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**Original Research Article**  
**A comparative study of Pterygium excision  
using autologous blood versus sutures; A  
study from remote eastern Bihar, India.**

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9 **ABSTRACT**

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**Aims:** The study was undertaken to assess the surgical modalities for treatment of Pterygium in rural population.

**Study design:** Prospective study

**Place and Duration of Study:** Study was conducted in the Department of Ophthalmology for a period of June to December 2013.

**Methodology:** All the grade 1 and 2 patients between age group 25-50 years without any history of diabetes and /or oral anticoagulant agent intake were included in this study while others were excluded. The patients were randomly divided into two groups for pterygium excision with autograft using either autologous blood or sutures. Post operatively, these patients were then observed for presence of pain, irritation and graft failure on day 1, day 7 and 1 month.

**Results:** The surgical rate of success was better for sutures compared with autologous blood in rural eastern population.

**Conclusion:** Autologous conjunctival graft with sutures was found to have better outcome in terms of surgical success when compared with a new approach of autologous blood especially in the areas with patients of poor compliance.

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12 *Keywords: pterygium, autologous blood, sutures*

13 **1. INTRODUCTION**

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15 A pterygium is a degenerative condition of the sub-conjunctival tissue which proliferates as vascularized granulation tissue  
16 to invade the cornea destroying the superficial layers of stroma and Bowman's membrane, the whole being covered by

conjunctival membrane. It vary from small, atrophic quiescent asymptomatic lesions to large, aggressive, rapidly growing fibro-vascular lesions that cause impairment of vision by covering the pupillary area of the cornea and also by altering the curvature of the cornea due to fibrosis, causing astigmatism. It may also invade the cornea leading to corneal opacity. [1, 2] For treatment of this condition various treatment modalities are available but surgery still remains gold standard. During the past decade, debate over the best approach to pterygium surgery was centered on sutures and fibrin glue to affix the conjunctival graft but, a recent introduction of patient's own blood (autologous blood) for fixation of conjunctival flap has proven to better over the previous two approaches. But none of the approaches have been tested in rural settings. In this study, we are comparing two patient groups for pterygium excision with autograft using sutures versus using autologous blood in rural Eastern India where majority of the population are outdoor workers like farmers, labourers etc who have predilection for developing pterygium.

**2. MATERIAL AND METHODS**

The present study was conducted at the Department of Ophthalmology. A total number of 50 cases with pterygium classified as grade 1 or 2 were selected from out-patient department (OPD) for surgical intervention during the period of 6 months from July to December 2013. All the grade 1 and 2 patients between age group 25-50years without any history of diabetes and /or oral anticoagulant agent intake were included in this study while others were excluded. The following points were tabulated as under name, age, sex, address, occupation, history, general examination, local examination. The patients were randomly divided into two groups for pterygium excision with autograft using either autologous blood or sutures. Post operatively, the eye was patched overnight, and it was treated subsequently with topical antibiotics and anti-inflammatory drops and/or ointments. These patients were then observed for presence of pain, irritation and graft failure on day 1, day 7 and 1month. Statistical analysis of the data was performed using chi-square test.

**3. RESULTS AND DISCUSSION**

**3.1 Results**

Males (88%) and females (12%) were randomly distributed in the study for pterygium excision via autologous blood and sutures. (Table-1)

**Table -1: showing the distribution of males and females into two groups**

	Group 1(sutures)		Group 2 (autologous blood)	
	Total -25		Total -25	
	Males	Females	Males	Females
Number	21	4	23	2
Percentage	84 %	16 %	86%	8%

All the patients belonged to lower socio-economic group and were outdoor workers. Majority of the pterygium examined were nasal in both the study groups. Grade 1 was observed in 19(38%) whereas grade 2 was seen in 31(62%) (Table-2)

**Table-2: showing distribution of stage of pterygium in the two study groups**

	Group 1(sutures)		Group 2 (autologous blood)	
	Total -25		Total -25	
	Stage 1	Stage 2	Stage 1	Stage 2
Number	10	15	9	16
percentage	40%	60%	36%	64%

