Pterygium Surgery: suture less glue less conjunctival auto grafting

Gunjan Rathi\textsuperscript{1*}, Jayesh Sadhu\textsuperscript{2}, Priya Joshiyara\textsuperscript{3}, H. D. Ahir\textsuperscript{4}, S. S. Ganvit\textsuperscript{5}, N. N. Pandya\textsuperscript{6}

\textsuperscript{1-2,3}Resident, \textsuperscript{4,5}Associate professor, \textsuperscript{6}Professor and Head, Dept. of Ophthalmology, SSG Hospital and Medical college, Baroda

**ABSTRACT**

**BACKGROUND:** To evaluate the efficacy of blood clot fixation of the conjunctival autograft after pterygium excision in primary and recurrent pterygium. **Objective:** To establish a simple, cost effective, less painful and less time consuming technique of conjunctival autograft. **Settings:** Department of ophthalmology, SSG Hospital and Medical College, Baroda **DESIGN:** Prospective analytical non comparative study **MATERIALS AND METHODS:** A total of 50 eyes from 50 patients with primary or recurrent nasal pterygium in age group 30-55 years were recruited. All eyes underwent pterygium excision followed by conjunctival autografting. Blood oozed during pterygium excision was used as tissue adhesive to secure conjunctival autograft. Graft was observed after 10 minutes. In the mean follow up period of 6 months patients were examined for haemorrhage, wound gape, graft shrinkage, graft loss, chemosis, graft dehiscence, recurrence or any other complication. **RESULTS:** After surgery, recurrence developed in 1 eye (2%), graft loss in 1 eye (2%) and chemosis in 2 eyes (4%). **CONCLUSION:** Blood oozed during pterygium excision may provide novel approach for securing conjunctival autograft.

**Keywords:** Pterygium, Conjunctival autograft, Blood.

**INTRODUCTION**

The term pterygium comes from the ancient Greek word (pteryx) = wing and (gion) = fin. Pterygium is characterized by a triangular portion of the bulbar conjunctiva encroaching onto the cornea\textsuperscript{1}. Pterygium is most common in the so-called “Pterygium area”, which is defined by geographical latitude of 40° north and south of the equator\textsuperscript{1}. It is believed that pterygium is growth disorder characterized by conjunctivalisation of the cornea due to localized ultraviolet rays stimulated damage to the limbal stem cells\textsuperscript{2}. Destructive Pterygial fibroblasts are also responsible for corneal invasion\textsuperscript{3}. Pterygium is more often seen in men than in women\textsuperscript{4}. This is attributed to the fact that males are exposed to dust and environmental irritants more than women. usually seen within the interpalpebral fissure and most often from the nasal side\textsuperscript{5}. The nasal affinity of the pterygium

It is attributed to the following factors. Sparseness of the subconjunctival tissue in the temporal region and the temporal region is exposed to a lesser extent to UV radiation due to greater amount of bowing of outer 2/3 of the upper lids. The prevalence rate of primary pterygium varies from 0.7 to 3.1% in various populations around the world\textsuperscript{6}. Patient may have foreign body sensation, discomfort, congestion (redness), irritation, grittiness, blurring of vision either because of induced astigmatism or obscuring visual axis. Indications for surgery include visual impairment, cosmetic disfigurement, motility restriction, recurrent inflammation, interference with contact lens wear and rarely, changes suggestive of neoplasia. But patient should be explained that there is fairly high risk of recurrence which may be more unsightly. To prevent recurrence conjunctival auto grafting either by use of fibrin glue or sutures is being used. In this study the possibility of blood ooze during the pterygium excision used as a tissue adhesive to secure the conjunctival autograft was explored.
MATERIALS AND METHODS

2.1. Patients
A total of 50 eyes from 50 patients were enrolled in a prospective analytical study at SSG Hospital and Medical College, Baroda. The inclusion criteria were 30 to 55 years of age with primary and recurrent pterygium. These patients were assigned to receive conjunctival auto graft. Preoperatively, each patient underwent complete ocular examination and patients with previous history of refractive surgery in same eye were not included.

2.2. Surgical steps
All patients were anaesthetized with a peribulbar block and then eyes were painted and draped. The fibrotic tissue was extensively dissected to expose the sclera and corneal stroma. The subconjunctival fibro vascular tissue, including tenon’s capsule, were thoroughly removed to provide clean scleral bed. The size of the defect is measured with vernier calipers. Around 0.5mm more than the measured defect marking is done on supero temporal conjunctiva. A thin film of blood clot is allowed to form over the bare sclera. Any active bleeding is stopped by direct tamponade. A thin tenon free conjunctival auto graft with limbal stem cell is excised. Auto graft is slid over the cornea, orientation is kept limbus to limbus. It is slipped over with draping motion to ensure epithelial side is up. After placement of graft over the bare sclera with oozed blood during excision gently press for 10 minutes. The stabilization of graft is tested centrally and on each free edge to ensure firm adherence to sclera.

