



SURGICAL OUTCOME OF CONJUNCTIVAL AUTOGRAFT USING AUTOLOGOUS BLOOD IN PATIENTS UNDERGOING PTERYGIUM SURGERY AT A TERTIARY CARE CENTRE IN KASHMIR

Ophthalmology

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ABSTRACT

Background: Pterygium refers to a wing shaped fibrovascular growth of subconjunctival tissue that encroaches onto the cornea. Main modality of treatment of pterygium is surgical. **Aim:** To determine the surgical outcome of conjunctival autograft fixation using autologous blood in patients attending OPD of Department of Ophthalmology, Government Medical College, Srinagar. **Methods:** This was a prospective interventional study conducted on 60 patients with primary pterygium attending the Department of Ophthalmology of a tertiary care centre in Kashmir over a period of 2 years from June 2019 to June 2021. Patients with recurrent pterygium, past history of ocular trauma and patients with bleeding diathesis were excluded from the study. Proper history was taken from all the patients and a detailed ophthalmological examination was done which included uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA), IOP measurement. Detailed anterior segment and posterior segment examination was done. **Results:** Our study indicated mean age of patients as 55 ± 3 years. There were 40 female patients (66.7%) and 20 male patients (33.3%). Majority of patients presented with grade-2 and grade-3 pterygium accounting for 50% and 25% cases respectively. Postoperative complications such as subconjunctival haemorrhage, graft edema, graft retraction and corneal epithelial defect were seen in 10%, 55%, 5% and 50% cases respectively. Graft loss and conjunctival granuloma were not seen in any of the patients in our study. Overall surgical outcome was good in our study patients with no postoperative complications at the end of 6 weeks follow-up. **Conclusion:** Our study concluded that majority of the patients who underwent pterygium excision with graft fixation using autologous blood were females with grade-2 and grade-3 pterygium. Surgical outcome using autologous blood as a bioadhesive is a useful and good alternative to fixation of conjunctival autograft using sutures or fibrin glue.

KEYWORDS

Pterygium; Autologous blood; Conjunctival autograft.

INTRODUCTION

Pterygium is defined as a wing shaped fibrovascular growth of the subconjunctival tissue that encroaches onto the cornea. It is a degenerative ocular surface disorder caused by varied etiology amongst which the most acceptable cause is Ultraviolet-B exposure from sun.^[1,2] Multiple factors have been postulated to play a role in pathogenesis of pterygium development. There is evidence that immunological mechanisms, anti-apoptotic mechanisms, growth factors, cytokines, genetic factors, extracellular matrix modulators, viral infections and genetic factors are the possible causative factors in pterygium development.^[3,4] Prevalence of pterygium is higher in tropical zones than in temperate zones.^[5,6] An early pterygium causes only mild irritation, cosmetic problems or redness of eyes whereas an advanced pterygium can also cause visual impairment.^[7] Main modality of treatment for pterygium is surgical.^[8]

Various surgical techniques have been described for management of pterygium which include bare sclera resection, bare sclera resection followed by mitomycin-C application^[9,10] and pterygium excision followed by conjunctival limbal autograft or placement of amniotic membrane.^[10]

Conjunctival autograft fixation using autologous blood is a new modality of securing graft and can be used as an alternative to suture fixation or fibrin glue use. Fixation of graft using autologous blood involves using patients own blood as a bioadhesive. Autologous blood is natural, cost-effective and requires less surgical time compared to suturing technique.^[11]

METHODS:

A prospective interventional study was conducted on 60 patients with pterygium who attended the OPD of Department of Ophthalmology, Government Medical College, Srinagar over a period of 2 years from June 2019 to June 2021 after obtaining ethical clearance from Institutional Ethical Committee.

Patients with past history of ocular trauma, with previous history of pterygium excision presenting with recurrent pterygium and patients with bleeding diathesis were excluded from study. Proper history was taken from all the patients and a detailed ophthalmological examination was done which included uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA), IOP measurement, slit lamp examination to grade the pterygium and to rule out any other

anterior segment pathology. Detailed posterior segment examination was done to rule out any posterior segment pathology.

Surgical technique:

Before undertaking surgery, written informed consent was obtained from all the patients and all the baseline investigations were done.

