

ORIGINAL ARTICLE**Comparison of patients undergoing pterygium excision surgery with conjunctival autografts using sutures and fibrin glue**

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ABSTRACT:

Background: The present study was conducted for comparing the outcome among patients undergoing pterygium excision surgery with conjunctival autografts using sutures and fibrin glue. **Materials & methods:** 100 patients were enrolled and were broadly divided into two study groups with 50 patients in each group; for applying sutures and fibrin glue to one group each. Suture group: In this group of 50 patients, the pterygium was excised and conjunctival autograft was sutured with 8-0 vicryl sutures, and Glue group: In this group of 50 patients, excision of primary pterygium with conjunctival autografting was done using fibrin glue. All the patients were managed according to their respective study groups. Follow-up was done and outcome was recorded. All the results were analyzed using SPSS software. **Results:** Mean duration of surgery among patients suture group and glue group was 31.4 minutes and 17.1 minutes respectively. Mean pterygium excision time among patients of suture group and glue group was 7.5 minutes and 6.9 minutes respectively. Non-significant results were obtained while comparing the mean pterygium time among patients of two study groups. On first postoperative day, patient discomfort was seen in 92 percent of the patients of suture group and 64 percent of the patients of glue group respectively. **Conclusion:** The use of fibrin glue to attach the free conjunctival autograft in pterygium surgery produces shorter operating time, less post-operative discomfort and complications compared to 8-0 vicryl sutures. Shorter surgery time logically translates into lower infection risk and saves valuable operation theatre time.

Key words: Pterygium, Conjunctival, Glue, Suture

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INTRODUCTION

A pterygium is a wing-shaped fibrovascular conjunctival growth extending onto the cornea that was described as early as 1000 BC by Susruta, the first recorded ophthalmic surgeon. Throughout the centuries, medical treatment for pterygium made use of relatively benign agents such as bile and urine and more toxic agents such as lead acid, mercuric lanolin, radiotherapy, thiotepa, 5-fluorouracil, and, more recently, mitomycin C in a search for a safe and effective therapy. Surgical therapies in the past made use of materials such as thread or horse hair, which were used as a Gigli saw to remove the pterygium, and, more recently, conjunctival or limbal autografts and amniotic membrane transplants. Surgical approaches to pterygium are described in the review by Hirst, including the bare sclera technique that has been the basic model for pterygium surgery.^{1,2}

In bare sclera excision, the pterygium is excised from the cornea, conjunctiva, and underlying Tenon's tissue, leaving bare sclera exposed. With recurrence rates after surgical excision reaching as high as 88% in certain populations, the goal of using the various combinations of surgical options and adjuvants is to remove the pterygium and to prevent recurrence. The presence of a pterygium is "disturbing to both the patient because of its unsightly appearance and the surgeon because of its tendency to recur."³⁻

⁵Pterygium is a growth of fibrovascular tissue on the cornea, which appears to be continuous with the conjunctiva. Prevalence rates range from 0.7% to 31% in various populations around the world, and the condition is more common in warm, dry climates. Treatment of pterygium is surgical. In general, conservative therapy for pterygium is warranted unless one of the following circumstances arises: loss of visual acuity either because of induced astigmatism or encroachment onto the visual axis, marked cosmetic deformity, marked discomfort and irritation unrelieved by medical management, limitation of ocular motility secondary to restriction, or documented progressive growth toward the visual axis so that ultimate loss of vision can reasonably be assumed. In such circumstances, surgical intervention is required. Because recurrences after pterygia excision are frequent and aggressive, firm indications for surgical removal should exist before primary excision.⁶⁻⁸ Hence; the present study was conducted for comparing the outcome among patients undergoing pterygium excision surgery with conjunctival autografts using sutures and fibrin glue.

MATERIALS & METHODS

The present study was conducted for comparing the outcome among patients undergoing pterygium excision surgery with conjunctival autografts using

sutures and fibrin glue. 100 patients were enrolled and were broadly divided into two study groups with 50 patients in each group; for applying sutures and fibrin glue to one group each.

Suture group: In this group of 50 patients, the pterygium was excised and conjunctival autograft was sutured with 8-0 vicryl sutures.

Glue group: In this group of 50 patients, excision of primary pterygium with conjunctival autografting was done using fibrin glue.

Each eye of the patient was considered as one case. Screening of the patient by brief history and general physical examination. Diffuse torch light examination for details of the pterygium and to rule out any other gross ocular pathology. All the patients were managed according to their respective study groups. Follow-up was done and outcome was recorded. All the results were analyzed using SPSS software.

