

A Clinical Study of Conjunctival Autograft Using Fibrin Glue in Primary Pterygium Surgery

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Abstract

Back ground: Pterygium is a common external Ocular disease in tropical countries like India. Excision of the pterygium is the only modality of the treatment for pterygium. Recurrence of pterygium is the most common complication following excision with the bare sclera technique. This was minimized by using autoconjunctival graft with sutures in primary pterygium surgery, but this is associated with sutures related complications. Fibrin glue is used to minimize the suture related complication in auto conjunctival graft surgery.

AIM: To evaluate the safety and efficacy of conjunctival autograft using fibrin glue, which minimize the suture induced complications

Material & methods: It is a prospective study conducted in Ophthalmology dept. S.V. medical college Tirupati. 50 eyes of 50 patients with progressive pterygium were included in the study. Pterygium excision surgery with autoconjunctival graft using fibrin glue was done. The conjunctiva taken from the supero temporal quadrant of the same eye. Patients were followed for 6 months to evaluate post operative complications and recurrence of pterygium.

Results: Of the 50 patients incidence was similar in both sexes. Majority of the patients [60%] belonged to the age group of between 30-50 years. Major post operative complications observed in this study were graft oedema (16%) and haemorrhage [8%] of the patients. The follow up period was uneventful with minimum complications. No recurrence of pterygium was seen during follow up period.

Conclusion: The case series suggests that fibrin glue is a safe and useful alternative method for graft fixation in primary pterygium surgery

Keywords: Pterygium, conjunctival auto graft, fibrin glue.

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I. Introduction

Pterygium was recognized 3000 years ago. It was described by sushruta way back in 1000 BC in India. Pterygium is common in people living in tropical climate, therefore it is considered as response to prolonged effect of environmental factors such as exposure to UV rays. Pathologically Pterygium is elastotic degeneration of the subconjunctival tissue, proliferating as a vascularised granulation tissue under the epithelium, which encroaches upon the cornea, destroying the corneal epithelium. Pterygium can be unilateral or bilateral, presenting on either nasal or temporal side in the interpalpebral fissure of the eye. Nasal pterygium is more common. Surgical management is the ultimate solution for progressive pterygium. Surgery is indicated for,

1. Progressive pterygium extending onto pupillary area
2. Recurrent Inflammation
3. Cystic degeneration

Recurrence of pterygium (60-80%) is reported after bare scleral excision. This can be minimized (2%) by surgical excision of pterygium with conjunctival autografting. The conjunctival graft is secured from the supero temporal quadrant of the same eye. Most commonly conjunctival autograft is secured with sutures. This is associated with more post operative patient discomfort, pain, irritation, watering and suture induced conjunctival granuloma. The surgical time also more when sutures are used to fix the graft. Fibrin glue can be used as an

alternative for securing the conjunctiva in place, instead of suturing. The use of fibrin glue during pterygium surgery was first described by Cohen et al in 1993.

II. Aims And Objectives

1. To study the efficacy and safety of the conjunctival autograft using fibrin glue in primary pterygium surgery.
2. To evaluate the rate of recurrence and post operative complications with fibrin glue.

III. Materials And Methods:

This is a hospital based, non randomized, prospective study conducted in the department of ophthalmology at S.V. medical college, Tirupati in one year period. A total 50 eyes of 50 patients with Grade 2-3 primary progressive pterygium were selected and informed consent was taken. Preparation of fibrin glue: Reliseal fibrin sealant [Reliance industries, India] is a commercially available fibrin adhesive as an adjunct to haemostasis. The kit contains vials, available as 0.5 ml/1ml

1. Component 1 : fibrinogen concentrate, sterile [yellow cap]
2. Component 2: thrombin preparation, sterile [blue cap]
3. Aprotinin : bovine, sterile [red cap]
4. One 5 ml of sterile for injection
5. Four 2 ml syringes for reconstitution and application, four 21 G sterile needles for aspiration of two components, two 20 G blunt application needles.
6. Applicator with two mixing chambers and one plunger guide

3.1 Inclusion Criteria

1. All patients more than 18 years of age with primary pterygium.
2. Ability to attend followup.
3. Grade 2 and 3 pterygium.

3.2 Exclusion Criteria:

1. Age < 18 years.
2. Grade I pterygium.
3. Pseudopterygium.
4. Recurrent pterygium.
5. Associated corneal diseases.

Complete clinical examination was done which included visual acuity recording, refraction, slit lamp examination. The patient was investigated for haemogram, blood sugar level, routine urine examination and ECG, pre operatively. Surgery was performed under local anaesthesia using 2% xylocaine with adrenaline. Pterygium was excised, haemostasis secured, bare sclera was covered by conjunctival autograft taken from the superotemporal part of the eye. The graft was secured in place using fibrin glue. Each eye patched for 24 hrs. following the surgery. Post operative treatment included topical antibiotic and steroid, which was tapered slowly over a period of 4 weeks. All the patients were examined on the slit lamp on 1st day, 1st week, 4th week, 6th week post operatively and then every month for a period of six months.

