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Pterygium Excision and Conjunctival Autograft – A Study

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ABSTRACT

From July 2011 to December 2013, we have treated 50 patients presenting with pterygium in 54 eyes at Regional Eye Hospital, Kurnool. 48 patients were presented with primary pterygium & 6 had recurrent presentation. Most common complaint was burning sensation, pain and watering in affected eye. The patients were managed based on standardized evaluation and surgical protocol. The main stay of treatment for pterygium is surgical excision and most common complication is recurrence. In the present study we have addressed the problem with conjunctival autograft after excision in all cases. All the patients in the present study showed significant visual improvement and reduction in pterygium induced astigmatism. We had no complications in present series. The results are presented, analyzed and discussed.

INTRODUTION

Pterygium is a fibrovascular wing shaped encroachment of conjunctiva on to cornea . Ultraviolet light induced[2] damage to limbal stem barrier with subsequent conjunctivalization of cornea is the currently accepted etiology. Study by Tseng and co workers demonstrated presence of corneal stem cells at limbus. Defenciency of limbal stem cell leads to formation of pterygium. Various available treatment options includes local administration of thiotepa eye drops, beta irradiation, simple excision with intra or post operative Mitomycin –c eye drops and excision followed by amniotic membrane graft.

Conjuctival autograft after excision of pterygium was introduced by Kenyon et., al in 1985[1]. Various publications demonstrated the efficacy of this procedure in preventing recurrence. The graft is taken from superotemporal quadrant of conjunctiva. The importance of including limbal tissue in the conjunctival autograft to reduce recurrence rate was highlighted by previous studies.

MATERIAL& METHODS

Study group consisted of 50 patients attending Regional eye hospital, Kurnool with pterygia between July2011 and December 2013. Inclusion criteria were age over 20years, primary recurrent pterygia, symptomatic pterygia with episodes of redness, pain, diminision of vision, and for cosmetic reasons. Patients with pseudopterygium, with conjunctival diseases like alkali burns, with glaucoma and IOP over 21mm, patients who had allergy to steroid eye drops, were excluded from the study. All patients were subjected to tests for visual acuity, refraction, keratometry, and slit lamp examination. On slit lamp examination the morphology of pterygium was studied which includes location, progression and extent. Based on extent pterygium was classified in to group A- up to 1/4 corneal diameter(1-3mm) , group B- 1/4-1/2 (3-6mm) and group C- extending beyond the visual axis(>6mm). Associated ocular diseases like cataract, pingecula were noted. All patients underwent IOP measurement, lacrimal passage syringing prior to surgery, along with evaluation for hypertension and diabetes. An informed consent explaining the complication& recurrence was obtained from all the patients.

Surgery was done under peribulbar block. After preparation and draping, pterygium was measured from head to tail. Excision started from head of pterygium . Subconjunctival fibrous tissue was then completely removed in an area much greater than pterygium body itself. The completeness of episceral tissue removed was judged by exposing all tortuous episcleral vessels extending from nasal rectus insertion to nasal pterygium. Any abnormal scars on the cornea were removed with no. 15 blade. Free graft size similar to the defect area was obtained from superotemporal quadrant of bulbar conjunctiva. Limbal edge of graft was cut to include thin rim of corneal epithelium. The graft was moved to nasal area & attached to sclera with 10 o nylon. Proper orientation was maintained with epithelium side up and limbal edge towards the limbus. This method allows easy handling & proper orientation of the graft. The corners of graft were anchored to sclera at the limbus. The rest of circumference was attached to nasal conjunctiva with running suture. Post operative patient was put on antibiotics& steroid eye drops, tapered over next 4 weeks. Post operatively patients were examined for visual acuity, condition of cornea, condition of graft, donar site inspection and keratometry. Recurrence was considered as encroachment by vasculization more than 1.5mm along with presence of conjunctival drag. Vasculization without conjunctival drag was not considered as recurrence.

RESULTS

The following results were observed. The age incidence was noted to be highest in age group of 31-40yrs (21.42%). The incidence was less in the age group of 61-70yrs (1-2%). Table no 1 shows the age incidence.

Table 1

Age range (years)	No. of patients	Percentage %
10-20	0	0
21-30	8	16
31-40	21	42
41-50	13	26
51-60	7	14
61-70	1	2

In our series male preponderance was observed, 28males (56%) and 22females (44%). Table no 2 shows the sex incidence.

