Use of Free Grafts in Correction of Recurrent Pterygia, Pseudopterygia and Symblepharon

DEANE C. HARTMAN, M.D., *Los Angeles*

SUMMARY

Use of conjunctival material for grafting over areas of the eye denuded by removal of a pterygium, pseudopterygium or symblepharon gives better results cosmetically, and in some instances functionally, than either thin split skin or mucous membrane from the mouth. A technique for grafting with conjunctiva is described.

THE repair of recurrent pterygium, pseudopterygium. and symblepharon frequently necessitates the use of free graft to cover the denuded area over the sclera and into the cul-de-sacs. Usually either split skin,[8] mucous membrane,[1, 8, 10] or conjunctiva[2, 3, 4, 6, 7, 9] is used for this purpose.

Thin split skin will "take" very well, but the desquamating epithelium is very poorly tolerated by the cornea. Also, the graft becomes thicker and whiter—more unsightly—as it grows.

Mucous membrane from the mouth is available in relatively large amounts; it may be removed from either inside the lower lip or inside the cheek anterior to Stenson's duct. It shrinks moderately but grows fairly well and is tolerated by the cornea. However, it tends to remain a deep red color even with the passage of time. The thinner the graft, the less the primary contraction. It is most important to trim the graft thoroughly, allowing 10 per cent for primary contraction. The method described by Macrae[5] is an excellent one. The strip of mucous membrane, when removed, is laid across the palmar aspect of the left index finger, raw surface exposed. The ends or points of the graft can then be controlled by means of the thumb and side of the middle finger, which may be necessary when dealing with a graft which has been cut a little too thickly and thus tends to curl in. All fat and submucous tissue must be removed with fine scissors until the graft is so thin that, were it not kept on the finger during the process, it would be difficult to tell which was the raw surface. The lip wound may be sutured later; while the material is being prepared. bleeding at the donor site may be controlled by pressure.

The mucous membrane graft is transferred to the already denuded area on the globe and sutured into place with interrupted 6-0 black silk. The graft is trimmed as necessary at the time of suturing. Care must be exercised to cover areas well into the cul-de-sac. It may be necessary to use double arm 4-0 silk sutures carried from the cul-de-sacs to the outside and tied over pegs. The caruncle should be preserved if at all possible and not covered with a graft.

A plastic oval conformer with a central opening a little larger than the cornea is introduced to hold the graft well into the cul-de-sacs and allow some pressure to be placed over the graft.

In estimating the size of graft required, it is helpful to know the anatomical facts concerning the human eye. The superior conjunctival fornix corresponds nearly with the superior palpebral skin fold.[11] The conjunctival fornix lies 8 to 10 mm. from the corneal margin above and below, and 7 mm. from the internal canthus. With the eye closed the conjunctival fornix is distant from the palpebral fissure 20 to 25 mm. above and 9 to 12 mm. below.

There are few references in the literature to the use of conjunctiva.[2, 3, 4, 6, 9] Advantages of this material are that it is easy to procure in most instances, it heals into place well, and it matches the cornea better than other materials. It may be taken from either the affected or the opposite eye. The major disadvantage is the limited amount available. A technique of grafting with conjunctiva which the author has found satisfactory is as follows:

The upper lid is everted over a large-sized Desmarres retractor held on the skin surface. A 2 per cent solution of procaine with epinephrine 1:40,000 is injected with a 27-gauge needle just under the conjunctival surface 3 to 5 mm. posterior to the superior edge of the tarsus. Several small amounts are injected along the line to balloon the conjunctiva so that it resembles a long sausage. With the conjunctiva thus stretched, a strip 20 mm. long by 10 mm. wide is outlined with a sharp knife and then carefully undermined longitudinally, with the point of the scissors kept close to the conjunctiva. The ends are then cut free and a 6-0 black silk suture is placed through each corner to aid in identifying the epithelial surface, in handling the graft, and in stretching it immediately after it is transferred to the recipient area. As the conjunctiva has been stretched vertically by the previously mentioned injection, it immediately contracts about 30 per cent so that the width of 10 mm. reduces to approximately 7 mm. The graft is sutured into place, care being taken to cover the cul-de-sacs if necessary. A plastic conformer is placed in the eye. The donor area is sutured with 6-0 black silk.

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A dressing of fluffed gauze, kept under moderate pressure with adhesive tape and a head roller bandage, is used. The dressing is changed in five days and every three days thereafter. The conformer and sutures are removed in two weeks.

The results in a small series of cases have been most favorable. There is a shortening of the upper cul-de-sac where the graft was removed but not enough to produce subjective symptoms.

1136 West Sixth Street.

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Discussion by ORWYN H. ELLIS, M.D., *Los Angeles*

Regarding skin grafts to cover sclera and repair conjunctival defects, I heartily agree with Dr. Hartman that dermal grafts are unsightly, have a copious foul-smelling mucopurulent discharge, and are rarely if ever indicated. I have made infrequent use of mucous membrane for grafting. It is almost never necessary to suture the lip or mouth wound, unless the deeper structures have been inadvertently entered.

Conjunctival grafts interest me most. In traumatic wounds or chemical burns, usually the upper fornix remains uninjured and can be ballooned as Dr. Hartman has described. Then the conjunctiva from the fornix of the same eye is swung down as a large pedicle graft or excised as a free graft to cover the defect of the bulbar conjunctiva, to line at least one side of a symblepharon or wherever it is indicated to suture in place. In this regard one point should be mentioned. It is not necessary to suture or even to try to approximate the area from which the graft, either free or pedicle, was taken—provided that only the conjunctiva was removed and the underlying tissue was not injured in taking the graft. Shortening of the cul-de-sac has not been observed if the stent remained in place three weeks. The chance of injury is greatly lessened by the subconjunctival procaine injection, which should be carried out whether the operation is to be done with general (which I prefer) or local anesthesia. The conjunctiva quickly regenerates without defect with the stent in place, and is usually fully healed without contracture in three weeks, at which time the large pressure dressing can be permanently removed.

In cases in which pterygia repeatedly recur after simple excision (which, in my opinion, has the most to offer of all the operations for pterygium) I have done a lamellar or split-thickness corneal graft with success. In such cases, this procedure, rather than repair using conjunctiva or mucous membrane, is indicated. After excision of the recurrent area from the cornea by corneal splitting, a split-thickness graft from a donor eye, cut to fit the defect in the host cornea, is applied with direct suturing. Tract sutures have been found to ease considerably the task of suturing the corneal graft in place.