

## Evaluate the Frequency of Pterygium Recurrence after Surgery using Conjunctival Autograft and Fibrin Glue

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### Abstract

**Aim:** Evaluate the frequency of pterygium recurrence after surgery using conjunctival autograft and fibrin glue.

**Materials and Methods:** The present study was conducted in the Department of Ophthalmology, DMCH, Darbhanga, Bihar, India for 12 months. It comprised of 72 patients of pterygium of both genders. All were well informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the surgery. Pterygium was graded in four stages, grade 1 (less than 2.0 mm), grade 2 (2.0 mm - 4.0 mm), grade 3 (higher than 4.00 mm, without covering the visual axis) and grade 4 (tissue covering the visual axis). Mixture of gatifloxacin 0.3% prednisolone acetate 1.0% every 6 hours, starting one day before the operation and then, every 2 hours until two days and after that every 6 hours during the next 20 days. Ketorolac 0.5% topical drops, every 8 hours, starting one day before and after the operation for 20 days was prescribed. Routine follow-up time was performed in all cases.

**Results:** out of 72 patients, males were 42 and females were 30. Table 2, graph I shows that grade I was seen in 16 patients, grade 2 in 28, grade 3 in 20 and grade 4 in 8 patients. Recurrence rate was 0 with grade I, 1 with grade 2, 2 with grade 3 and 2 with grade 4. The difference was significant ( $P < 0.05$ ). Table 3 shows that time of follow ups was 3 months in 4 cases, 6 months in 2, 9 months in 6 cases, 12 months in 14, 15 months in 20 cases.

**Conclusion:** we found that Pterygium management with conjunctival autograft is a very simple, easy, economical and with less complication's procedure. A low pterygium recurrence rate was observed after conjunctival autograft with fibrin glue.

**Keywords:** Pterygium, Recurrence, Conjunctival autograft, fibrin glue.

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### Introduction

Pterygium is a prevalent ocular surface disorder characterized by the growth of fibrovascular tissue from the conjunctiva onto the cornea, which can lead to visual impairment and discomfort. The exact pathogenesis of pterygium is multifactorial, involving genetic, environmental, and inflammatory factors, with ultraviolet (UV) radiation being a significant contributing factor. [1] Surgical excision is the definitive treatment for pterygium, especially in cases where vision is threatened or significant discomfort is present. Conjunctival autograft (CAG) is a well-established surgical technique for pterygium excision that involves the transplantation of autologous conjunctival tissue to cover the bare sclera after the removal of the pterygium. This technique has been shown to significantly reduce recurrence rates compared to the traditional bare sclera method. [2,3] The addition of fibrin glue to secure the graft has further improved outcomes by

reducing surgical time and postoperative discomfort and promoting faster healing. Recurrence rates are a critical concern in pterygium surgery, as they can lead to additional surgical interventions and complications. The recurrence of pterygium is influenced by several factors, including surgical technique, the extent of the pterygium, and patient characteristics. The use of fibrin glue in conjunctival autograft surgery has gained popularity due to its ability to provide immediate adherence of the graft, minimizing the need for sutures and reducing inflammation and scarring. [4,5] The lower recurrence rates associated with fibrin glue can be attributed to its ability to create a more stable and secure graft adherence, reducing the potential for graft displacement and inflammation. Additionally, fibrin glue has been shown to enhance wound healing and reduce the postoperative inflammatory

response, which are critical factors in preventing pterygium recurrence. [6]

### Materials and Methods

The present study was conducted in the Department of Ophthalmology, DMCH, Darbhanga, Bihar, India for 12 months. It comprised of 72 patients of pterygium of both genders. All were well informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the surgery. Data such as name, age, gender etc. was recorded. The surgical operation was conjunctival autograft with fibrin glue. Pterygium was graded in four stages, grade 1 (less than 2.0 mm), grade 2 (2.0 mm - 4.0 mm), grade 3 (higher than 4.00 mm, without covering the visual axis) and grade 4 (tissue covering the visual axis). Mixture of gatifloxacin 0.3% prednisolone acetate 1.0% every 6 hours, starting one day before the operation and then, every

2 hours until two days and after that every 6 hours during the next 20 days. Ketorolac 0.5% topical drops, every 8 hours, starting one day before and after the operation for 20 days was prescribed. Routine follow-up time was performed in all cases. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

### Results

Table 1 shows that out of 72 patients, males were 42 and females were 30. Table 2, graph I shows that grade I was seen in 16 patients, grade 2 in 28, grade 3 in 20 and grade 4 in 8 patients. Recurrence rate was 0 with grade I, 1 with grade 2, 2 with grade 3 and 2 with grade 4. The difference was significant ( $P < 0.05$ ). Table 3 shows that time of follow ups was 3 months in 4 cases, 6 months in 2, 9 months in 6 cases, 12 months in 14, 15 months in 20 cases.

