

Long-term outcomes of glaucoma drainage implant surgery using Sterile Cornea patch graft

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Purpose: To evaluate the efficacy, safety and complications of using Sterile Cornea or Sclera as patch in glaucoma shunt surgery.

Method: This is a retrospective chart review study was approved by our institutional review board. It included patients who underwent either Baerveldt or Ahmed valve glaucoma drainage device implantation with the use of Sterile Cornea (SC) or Tutoplast Sclera (TS) as a patch graft at our institution, between 2000 and 2009. A total of 36 eyes from 36 patients including 15 eyes in the SC group and 21 eyes in the TS group were included. Patients with retinal detachment or severe impairment of VA prior to the surgery were excluded. Studied outcome included postoperative IOP, need for additional glaucoma surgery for inadequate control of IOP. Long-term complication were also assessed including graft erosion with shunt exposure, conjunctival retraction, hypotony, infection, uncontrolled elevated IOP, choroidal hemorrhage, corneal decompensation.

Results: Mean age was 63.1 ± 22 years in the SC and was 68.56 ± 13.15 years in TS group. There is no significantly different between two group ($p > 0.05$). The mean follow-up period after surgery was 20.5 ± 9.58 months in SC group and 48.0 ± 8.43 months in the TS group. No intra-operative complications were encountered in any of patients. All of the patients had a minimum of two years follow up, the mean postoperative IOP were 15.21 ± 6.50 mmHg and 18.54 ± 8.61 mmHg respectively ($P > 0.05$). Patients experienced postoperative IOP higher than target IOP in SC group $n=4$ (13.8%) and $n=4$ (19%) in the TS group ($P > 0.05$). Incidence of shunt exposure In SC was 12.5% and 15.1% in TS ($p=0.54$). There were 2 cases of shunt exposure in SC group and 3 cases in TP group; We also observed the relation of the erosion with the graft position in two groups ($p=0.037$). 5 eyes needed re-intervention with either another patch graft (4 eyes) or shunt explanation (1 eye). 2 cases of which were in the SC group and 3 cases in the TS group. Need for secondary glaucoma surgery was reported in 3 cases, 1 case of which were in the SC group and 2 cases in the TS group. During postoperative follow up there were no cases of reported conjunctiva retraction, hypotony, infection or corneal decompensation.

Conclusion: The use of Sterile Cornea graft for patching in glaucoma surgery is safe and effective based on our long-term observations. The erosion of graft is related with the position of the graft. There is statistical difference between two groups. Sterile cornea is non-immunogenic, and possible as strong and effective as Tutoplast sclera according to our findings. Furthermore it is also of easy access and long shelf life, hence it presents another good graft option for glaucoma drainage device surgery.