2.3. Post operative management and evaluation
Post operatively, topical moxifloxacin (0.5%) drops were applied four times per day, prednisolone (1%) drops were applied four times per day, and ciprofloxacin eye ointments (0.3% W/W) were applied once a day. After four weeks the use of moxifloxacin was discontinued; and the prednisolone gradually tapered over six weeks. All patients were observed every day for the first three days, weekly for first month, monthly for the next 6 months.

Clinical outcome measures were haemorrhage, wound gape, graft shrinkage, chemosis, graft dehiscence, recurrence or any other complication.

RESULTS
A total of 50 eyes from 50 patients, in which a follow up of at least 6 months was achieved, were included in this study. The mean age was 42.5 +/- 4 years (range 30-55 years) and the mean follow up period was 6months. One eye (2%) demonstrated recurrence, graft loss occurred in 1 eyes (2%) and chemosis in 2 eyes (4%) (Table 1). None of the eye developed symblepheron and motility restriction.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No of pts.</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrence</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Graft loss</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Sub graft hemorrhage</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemosis</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Symblepheron</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motility restriction</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No complication</td>
<td>46</td>
<td>92%</td>
</tr>
</tbody>
</table>

Table 1

DISCUSSION
There is a lack of consensus about the medical and surgical management of pterygium. Early in the disease process, Ophthalmologist often takes a conservative approach to NSAID, lubricating drops. Since UV radiation is believed to be an important risk factor, we should recommend the use of proper protective eye glasses. Surgery is indicated if it extends to the visual axis or it is inducing astigmatism but patient should be explained that there is fairly high risk of recurrence which may be more unsightly. Bare sclera technique involves excising the pterygium leaving behind the bare sclera bed; but it had high recurrence rate, 24% to 89%. In addition to a thorough removal of the pterygium, another key to preventing recurrence is using a graft over the pterygium site to act as a barrier to regrowth. Due to low rate of recurrence, 1.6% to 33%, conjunctival auto graft has become very popular. Conjunctival autograft were popularized by Kenyon et al. The most common method of autograft fixation is suturing, with the drawbacks of prolonged operating time, postoperative discomfort, suture abscesses, buttonholes, and granuloma formation which usually
Pterygium Surgery: suture less glue less conjunctival auto grafting

requires a second operation for removal \(^{10}\). Commercial fibrin adhesive has been used widely in neurosurgery, plastic surgery, and ear, nose, and throat surgery. It is also reported that fibrin adhesive is useful in ophthalmology for conjunctival wound closure \(^{11}\).

Koranyi et al\(^{12}\) in a randomized clinical trial, reported that fibrin glue TISSEEL Duo Quick (Baxter, Vienna, Austria) could be used to attach the conjunctival autograft instead of sutures. The glue is not only costly but also Human infection of parvovirus B19 (HPV B19) has been reported after use of fibrin glue products from different manufacturers \(^{13}\).

In Dr. Mitra’s study\(^{14}\) – a prospective, noncomparative, interventional case series conducted in India – 19 patients underwent graft fixation with autologous blood. The mean surgical time was 11 minutes, no grafts were lost and none of the pterygium recurred in the study’s six month of follow up. 2 patients experienced a medical edge recession.

In Dr. Ashok K Sharma’s study\(^{15}\) out of 150 cases, who underwent graft fixation with autologous blood, recurrence during the follow up period was seen in 4 patients – 2.6%, 2 patients had graft retraction on nasal side, 1 patient had tenon’s granuloma.

In the present study, graft loss occurred in one eye in the immediate postoperative day. It was one of our initial cases and occurred during dressing probably due to forceful jet of fluid during cleaning. Also, recurrence occurred in one eye, which may probably due to inadequate dissection of pterygium tissue rather than autoblood fixation of the graft and it was detected after one – month postoperative follow up examination. Chemosis occurred in two eyes, which was probably due to non compliance of patients for topical medication.

**CONCLUSION**

Blood oozed during pterygium excision may provide novel approach for securing conjunctival auto graft.

**REFERENCES**

13. Hino M, Ishiko O, Honda KI, Yamane
