

REPAIR OF PERFORATING INJURY WITH A SCLERAL GRAFT*

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Case Report

A man aged 30, was seen on September 20, 1957, soon after receiving an injury to the left eye from a metal rod which he had been trying to straighten, and which sprang up and struck his eye a glancing blow.

Examination.—He had a perforating scleral wound 5 mm. long on the nasal side of the cornea about 4 mm. from and almost concentric with the limbus. The edges of the wound were rather ragged. Uveal tissue had prolapsed through the gap. A hyphaema was present.

Treatment.—The scleral wound was repaired with two interrupted silk sutures, the uveal tissue being pushed back into place. Penicillin was given intramuscularly to combat any possible infection.

The eye seemed to heal without any complications. When the hyphaema cleared, the pupil was found to be displaced towards the injury.

The wound began to gape about 10 days after the repair and was again closed with interrupted silk sutures. These sutures cut through the sclera in a few days and allowed the uveal tissue to prolapse once more.

Operation.—Conventional methods did not seem adequate for this case, and it was decided to close the gap in the sclera with a lamellar scleral graft. This was done on October 11, 1957. The graft was obtained from a donor eye of which the cornea had already been used for lamellar keratoplasty.

The donor area was marked out as a curved strip 6 × 12 mm. adjacent to the limbus, and was dissected off as a layer about two-thirds the normal scleral thickness. A corresponding area was prepared as a recipient bed by removing the conjunctiva and peeling off a thin layer of the superficial scleral lamellae. No attempt was made to match the bed and the graft as regards depth and thickness. 6/0 chromic catgut was used throughout to fix the graft.

Suturing was commenced with a stitch which passed through both lips of the wound and was brought out through the centre of the graft and tied on its surface. Several interrupted sutures were placed along the edges of the graft. The repair was completed with a conjunctival hood flap. Diamox was used post-operatively with a view to obtaining a soft eye and thus preventing displacement of the graft during the early stages of union.

Result.—The eye healed rapidly without any undue reaction and the patient was discharged 19 days after the operation. Some of the sutures on the corneal side of the graft had to be removed a week later, as the short ends were irritating the cornea and had caused a small corneal ulcer. The remaining sutures were left undisturbed. A note was made to the effect that the eye was quiet 6 weeks after the operation.

A vitreous haemorrhage behind the nasal side of the lens was absorbed gradually. A curious feature, noticed when the media had cleared sufficiently, was the presence of numerous fine dark granules scattered in the vitreous mainly on the side of the injury. These granules are still present.

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The patient now has a displaced pupil, a localized peripheral post-cortical lens opacity on the side of the injury, and an unaided visual acuity of 6/6. The surface of the graft is slightly above the level of the rest of the globe, because the graft and its bed were not accurately matched. This prominence has remained unchanged until the present.

Discussion

Scleral grafting is not a commonly used procedure. This is partly because there are few indications for it and partly because the sclera has not been considered an ideal tissue for homografts (Rycroft, 1951), which often give rise to intense reaction and are ultimately replaced by fibrous tissue.

Lister (1951) and Sivasubramaniam (1954) used donor material from cadaver eyes without any alarming reactions. The case here described healed reasonably quickly and the graft itself does not seem to have changed during the past year.

An interesting feature in the published accounts of scleral grafts mentioned above is the leakage of aqueous which occurred when the sutures were removed in some cases. Another point is that the edges of the donor and recipient tissue failed to unite along part of the circumference of the grafts in two cases. Silk sutures were used to fix these grafts. They were removed about the 10th to 14th day, as is the usual practice in keratoplasty. This suggests that scleral tissue takes longer to unite than corneal tissue, and that silk sutures should be left in longer or catgut used as in this case.

Scleral grafts could be used with advantage to seal gaps in the sclera, as either homo- or auto-transplants. An interesting possibility is the sealing of gaps in the cornea, such as those following corneal ulcers, with a scleral graft obtained from the same eye (Larsson, 1948). Such a procedure would be particularly useful in a peripheral ulcer where optical considerations were not important, especially as donor material for corneal grafting is often not available when required for such cases.

Summary

Repeated direct suturing of a perforating scleral wound near the limbus was not sufficient to close the gap permanently. The injury was successfully repaired with a lamellar scleral graft obtained from a cadaver eye. The patient made an uneventful recovery with a visual acuity of 6/6 in the injured eye.

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