the rate of occurrence of hypertensive phase and surgical failure due to fibrous encapsulation.

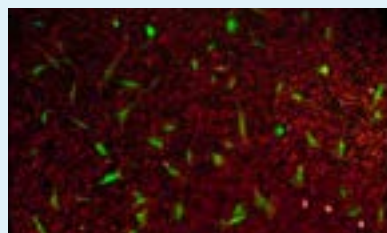
PLATE TOPOGRAPHY

The Molteno[®] was shown to have a smooth surface texture with only a few irregularities, as compared to the Ahmed Glaucoma Valve[®] and the Baerveldt[®].

	Plate Topography	Plate Material
Molteno [®]	0.07 microns	Polypropylene
Baerveldt [®] (BG 103- 250)	0.1 microns	Silicone
Ahmed Glaucoma Valve [®] (FP7)	1.5 microns	Silicone

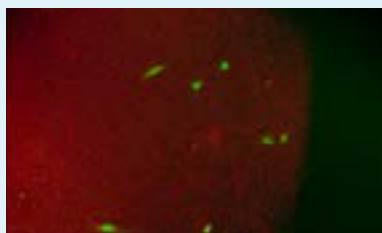
CELL ADHESION

The Molteno[®] demonstrated minimal fibroblast attachment, as compared to the Ahmed Glaucoma Valve[®] and the Baerveldt[®].



AHMED (FP7)

Cell adhesion: 100 ± 24 cells



BAERVELDT

Cell adhesion: 15 ± 3 cells



MOLTENO[®]

Cell adhesion: 5 ± 1 cells

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INDICATIONS: The Molteno3® is indicated to reduce intraocular pressure in neovascular glaucoma and glaucoma where medical and conventional surgical treatments have not been successful, to control the progression of disease.

CONTRAINDICATIONS: Patients with the following conditions may not be suitable candidates for the Molteno3®: 1. intraocular infection, 2. rheumatoid arthritis, scleritis and immune corneal melt syndromes, 3. Scleral Buckle.

COMPLICATIONS: Possible complications with the use of the Molteno3® include, but are not limited to: choroidal detachment, retinal detachment, expulsive haemorrhage, pupillary block, lenticulo-ciliary block, shallowing and flattening of the anterior chamber, intraocular infection, diplopia, loss of central vision, hypotony and corneal endothelial damage.

ADVERSE EVENTS: Possible adverse events with the use of the Molteno3® include, but are not limited to: corneal endothelial damage when the tube touches the corneal endothelium, breakdown of the tissues overlying the bleb, diplopia when the placement of the implant interferes with the action of the extraocular muscles, corneal decompensation, progression of lens opacities, cystoid macular oedema, retinal detachment and intraocular infection

PRECAUTIONS: Caution should be taken with supra-Tenon implantation; erosion of the conjunctiva is known to result from the raised edge of the oval pressure ridge (Molteno3® G-Series) of surgical techniques, proper use of the surgical instruments, and post-operative patient management are considerations essential to a successful outcome.