**Table 1: Distribution of patients**

Variable	Number
Gender	
Male	42
Female	30

**Table 2: Assessment of pterygium grade and recurrence rate**

Grade	Number	Reoccurrence	p- value
1	16	0	0.05
2	28	1	
3	20	2	
4	8	2	
Total	72	5	

**Table 3: Months of follow up**

Months	Cases
1	4
2	2
3	6
4	14
5	20

### Discussion

Pterygium is an old challenge for ophthalmic surgeons. Among all the various techniques limbal conjunctival autograft is the best method because of low recurrence and high safety. [5] The most common method of autograft fixation is suturing, which has drawbacks of prolonged operating time, postoperative discomfort, suture abscess, button holes, and granuloma formation which usually requires a second procedure for removal. Graft fixation with commercial fibrin glue is another technique with potential risk of transmitted infection and high cost. Autologous fibrin glue has been used as an alternative method. [6] The present study was conducted to assess the recurrence rate pterygium

operated with conjunctival autograft and fibrin glue. In present study, out of 72 patients, males were 42 and females were 30. We found that grade I was seen in 16 patients, grade 2 in 28, grade 3 in 20 and grade 4 in 8 patients. Recurrence rate was 0 with grade I, 1 with grade 2, 2 with grade 3 and 2 with grade 4. Pterygium excision with conjunctival autografting reduces recurrence rates with fewer complications, and subsequently, has become the first choice of surgical procedure. However, a considerable number of conjunctival sutures must be performed increasing the operation time and postoperative discomfort, which are some arguments against this technique. Also, the use of sutures in pterygium surgery is associated with postoperative inflammation, discomfort and complications related

to the sutures themselves. [8] We found that years of follow ups was 1 year in 4 cases, 2 years in 2, 3 years in 6 cases, 4 years in 14, 5 years in 20, 6 years in 14 and 7 years in 12 cases. Daponte et al in their retrospective case-series study reviewed cases operated with 1 year of follow-up. The evaluation time-points were at 1 day, 20 days, 6 months, 1 year after surgery and then every year. All the procedures were performed by the same surgeon in single center. Topical Mitomycin C (MMC), 5-Fluorouracil (5-FU), cauterization and/or amniotic membrane were not used in any case. From a total of 159 operated eyes (82/77 women/men), pterygium was recurred in 7 eyes (4.4%); all of them detected at the second follow-up time-point (at day 20). Intraoperative complications did not occur, but at the postoperative stage, one case presented a conjunctival granuloma, which was surgically resolved. In conclusion, a low pterygium recurrence rate was observed after conjunctival autograft with fibrin glue. In our study, recurrence was found at the postoperative first month and did not recur until the end of follow-up for 10 years. Elwan et al [10] in their study evaluate the pterygium recurrence rate with a long-term follow-up, after surgery was performed with conjunctival autograft and fibrin glue as a biological adhesive. All the procedures were performed by the same surgeon in single center. Topical Mitomycin C (MMC), 5-Fluorouracil (5-FU), cauterization and/or amniotic membrane were not used in any case. From a total of 159 operated eyes (82/77 women/men), pterygium was recurred in 7 eyes (4.4%); all of them detected at the second follow-up time-point (at day 20). Intraoperative complications did not occur, but at the postoperative stage, one case presented a conjunctival granuloma, which was surgically resolved. In conclusion, a low pterygium recurrence rate was observed after conjunctival autograft with fibrin glue. Recurrence was found at the postoperative first month and did not recur until the end of follow-up for 10 years. [11]

### Conclusion

We found that Pterygium management with conjunctival autograft is a very simple, easy, economical and with less complications procedure. A low pterygium recurrence rate was observed after conjunctival autograft with fibrin glue.

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