

76-Prognosis & Complications of Corneo-scleral transplants for end-stage corneal disease

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In fulminating cases of infectious keratitis, or in severe cases of epithelial downgrowth, we as corneal surgeons are often at a loss. The only treatment modality in such cases may be performing a large, corneo-scleral transplant. Too often, however, such heroic procedures are fraught with severe complications and carry a poor prognosis.

Lawrence W. Hirst, MBBS, addressed whether corneo-scleral transplants have an acceptable prognosis in such severe cases in a paper presented at the AAO meeting in San Francisco. His co-author in this work was Graham Lee, MBBS, also of Brisbane, Australia.

Twenty-three consecutive patients requiring a corneo-scleral transplant with a donor size of 11 mm or greater were followed to determine the surgical outcome. Parameters studied included graft clarity, visual result, incidence of rejection, recurrence of disease in the graft, and risk of eventually requiring enucleation. All surgery was performed by Dr. Hirst using standard transplantation techniques using interrupted 9-0 sutures under general anesthesia. Elective tarsorrhaphy was performed in some of the later cases.

Entry diagnosis before corneo-scleral transplantation were as follows: fulminant bacterial keratitis (8 cases), fulminant fungal keratitis (7 cases), epithelial downgrowth (4 cases), Acanthamoeba keratitis (3 cases), and rheumatoid arthritis melt (1 case).

Postop control of glaucoma was achieved with either medically, or with either a Molteno valve or with cyclocryotherapy if medical control failed. Thirteen patients developed postoperative glaucoma, only 7 of whom responded to medical therapy, while 6 required surgery, and 1 ultimately required enucleation. Patient eyes were followed for an average of over 2 years (837 days), excluding those eyes that had to be enucleated.

Thirteen of 23 eyes were retained by the patient; 10 of 23 were enucleated because of recurrence of the disease. Although visual acuity was poor in all cases, 9 patients did retain better than hand-motions vision.

Epithelial defects were common, occurring in 12 patients, and were unresponsive to artificial tears, lubrication, and topical Vitamin A. These epithelial defects did, however, respond to lateral tarsorrhaphy.

Interestingly, despite the large size of these corneo-scleral grafts, typical rejection could not be identified in a single case. However, several cases exhibited "atypical" rejection resulting in opaque grafts. Five out of 13 surviving grafts remained relatively clear.

Other complications included 4 retinal detachments, and 1 amphotericin-induced corneal and retinal toxicity.

Dr. Hirst concluded by stating that there is a place for corneo-scleral grafts for end-stage disease, in an effort to avoid enucleation and preserve limited visual function. Proper informed consent and patient understanding of the poor prognosis is essential.

This paper was discussed by Richard L. Abbott, MD, of San Francisco, CA. He stated that the goals of PK in cases of active infection are to preserve the integrity of the globe, and to hopefully decrease the inoculum of infecting organisms.

Dr. Abbott reiterated that the indications for corneo-scleral transplantation remain largely cases of fulminant infection in which the alternative would be immediate enucleation. Eucleation was successfully avoided in 60% of these cases. Prognosis may potentially be improved by utilizing two techniques during surgery: 1) performing a total limbal peritomy in an effort to preserve and transplant limbal stem cells, and 2) performing a lateral tarsorrhaphy when necessary.

In summary, a corneo-scleral graft is often the only possible treatment in cases of fulminant corneal infection. With appropriate patient selection and informed consent, it is possible in a reasonable percent of cases to save the integrity of the globe, thereby keeping open the possibility of further surgery (e.g., keratoprosthesis) to restore some useful vision.