Clinical Outcomes of Gamma-Irradiated Sterile Cornea in Primary Aqueous Drainage Device Surgery: A Multicenter Retrospective Study

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Abstract

Background: To evaluate the safety and efficacy of gamma-irradiated sterile cornea (GISC) for covering the tube in primary aqueous drainage device (ADD) surgery.

Design: Retrospective, multicenter case series.

Participants: 297 patients (321 procedures) who had undergone primary ADD surgery with GISC patch at 3 clinic centers in the United States between April 2009 and July 2012. Of those, 319 eyes in 295 patients were included in analysis.

Methods: The medical records of consecutive patients who underwent primary ADD implantation surgery using GISC as patch were reviewed. Preoperative, intraoperative, and postoperative parameters about GISC were collected and analyzed.

Main Outcome Measures: Patch graft failure (PGF) and postoperative complications related to GISC

Results: 319 eyes in 295 patients were included in the current analysis. 10 out of 319 eyes experienced PGF with a mean follow-up of 15.4±9.8 (SD) months. The overall cumulative PGF proportion from the Kaplan–Meier curve was 2.6% (95% CI: 0.6%–4.7%) at 18 months. Despite 3 cases of endophthalmitis caused by PGF, no other
infection episodes were noted within this cohort.

**Conclusions:** GISC appears to have a reasonable success rate for preventing tube erosion over an 18-month period. This success rate, in combination with other features of GISC (transparency and storage at room temperature), makes it a viable choice for patch graft material during aqueous drainage device to extraocular reservoir surgery.

**Key words:** cornea, aqueous drainage device, patch graft failure, erosion