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All these patients were post-operatively observed for day1, 7 and at 1 month. (Table 3)

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**Table 3: showing post operative follow-up of the two study groups for pain and foreign body sensation**

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	<i>Autologous blood</i>	<i>Sutures</i>
Total no. of patients	25	25
Pain and irritation at day 1	15 (60%)	25 (100%)
Pain and irritation at day 7	8 ( 32%)	10 (40%)
Post-operative 1 month	8 (32%)	-

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Post operative examination of the two groups showed that twenty-three patients had successful grafting in which sutures were used compared to fourteen patients who were treated with autologous blood. The rate of surgical success was 68% in autologous blood compared to 100% when sutures were used. (Table 4)

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**Table -4: showing surgical success in two study groups**

Patient group	With sutures	With autologous blood
Surgical success	25 (100%)	17 (68%)
Failure	-	8 (32%)

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But post-operative pain, foreign body sensation was seen in patients with sutures. Surgical failures were seen on post-operative day 1 in patients where autologous blood was used. Statistical analysis by Chi-square test shows that the p-value is less than 0.001, hence using sutures for the patient compared to autologous blood is better.

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### 3.2 Discussion

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Pterygia are characterized by elastotic degeneration of collagen and fibrovascular proliferation, with an overlying covering of epithelium. Histopathology of the abnormal collagen in the area of elastotic degeneration shows basophilia with hematoxylin and eosin stain. Pterygium is commonly seen in patients above 20 year with highest prevalence in more than 40 years. Male gender and high sun exposure are strong and independent factors related to surgical development of pterygia. Majority of patients were outdoor workers like farmers, labourers etc. this is consistent with findings of other study where the incidence of was 4% in the age group of less than 30 years and reaches maximum of 32% in the age of 30-39 years and then gradually declines. The incidence was found to be maximum among farmers (40%) followed by labourers (20%). Globally, prevalence rates vary depending on the latitudes. [3,4] Nasal presentation being more common is seen due to transmission of UV light from temporal side of cornea through the stroma on to the nasal aspect of eye ,perhaps explaining why these lesions are more common nasally.

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77 Various treatment modalities are available but conjunctival autografts using sutures remains the gold standard. These  
78 grafts are stable with acceptable cosmetic results. Studies were done using fibrin, including lamellar corneal grafting and  
79 the closure of corneal perforations as it is a faster and simpler with less postoperative pain and discomfort. The newest  
80 approach is autoblood graft fixation, a technique also known as suture- and glue-free autologous graft. Autologous blood  
81 is natural, has no extra cost or associated risks, and can overcome the postoperative irritations to a great extent. [5]  
82 However in the present study, 100% surgical success was seen in autologous conjunctival graft with sutures whereas  
83 68% was seen in autologous blood. This is different from the findings of a cross-sectional study performed in the United  
84 Kingdom, 15 eyes received grafts affixed with autologous blood. No transplant dislocations or failures occurred. [6]  
85 Patients who regularly take aspirin or other blood thinners—or who suffer from a coagulation factor deficiency would not  
86 be good candidates for autologous blood graft fixation. In the present study, patients on aspirin and other anti coagulants  
87 were excluded so there was no evident reason for graft failure in autologous blood grafts. The reason hypothesized was  
88 that they were not compliant with the post operative precautions that were ought to be followed.

89 The main disadvantage of the autologous blood is the risk of graft loss in the immediate postoperative period. Graft loss is  
90 usually seen in first 24 to 48 hours. One of the important advantages seen with autologous blood was that this procedure  
91 was cosmetically better, pain and foreign body sensation was less prominent in early post operative period as compared  
92 to autograft with sutures. Limitation of the study is that the assessment of recurrence rates could not be assessed as  
93 these patients were still under follow up. True recurrence would only be assessed after a follow up of 1 year. In India,  
94 majority of the population resides in the rural area; hence more study needs to be done in the area.

#### 96 4. CONCLUSION

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98 Autologous conjunctival graft with sutures was found to have better outcome in terms of surgical success when compared  
99 with a new approach of autologous blood especially in the areas with patients of poor compliance.

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