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The study of sutureless and glueless conjunctival autograft in pterygium excision surgery

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KEYWORDS: pterygium, Glueless, Sutureless

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ABSTRACT

Aim and objectives : To see the outcome of pterygium excision with sutureless glueless conjunctival autografting

Methods and Materials: A prospective interventional study was carried out in a tertiary hospital in south Gujarat from October 2014 to December 2015 wherein pterygium excision in 40 eyes with limbal conjunctival autografting without using glue or sutures was performed followed by bandaging for 24 hours, then if required bandaging was done again for 24 hrs. The patients were followed up after 1 day, 1 week, 6 weeks, 6 months and 12 months. They were examined for haemorrhage, wound gape, graft shrinkage, chemosis, graft dehiscence, recurrence or any other complication.

Results: The mean age of the patients was 50.05±10.19 years, 57.5% of which were males. There was no subconjunctival haemorrhage, graft dehiscence or graft dislocation. In all patient's mild graft edema was seen on first 4 days which subsided in subsequent visits. Mild graft retraction on medial side was seen in 10 patients on 1st and 4th postoperative day. This was treated with tight bandage on first day and if required on second day. Topical steroid drops in tapering dose was subsequently started. No graft retraction was seen on subsequent visit. No recurrence was found till 6 months follow up. All the patients were comfortable with excellent cosmetic outcome during the subsequent follow ups.

Conclusions: No suture no glue conjunctival autografting in pterygium surgery is excellent in view of easy technique, short surgical time, excellent cosmetic view, a very good economical option and no recurrence.

Introduction

Pterygium is a degenerative condition of sub-conjunctival tissue which proliferates as vascularized granulation tissue to invade the cornea, destroying the superficial layers of stroma and Bowman's membrane, whole being covered by conjunctival epithelium.[1] Its prevalence rate varies from 0.3% to 29% in different parts of the world.[2]

Surgical removal is the treatment of choice.[3] Recurrences after a successful excision continue to remain a challenge in pterygium surgery.[4]

Bare sclera excision alone is associated with recurrence rates of 30% to 70%. With adjunctive measures such as beta –irradiation or topical Thiotepa, 5 – Fluorouracil, or Mitomycin C, the recurrence rate is lowered but is associated with high risk of complications.

Conjunctival autografting after pterygium excision is associated with lower recurrence rates (2% to 9%) and relatively few sight threatening complication .[5,6] Limbal Conjunctival Autograft Transplantation (LCAT), a recent method, is most commonly used to prevent recurrences, due to the identification of limbal stem cells in pathogenesis of pterygium.

The current method of conjunctival autografting by means of suturing is associated with several disadvantages, including prolonged operating time, postoperative discomfort, and potential for suture related complications.[7]

Later, fibrin glue was used in place of sutures which reduced operating time, postoperative complications associated with sutures and recurrences but as it is a plasma derived product, it has the potential risk of prion disease transmission and anaphylaxis in susceptible individuals. Thus, a new method of adhering graft to recipient site by patient's own blood reduces complications associated with sutures as well as with fibrin glue.

Materials and methods

Patients with nasal pterygium attending the outpatient department of a Tertiary Hospital who fulfilled the inclusion and exclusion criteria were included in the study. Duration of the study was two years. The inclusion criteria involved diminution of vision either because of astigmatism or encroachment on pupillary area, progressive nasal pterygium, marked cosmetic deformity. Patients with temporal/ recurrent/ atrophic pterygium, patients on anticoagulants, patients with ocular surface diseases e.g.- blepharitis, sjogren syndrome and dry eye, history of previous ocular surgery or trauma, pterygium with cystic degeneration, pseudopterygium were excluded from the study.

Data was collected from the patient after informed consent. Pre-operative investigations included were, visual acuity by Snellen's chart, near vision by Jaeger's chart, best corrected visual acuity by sciascopy or streak retinoscopy and automated refractometer, slit lamp bio-microscopy, keratometry by manual and automated refractometer, fundus examination by direct and indirect ophthalmoscopy, slit lamp bio-microscopy with +78 D and +90 D lens.