Table 2

Sex	Number of patients	Percentage %
Male	28	56
Female	22	44

The most common complaint at initial presentation was burning sensation 25patients, (50%) followed by redness as in 15patients (30%) and growth over the cornea in 29 patients (58%) . Nasal pterygium was present in 51eyes, (94.4%). Temporal pterygium was present in 2 eyes, (3%), and combined presentation was seen in 1eye, (1%) of patients. The maximum length of pterygium in our series was 7mm as observed in 1 patient and in most patients, the pterygium was 1-3mm in size ,34 eyes,(62%). Patients were divided in to 3 groups depending upon length of pterygium. All patients were operated under peribulbar anaesthesia. Evaluation in post operative period showed reduction of astigmatism by 45% in group A (1-3mm in length), by 52% in group B (3-6mm in length) and by 48% in group C patients with pterygium > 6mm in length. Recurrence was observed in 6 patients out of 54 eyes. Maximum recurrence rate was observed in 2nd month of post operative follow up.

Significant visual acuity improvement (2 line) was seen in 21 eyes (38.9%), 1 line improvement was seen in 16 eyes (29.63%). No improvement was seen in 17 eyes (31.48%), of 17 eyes, 12 had a preoperative visual acuity of 6/6 or better, 2 patients had macular grade corneal opacity following surgery encroaching on to visual axis and remaining 3 patients had immature cataract accounting for no improvement after pterygium surgery.

Table 3 shows visual improvement after pterygium surgery.

Table 3

Visual improvement	Number of eyes	Percentage %
>3 line	4	7.4
3 line improvement	8	14.81
2 line improvement	9	16.67
1 line improvement	16	29.63
No improvement	17	31.48

Most common complication observed in our series was donar site haemorrhage 3 eyes(55.5%) followed by sub conjunctival haemorrhage in

3eyes(55%) in the immediate post operative period. Graft rejection was observed in 1 eye (1.5%).

Table 4 shows complications observed in our series.

Table 4

Complication	Number of eyes	Percentage %
Donor site haemorrhage	3	5.55
Subconjunctival haemorrhage	3	5.55
Recurrence	6	11.11
Retraction	1	1.85
Vascularization	2	3.7

DISCUSSION

Pterygium is disturbing both to patient because of unsightly appearance and surgeon for tendency to reccur. Multiple procedures are in practice for treatment of this complex entity. Among all, conjunctival autograft and amniotic graft seems to be safe and simple techniques with least complications.

Prevalence rate for pterygium have been shown to increase with the age although decline has been noted in patients over 60 years of age. Our study showed maximum incidence between 31-50yrs (68%). Only one patient was above 60 yrs. Possible reason cited for decline with age includes a lack of self reporting and regression of the pterygium. Studies by Young son reported equal incidence in both male & female, but in our study there is a slight male preponderance.

Preoperative evaluation includes measuring the size, visual acuity and keratometry. Associated conditions are important in assessing the outcome and recurrence after surgical excision. Incomplete excision is associated with high rate of recurrence and graft failure. It is important to remove more amount of underlying sunconjunctival tissue. Depth of excision is assessed by visualization of episcleral blood vessels. All patients were operated under peribulbar block. Evaluation in post operative period showed reduction of astigmatism by 45% in group A (1-3mm) in length, by 52% in group B Pts, (3-6mm)in length and by 48% in group C patients, with pterygium > 6mm in length.

Recurrence was observed in 6 out of 54 eyes. Maximum recurrence was observed in 2nd month of post operative follow up. The recurrence rate of 8.6% following conjunctival autograft is better than the rate of 21% reported by Lewallen[4] and 14% reported by Riordan-Eva et al. The recurrence rate in the present series is comparable to those reported by Kenyon et al[1] (5.53%) and Allan et al[3] (6%). Visual acuity improvement was seen in 21 eyes (2 lines or more) in 38.9% cases while one line improvement was seen in 16 eyes and no improvement in 17 eyes as most of them had good vision prior to surgery. The percentage reduction in pterygium induced astigmatism in group A was 45.86%. The percentage reduction was greater in group B and C (52.1% and 48%). Group C did not show any improvement in visual acuity even after reduction in astigmatism due to formation of macular grade corneal opacity following pterygium excision.

The most common complication in our series was sub-conjunctival haemorrhage at donor site, seen in 6 eyes. This resolved spontaneously without any sequelae. Vascularization of the cornea at the site of excision was closely followed up with antibiotic, steroid eye drops for 6 weeks. There were no major sight threatening complications in our series.

SUMMARY AND CONCLUSIONS

The clinical study of pterygium excision with conjunctival autograft was done in 54 eyes of 50 patients. All the patients were aged more than 20 years, the most common presenting symptom being burning sensation and watering. The surgery was done under peribulbar anaesthesia and the follow up protocol included evaluation of function of the eye and complications along with possible recurrence. Recurrence rate of pterygium with conjunctival autograft 11.11% is considerably less than other modes of treatment like amniotic membrane graft[6] and miotmycin C injection[5]. There is significant visual improvement in 37 eyes in our series and reduction in astigmatism in group B and group C patients. Complications after this procedure are not serious and most resolve spontaneously with medical management. Conjunctival autograft after pterygium excision is a simple and safe procedure with low recurrence rate and associated with minimal complications with good cosmetic results.

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