Surgical procedure was done under peribulbar block using 2% xylocaine along with 1:200000 epinephrine. Under all aseptic precautions, eye to be operated was prepared and draped. Adequate ocular exposure was obtained using eyelid speculum. Pterygium was excised by avulsing the head with conjunctival forceps. Further dissection was carried out using Westcott scissors to excise the main mass of pterygium. Removal of corneal remnants and clearing of scleral bed was done with crescent knife. Size of defect created after complete pterygium excision was measured using Castroviejo calipers. Supero-temporal conjunctival limbal autograft about 0.5 mm oversized than actual measurement was obtained using corneal scissors taking care to avoid inclusion of tenons capsule within the graft. After obtaining the graft, it was properly laid down over the scleral bed ensuring limbus to limbus polarity. This was followed by a period of 10 minutes to allow haemostasis to occur so that graft can be secured well in place. In case adequate haemostasis was not achieved, intentional puncturing of episcleral vessels was done to create bleeding points so as to achieve adequate haemostasis. After 10 minutes antibiotic ointment was instilled and the eye was patched for 24 to 48 hours following which the patch was removed and slit lamp examination was carried out to look for graft displacement, graft retraction, graft loss, graft edema and subconjunctival haemorrhage. The patients were then followed up at 1 week, 4 weeks and 6 weeks.

TABLE 1: Distribution of study patients with respect to grade of pterygium

Grade of pterygium	No. of patients (n)	Percentage (%)
Grade-1	6	10
Grade-2	30	50
Grade-3	15	25
Grade-4	9	15

OBSERVATIONS AND RESULTS:

In our study, we found that the mean age group of study population was 55 ± 3 years with age group ranging from 35 years to 60 years. There were 40 female patients (66.7%) and 20 male patients (33.3%). Right

eye was affected in 36 patients (60%) and left eye in 24 (40%) patients. Grade-1 pterygium was seen in 6 patients (10%), grade-2 in 30 patients (50%), grade-3 in 15 patients (25%), grade-4 in 9 patients (15%) (Table-1).

On first postoperative day, subconjunctival haemorrhage was seen in 10 patients (16.7%), graft edema was seen in 55 patients (91.7%) patients, graft retraction in 5 patients (8.3%), corneal epithelial defect was seen in 50 patients (83.3%). Graft loss and conjunctival granuloma were not seen in any of the patients in our study (Table-2)

DISCUSSION:

Pterygium is a degenerative disorder which affects interpalpebral conjunctiva with nasal side being affected more than temporal side. There is no medical treatment for pterygium. Surgery is usually indicated in patients with cosmetic problems, blurred vision and diplopia due to limitation of ocular movements in patients with advanced pterygium.^[12]

In our study population, mean age of patients was 55±3 years and majority of patients were female with right eye being affected more than the left eye. These findings correlate with the studies conducted by Ratnam TJ, P Vijetha^[8] and Asritha B, Manaswini D.^[13] Our study found higher percentage of patients with grade-2 and grade-3 pterygium which is consistent with the studies conducted by Asritha B, Manaswini D^[13] and MMU Huda, SA Khaleque.^[11] Majority of patients in our study had graft edema on first postoperative day which resolved in all the patients by the end of 4 weeks follow-up. Corneal epithelial defect was also seen in majority of patients on first postoperative day which resolved by the end of first week. Subconjunctival haemorrhage had resolved by the end of 4 weeks. Graft retraction was seen in 8.3% cases which was covered by conjunctival growth by the end of first week. Graft loss and conjunctival granuloma were not seen in any of the patients. These findings are consistent with the studies conducted by Ratnam TJ, P Vijetha^[8] and MMU Huda, SA Khaleque.^[11] Overall surgical outcome was good in all the patients in our study by the end of 6 weeks follow-up with no evidence of postoperative complications.

TABLE 2: Postoperative complications of study eyes

Complication	Postoperative day-1		1 week		4 Weeks	6 weeks
	n	%				
Subconjunctival haemorrhage	10	16.7	Reduction in size of haemorrhage		Total resolution	Nil
Graft edema	55	91.7	6 out of 55	11%	Nil	Nil
Graft retraction	5	8.3	Growth of conjunctiva over retracted area		Nil	Nil
Graft loss	-	-	-	-	-	-
Conjunctival granuloma	-	-	-	-	-	-
Corneal epithelial defect	50	83.3	Healed		Nil	Nil

CONCLUSION:

Our study concluded that majority of the patients who underwent pterygium surgery were females, with grade-2 and grade-3 pterygium seen in higher percentage of patients as compared to grade-1 and grade-4 pterygium.

Further, conjunctival autograft fixation using autologous blood is a viable surgical alternative to sutures and fibrin glue with good surgical outcome. This procedure is time saving, cost effective and easy to perform with less risk of postoperative complications seen with fixation of graft using sutures or fibrin glue.

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