RESULTS

Mean age of the patients of the suture group and Glue group was 42.5 years and 44.1 years respectively. 60 percent of the patients of the suture group and 62 percent of the patients of the Glue group were males. Mean duration of surgery among patients suture group and glue group was 31.4 minutes and 17.1 minutes respectively. Mean pterygium excision time among patients of suture group and glue group was 7.5 minutes and 6.9 minutes respectively. Non-significant results were obtained while comparing the mean pterygium time among patients of two study groups. On first postoperative day, patient discomfort was seen in 92 percent of the patients of suture group and 64 percent of the patients of glue group respectively.

Table 1: Duration of surgery

Duration of surgery	Suture group	Glue Group	p- value
Mean	31.4	17.1	0.00 (Significant)
SD	4.8	3.2	

Table 2: Mean pterygium excision time

Mean pterygium excision time	Suture group	Glue Group	p- value
Mean	7.5	6.9	0.79
SD	1.8	1.7	

Table 3: Distribution of patients according to postoperative patient discomfort at first day

Patient discomfort	Suture group		Glue Group		p- value
	N	%	N	%	
Present	46	92	32	64	0.00 (Significant)
Absent	4	8	18	36	

DISCUSSION

Pterygium is a common disease of the ocular surface characterized by the invasion of fibrovascular tissue from the bulbar conjunctiva onto the cornea. It can cause chronic ocular irritation, induced astigmatism, tear film disturbances, and decreased vision secondary to growth over the visual axis. Although the exact etiology of pterygium is unknown, exposure to ultraviolet (UV) radiation is thought to be the major environmental risk factor. Age, hereditary factors, sunlight, chronic inflammation, microtrauma, and dry eye are other possible contributing factors. The most commonly accepted treatment for pterygium is surgical excision. However, the rate of recurrence after surgery is high.⁶⁻⁹ Hence; the present study was conducted for comparing the outcome among patients undergoing pterygium excision surgery with conjunctival autografts using sutures and fibrin glue.

Mean age of the patients of the suture group and Glue group was 42.5 years and 44.1 years respectively. 60 percent of the patients of the suture group and 62 percent of the patients of the Glue group were males. Mean duration of surgery among patients suture group and glue group was 31.4 minutes and 17.1 minutes respectively. Cagatay HH et al did a retrospective

comparative study to compare visual and refractive outcomes, complication and recurrence rates with the use of fibrin glue and sutures in pterygium surgery performed with conjunctival autograft. They found that preoperative/follow up characteristics of patients revealed no significant differences between the two groups. Additionally no significant differences were found between patient groups in visual acuity level changes and refractive values. Although the rates of recurrence and graft dehiscence were slightly higher in the patients with sutures, differences did not reach significance. Thus the study suggested that conjunctival autografting with fibrin glue has favorable visual and refractive results for the patients, and is associated with lower complication rates, compared with the use of suturing technique. They suggested that the use of fibrin glue provides adequate adhesion and grafts loss is not a problem. The appropriate surgical technique should be selected considering the advantages and disadvantages of each procedure.⁹

Mean pterygium excision time among patients of suture group and glue group was 7.5 minutes and 6.9 minutes respectively. Non-significant results were obtained while comparing the mean pterygium time

among patients of two study groups. On first postoperative day, patient discomfort was seen in 92 percent of the patients of suture group and 64 percent of the patients of glue group respectively. Cha DM et al did a retrospective study to compare the effect of using fibrin glue or 10-0 nylon sutures on the clinical outcomes of the patients undergoing pterygium excision and conjunctival autografting. They found out that the operation duration was 27.71 minutes in the fibrin glue group and 43.31 minutes in the suture group. Seven days after the operation, the fibrin glue group showed milder conjunctival inflammation than the suture group. Postoperative complications and the corneal recurrence rates were not statistically different between two groups. Thus they concluded that the use of fibrin glue in pterygium excision with conjunctival autografting is likely to be more effective, safer procedure than suturing.¹⁰ Vichare N et al did a prospective study to do a comparison between fibrin sealant and sutures for attaching conjunctival autograft after pterygium excision to evaluate the efficiency with reference to surgical time, postoperative comfort and recurrence. They found that the average surgical time taken was 50.93(4.96) minutes with suture group and 34.43(4.94) minutes with fibrin glue group. At the end of the final follow up at 6 months, 10% cases from the suture group and 1% cases from the fibrin group had recurrence. The conclusion withdrawn was that the fibrin glue is safe and effective for attaching conjunctival autograft during pterygium surgery. Although more number of recurrences were observed in suture group as compared to the fibrin glue group but the difference was not statistically significant.¹¹

CONCLUSION

The use of fibrin glue to attach the free conjunctival autograft in pterygium surgery produces shorter operating time, less post-operative discomfort and

complications compared to 8-0 vicryl sutures. Shorter surgery time logically translates into lower infection risk and saves valuable operation theatre time.

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