

# Efficacy of Autologus Fibrin Glue for Primary Pterygium Surgery with Conjunctival Autograft

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## Research Article

**Abstract: Purpose:** To evaluate the efficacy of autologus fibrin glue for attachment of conjunctival autograft in primary pterygium surgery. **Method:** A prospective interventional clinical study was carried out in an eye clinic. A total of 24 eyes from 16 patients with primary nasal pterygium were included for conjunctival autograft surgery by using autologus fibrin glue. The patients were followed up for one year. Outcome measures were duration of surgery, adherence of graft and postoperative discomfort. **Results:** Of the 16 patients 7 patients were males (43.7 %) and 9 were females (56.2%). mean age of the patient was (41.37 S.D. 16.14) range was 21 to 70 years. Follow up period was one year. 2 eyes (12.5%) developed graft retraction which resolved with continued patching. One eye (6.2%) developed complete graft dehiscence which needed sutures to reattach the graft in its correct position. Post operative congestion was absent in 20 eyes, mild congestion noted in 4 eyes. No patient complained of ocular pain in the post operative period. **Conclusion:** This case series suggest that autologus fibrin glue using patient's own blood is a safe and useful alternative method for graft fixation in pterygium surgery.

**Key words:** Autologus fibrin glue, pterygium, conjunctival autograft.

## Introduction

Pterygium is common in people living in hot climate, therefore it is considered as response to prolonged effect of environmental factors such as exposure to sun i.e. ultraviolet rays, dry heat. Pathologically pterygium is an elastotic type of degeneration of subconjunctival tissue which proliferates as a vascularised granulation tissue under the epithelium which encroaches upon the cornea destroying corneal epithelium, Bowman's membrane & superficial stroma. Pterygium can be unilateral or bilateral, presenting on either temporal or nasal side in the interpalpebral fissure. Surgical management is the ultimate solution for progressive pterygia. The surgery is indicated for,

1. Continued progression threatening to encroach pupillary area i.e. visual axis
2. Cosmetic reasons

Recurrence of pterygium (30% to 50%) is reported after surgical excision keeping the underlying sclera bare. This can be minimized by surgical excision of the pterygium with autoconjunctival grafting. Sutures have been used

traditionally to adhere the graft in position which requires longer operating time and is associated with suture related problems such as increased post operative discomfort and inflammation. Fibrin glue is another option to attach the graft instead of sutures with reduced operating time and eliminated postoperative suture related problems. Fibrin glue since it is a plasma derivative may produce hypersensitivity reactions in susceptible individuals and its high cost prevents its use for all sections of populations.

## Aims and objectives

To study efficacy of autologus fibrin (blood) for primary pterygium surgery with autologus conjunctival graft.

## Material and method

**Source of data:** Patients attending eye clinic having pterygium.

**Study design:** Prospective interventional clinical study to report long term outcome of sutureless pterygium surgery.

**Duration:** one and a half year i.e. from January 2012 to June 2013

**Sample size:** A total of 24 eyes from 16 patients with primary nasal pterygium were included to undergo pterygium excision with autoconjunctival grafting.

## Methods

Patients having primary nasal pterygium were enrolled in the study after taking informed consent. All the preliminary ophthalmological examination along with slit lamp examination was carried out. Each patient was investigated for haemogram, blood sugar level, routine urine examination, ECG. Physical fitness was taken by the physician to undergo surgery under local anaesthesia.

## Procedure

Single surgeon performed all the surgeries under local anaesthesia. 2% Xylocaine with adrenaline. An additional 0.5 cc of subconjunctival infiltration underneath pterygium was given in each patient to facilitate the ease of removal of pterygium. Pterygium was excised along

with superficial keratectomy. Haemostasis was allowed to occur spontaneously without the use of cautery and bare sclera was covered by conjunctival autograft taken from the superotemporal part of the eye. The graft was adhered to the underlying episcleral bed by autologous fibrin (patient's own blood from limbal vessel) each eye was patched for 24 hrs following the surgery. Surgical time was noted from first incision to the removal of lid speculum. Postoperative treatment included topical tobramycin with dexamethasone and topical moxifloxacin four times a day and steroid drops were tapered gradually over a period of 4 weeks. All the patients were examined on the slit lamp on 1<sup>st</sup> day , 1<sup>st</sup> week , 2 weeks , 6 weeks

postoperative and then every month for a period of six month and then at one year.

## Results

The mean age of 16 treated patients was 41.37 yrs (range 1 year to 70 years). Out of this 7 patients (43.7%) were males and 9 were females (56.25%). Two eyes developed graft retraction (12.5%) which responded to continued patching for two more days. One eye developed complete dehiscence (6.25%) which needed suturing of the graft with 10-0 nylon suture. None of the patient showed any other complication like corneal ulcer, sclera melting, conjunctivitis, symblepheron formation. Table 1 summarizes patient characteristics, outcome and complications.

**Table 1:** summarizes patient characteristics, outcome and complications.

Sr.no.	Sex	Age in years	No. of eyes	Graft dehiscence	Graft retraction	Chemosis	Ocular pain	Lacrimation	Congestion
1.	Male	21	Both eyes	No	No	No	No	No	No
2	Male	28	RE	No	No	No	No	No	No
3	Female	37	Both eyes	No	No	No	No	No	No
4	Male	40	Both eyes	No	No	No	No	No	No
5	Female	50	Both eyes	No	No	No	No	No	No
6	Female	60	Both eyes	No	Yes	No	No	No	No
7	Female	65	LE	No	No	No	No	No	No
8	Female	30	LE	No	No	No	No	No	No
9	Female	30	LE	No	No	No	No	No	No
10	Female	45	Both eyes	No	No	No	No	No	No
11	Female	38	RE	No	No	No	No	No	No
12	Male	34	LE	No	Yes	No	No	No	yes
13	Male	65	Both eyes	No	No	No	No	No	No
14	Male	28	RE	Yes	No	No	No	No	Yes
15	Female	70	RE	No	No	No	No	No	No
16	Male	28	Both eyes	No	No	No	No	No	Yes

## Discussion

The most concerning problem in the treatment of pterygium is prevention of its recurrence. Results of transplant of a free conjunctival autograft show a fewer recurrence rate and is associated with fewer complication. The most common method of conjunctival autograft fixation is suturing with the drawback of prolonged surgical time, postoperative discomfort, suture abscess, granuloma formation which are reported. Commercial fibrin glue is useful in attaching the conjunctival autograft. Koranyi et al. in a randomized controlled trial reported that fibrin glue could be used to attach the conjunctival graft instead of sutures with reduced operating time and postoperative discomfort. The safety record of fibrin glue is of considerable importance because commercial fibrin glue is made from the pooled blood product. The main issue in using the fibrin glue, despite of viral inactivation techniques, is transmission of viral infection. Therefore autologous fibrin glue in comparison with commercial product eliminate the

potential risk of transmission of infection and hypersensitivity reaction.

Limitation of this study is small sample size.

## Conclusion

The new method of using patients own blood (autologous fibrin) as glue in pterygium surgery with conjunctival autografting is a very effective method of treating pterygium in terms of reduced recurrence and cost of the treatment.

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