All patients underwent pterygium excision with conjunctival autograft. After painting and draping, peribulbar block was given. The fibrotic tissue was extensively dissected by striping method 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 was measured with Vernier callipers. Around 0.5 mm more than the measured defect marking was done on inferotemporal conjunctiva sparing superior conjunctiva for future cataract and other surgery. A thin film of blood clot was allowed to form over the bare sclera. Any active bleeding was stopped by direct tamponade. A thin Tenon free conjunctival auto graft with limbal stem cell was excised. Auto graft was slide over the cornea; orientation was kept limbus to limbus. It was slipped over with draping motion to ensure epithelial side was up. After placement of graft over the bare sclera with oozed blood during excision, gentle pressure was applied for 10 minutes. The stabilization of graft was tested centrally and on each free edge to ensure firm adherence to sclera. Blood oozed during pterygium was used as tissue adhesive to secure conjunctival autograft. Graft was observed after 10 minutes followed by banding for 24 and then if required for another 24 hrs. Post

operatively steroid drops in tapering dose were given. The following parameters were analysed post operatively like subconjunctival haemorrhage, wound gape, graft shrinkage, graft loss, chemosis, graft dehiscence, recurrence or any other complication. Post operatively all patients were followed up on 1st day, 3rd day, after one week, after one month and three months and 6 months. Appropriate statistical method was used to analyse the data.

Results: The study highlighted predictable results regarding age and sex incidence of pterygium occurrence. The study showed mean age group for pterygium was 50.05 ±10.19 years and more common in males (57.5%).

Table 1: Age distribution in study

Age of the patient	Observation
<40year	11(27.5%)
41-50year	11(27.5)
51-60year	14(35%)
>60year	4(10%)
Total	40

Table 2: Sex distribution in study

SEX	No. of patients	Percentage
Male	23	57.5
Female	17	42.5
Total	40	100.0

Pterygium occurred more commonly in people who were more exposed to dust, wind, heat and sun to which they were exposed while outdoor activities for their livelihood.

Table 3: Distribution of cases according to occupations

Occupation	No of patients	Percentage %)
Housewife	10	25.0
Farmer	6	15.0
Factory worker	7	17.5
Laborers	14	35.0
Other (teachers, security guardsetc	3	7.5
Total	40	100.0

Sutureless and glueless conjunctival autografting following pterygium excision was a safe and effective and gave excellent cosmetic outcome with minimum discomfort to patient and very good economical option for the management for pterygium surgery. Mean astigmatism was 2.34±1.617 D preoperatively.

Table 4: Comparison of pre and post operative mean keratometry

PREOPERATIVE MEAN			POSTOPERATIVE MEAN		
K1	K2	Astigmatism	K1	K2	Astigmatism
43.86±1.445	42.23±1.646	2.34±1.617	43.55±1.107	43.06±1.259	0.49±1.019

Pterygium excision significantly reduces the astigmatism from 2.34±1.617 D to 0.49±1.01 D with (p value<0.0001)[table 4]. The visual acuity improved on the Snellens Chart by 1 line in 21 patients (52.5%), two lines in 4 patients (10%) while in 15 patients (35.5%) visual acuity remained unchanged due to senile cataract.

Discussion:

In this study, there was no subconjuctival haemorrhage, graft dehiscence, graft dislocation. In all patient's, mild graft edema was seen in first 4 days which subsided on subsequent visit. Mild graft retraction on medial side was seen in 10 patients on 1st and 4th postoperative day. This was treated with tight bandage on first day and, if required on the second day. Then topical steroid drops with tapering dose were started. No graft retraction was seen on subsequent visit. No recurrence was found till 6 months follow up. All the patients were comfortable with excellent cosmetic outcome during the subsequent follow ups.

In Dr. Mitra's study[7] conducted in India, 19 patients underwent graft fixation with autologous blood. The mean surgical time was 11 minutes. No grafts were lost with no recurrence in the study's six months of follow up. 2 patients experienced a medial edge recession.

In Dr. Ashok K Sharma's study[8] 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 Gunjan Rathi et.al study[9], out of 50 patients recurrence developed in 1 eye (2%), graft loss in 1 eye (2%) and chemosis in 2 eyes (4%).

In a study conducted by Jawed Alam et.al[10] one case of graft retraction out of 30 patients was found on the 7th day of follow up. No graft dislocation was found. Till the 6th month of follow up, no recurrence of pterygium mass was detected. All the patients were happy with good cosmoses.

Conclusion

No suture no glue conjunctival autografting in pterygium surgery is excellent in view of easy technique, short surgical time, lesser complications , excellent cosmetic view, a very good economical option and no recurrence. This surgery may stand in future with more experiences over time.

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