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Original Article

Conjunctival Autotransplant in Pterygium Excision Using a Novel Technique: A Follow-up Study of 100 Cases

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Abstract

The study was conducted in District Hospital Baramulla from January 1, 2015, to December 31, 2016. It was a post-operative interventional study. In this study, 100 eyes of 100 patients with primary nasal pterygium were operated, 65 males and 35 females. Simple excision under local anesthesia was performed followed by closure of bare sclera by sutureless and glue-free conjunctival autograft with adhesion enforced by mild cautery application between free edges. Follow-up period was 6 months. Recurrence occurred in 1 patient (1%), other complications include conjunctival chemosis in 11 (11%) patients, partial graft displacement in 2 (2%) patients, graft retraction from nasal side 3 (3%) patients, total graft displacement in 1 (1%) patient, overriding of graft on cornea (2%) patients, and granuloma in donor site in 1 (1%) patient.

Key words: Complications, Conjunctival autograft, Glue free, Pterygium, Recurrence, Suture free

DEFINITION

Pterygium is a common ocular surface lesion originating in the limbal conjunctiva within the palpebral fissure with progressive involvement of the cornea. The lesion occurs more frequently at the nasal limbus than the temporal with a characteristic wing-like appearance.

ETIOLOGY

The etiology is unknown. An increased incidence is noted in latitudes nearer the equator and individuals with a history of increased UV exposure.

Risk factors include UV radiation, dry climate, and outdoor lifestyle.

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PATHOPHYSIOLOGY

The pathophysiology of pterygium is characterized by elastotic degeneration of collagen and fibrovascular proliferation with an overlying covering of epithelium. Histopathology of the abnormal collagen in the area of elastotic degeneration shows basophilia with hematoxylin and eosin stain. Destruction of Bowman's layer by fibrovascular growth is typical.

CURRENT MANAGEMENT TECHNIQUES

The main problems with pterygium surgery are the problems with post-operative recurrence and scarring.

In the bare scleral technique, an exposed area of sclera is left. However, the recurrence rate is very high ranging from 30% to 80%. To reduce recurrence rate, antimetabolites like mitomycin-C have been used intraoperatively and postoperatively. However, mitomycin C is associated with serious complications like scleral thinning with uveal tissue show through. Others include photophobia, secondary glaucoma, sudden onset mature cataracts, corneal melt, iridocyclitis, symblepharon formation, and punctal occlusion.

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Conjunctival autograft remains the gold standard for the treatment of pterygium. These techniques involve the use of sutures or fibrin glue[1-5] and are vulnerable to associated complications.

The use of sutures[2,4-6] may lead to local complication such as discomfort, scarring, or infection. Fibrin glue[7-9] may produce possible hypersensitivity reactions, whereas the risk of viral transmission remains.

We have evolved techniques which are sutureless and glue free.[6,9-12]

SURGICAL TECHNIQUE

Peribulbar anesthesia was given with 2% lignocaine. Body of pterygium was dissected 4 mm from limbus in two layers. Superficial layer included only conjunctiva and deep layer of Tenon's capsule included immediate subjacent and adjacent Tenon's capsule. Pterygium was removed from cornea by avulsion.

Remnants on cornea where scrapped by crescent blade and sclera bed was also cleared of remnants by scraping of bed by crescent blade. Hemorrhages were controlled by direct compression. The defect was measured by Castroviejo caliper in mm.

An oversized graft by 1 mm was taken from superior 12 O'clock position. Saline was injected by 26 G needle and a thin graft[13] was fashioned between conjunctiva and Tenon's capsule. Care was taken to include as little Tenon's capsule as possible. The graft was dissected anteriorly to include stem cells in limbus and graft was resected with conjunctival scissors. The graft was placed on bare scleral and positioned so as to maintain the limbus-limbus orientation with epithelial surface up. The edge of the graft and free conjunctival margin (left after excision of pterygium) is apposed with toothed forceps at multiple spots. Moreover, adhesion is enforced by applying mild bipolar cautery at multiple spots. The graft is apposed to scleral bed for a period of 8–10 min and eye is bandaged for 24 h.

The patient was followed on the 1st day, 3rd day, 1 week, 2 weeks, 3 weeks, 6 weeks, 3 months, and 6 months[14] postoperatively. Patients were put on antibiotic steroid (moxifloxacin-dexamethasone) eye drop and lubricant eye drops (1% carboxymethyl cellulose) postoperatively 4 times daily initially, then antibiotic-steroid eye drops were tapered over a period of 4 weeks.

Table 1: Post operative complications

1	Hemorrhage subconjunctival/subgraft	9
2	Conjunctival chemosis	11
3	Partial graft displacement	02
4	Graft retraction (from nasal side)	03
5	Total graft displacement	01
6	Overriding of graft on cornea	02
7	Granuloma in donor site	01
8	Graft recurrence[15]	01
Total		20 cases

RESULTS

The study included 100 eyes of 100 patients with primary nasal pterygium only. It was a prospective interventional study, 100 eyes of 100 patients with primary nasal pterygium were included in the study. Of 100 eyes, 60 were left and 40 were right. There were 65 males and 35 females. The following complications took place [Table 1].

The total number of complications exceeds total number of cases as more than one complication was noticed in some cases.

Two cases of partial graft displacement were again taken to theater and episcleral bleeding was induced by 26 G needle and graft was stabilized in position again by blood[16,17] only and waiting time of 8–10 min was observed. The graft stayed and procedure was successful.

Two cases of overriding of graft on cornea were taken to theater and excess graft was trimmed off postoperatively. The patient behaved nicely.

In 1 case of granuloma at donor conjunctival site, patient was taken to theater and granuloma was excised.

It was concluded that glue-free and suture-free conjunctival autotransplantation is a cheap technique with excellent results.

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