IV. Results

In our study pterygium excision with conjunctival autograft using fibrin glue was performed on 50 eyes of 50 patients with pterygium. Pterygium incidence was found to be similar in both sexes. The mean age of treated 50 patients was 40 years (range 30-50 years). Graft oedema was seen in 8% of the patients. None of the patients showed contraction and graft dehiscence.

Table 1: Demographic characteristics of patients (Age and sex Distribution)

Age in years	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
21-30	2	5%	2	4%	4	8
31-40	4	8%	12	24%	16	32
41-50	14	28%	2	4%	16	32
51-60	2	4%	8	16%	10	20
61-70	2	4%	0	0%	2	4
71-80	2	4%	0	0%	2	4
Total	26	52%	24	48%	50	100%

Most of the patients [28% males and 24% females] were in the age group of 30 – 50 years

Table 2: Geographic distribution of patients

Place	No.of patients	Percentage
Rural	34	68%
Urban	16	32%
Total	50	100%

Most of the patients were from rural area [68%], from urban area were [32%].

Table 3: According to type of occupation.

Occupation	No.of patients	Percentage
Outdoor	32	64%
Indoor	18	36%
Total	50	100%

Majority of the patients were outdoor workers. Out of 50 patients 32 were outdoor workers, 18 patients were indoor workers.

Table 4: Distribution of patients according to laterality of pterygium

Laterality	No.of patients	Percentage
Right eye	18	36%
Left eye	26	52%
Bilateral	6	12%
Total	50	100%

Around 12% of patients (6 out of 50) had pterygium in both eyes. Out of 50 patients 25 (52%) had pterygium in left eye and 18(36%) had pterygium is right eye.

Table 5: Distribution of patients according to chief complaints

Chief complaints	No. of patients	percentage
Mass	34	68%
Diminished vision	12	24%
Redness and irritation	4	8%
Total	25	100%

Mass in the eye was the predominant chief complaint by most of the patients (68%) ,24% presented with diminished vision, distorted vision etc.

Pterygium grade	No.of patients	Percentage
Grad 2	16	32%
Grade 3	34	68%
Total	50	100%

Table 6: Distribution of patients according to pterygium grade

Pterygium grade	No.of patients	Percentage
Grad 2	16	32%
Grade 3	34	68%
Total	50	100%

In 68% Patients pterygium extended upto the pupillary margin and in 32% of cases there was grade 2 pterygium.

Table 7: Post operative complications

Complication	No. of patients	Percentage
Graft edema	8	16%
Heamorrhage	4	8%
Graft edema + haemorrhage	4	8%
Patients without complicatons	34	68%
Total	50	100%

Major post operative complications observed in this study were graft oedema (16%) and haemorrhage (8%) . No complications were seen in 68% of patients.

V. Discussion

Pterygium is a common external ocular disease in tropical countries like India. The most concerning problem in the treatment of pterygium is prevention of its recurrence. Free conjunctival auto graft surgery shows fewer recurrence rates and is associated with fewer complications. The most common method of conjunctival auto graft fixation is suturing with the drawback, reported are prolonged surgical time, post operative discomfort, suture granuloma formation. Fibrin glue is useful in attaching the conjunctival autograft instead of sutures, with reduced operating time and post operative discomfort. Procedure is free from severe post operative complications and with satisfactory cosmetic appearance. All patients were followed up for a period of 6 months. In this 6 months follow up period no recurrence of pterygium was noted.

Table 8: Comparison of postoperative complications among various studies

Post operative complications	Dong micha et al ¹⁰²	Sarnicola V et al	SmitadileepJavad akar et al ¹⁰³	Marticornea et al	Present study
Edema	0%	40%	20%	-	16%
Dehiscence	32%	-	-	-	-
Granuloma	14%	0.9%	-	-	-
Graft haemorrhage	27%	-	-	-	8%
Graft edema & hemorrhage	-	-	-	-	8%
Graft retraction	-	2.7%	20%	10%	-
Chemosis	5%	-	-	-	-
Contracture	5%	-	-	-	-

Intensity of postoperative discomfort was lowered with glue as compared to sutures.

Table 9: comparison of recurrence rates among various studies.

Studies	Marticornea J et al(2006)	Karalezli A et al(2008) ¹⁰⁷	Ravindranath et al(2009)	Sarnicola V et al(2010)	Present study
Recurrence %	0%	4%	0%	4.5%	0%

No recurrence of pterygium in 6 months follow up period was noted in our study.

VI. Conclusion

The present study confirmed that, pterygium excision with conjunctival auto graft using fibrin glue is a safe procedure with improved cosmetic results and patient satisfaction. This procedure at present is the most accepted procedure of pterygium surgery due to minimum recurrence rate and minimal post operative discomfort.

Abbreviations:

OPD	-	out patient department.
M	-	male
F	-	female
RL	-	right eye
LE	-	left eye.

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