

## Original Article

### Comparison of efficacy of pterygium excision surgery with conjunctival autografts using sutures and fibrin glue in pterygium patients

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#### ABSTRACT:

**Background:** Pterygium is a wing-shaped ocular surface lesion traditionally described as an encroachment of bulbar conjunctiva onto the cornea. The present study was conducted for comparing the efficacy of pterygium excision surgery with conjunctival autografts using sutures and fibrin glue in pterygium patients.

**Materials & methods:** A total of 40 pterygium patients were enrolled in the present study. Written consent was obtained from all the patients after explaining in detail the entire research protocol. Group A: The pterygium was excised and conjunctival autograft was sutured with 8-0 vicryl sutures; Group B: Excision of primary pterygium with conjunctival autografting was done using fibrin glue. All the patients underwent procedures according to their respective study groups. Follow-up was done and details were recorded. All the results were recorded and analysed by SPSS software.

**Results:** Sub-conjunctival haemorrhage was present in 15 percent of the patients of Group A and was absent in group B. Significant results were obtained while comparing the complications in between the two study groups. Discomfort was present in 20 percent of the patients of group A and 5 percent of the patients of Group B respectively. Significant results were obtained while comparing the discomfort among the patients of the two study groups.

**Conclusion:** Fibrin glue was more effective in treating pterygium patients.

**Key words:** Pterygium, Suture, Glue.

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#### INTRODUCTION

Pterygium is a wing-shaped ocular surface lesion traditionally described as an encroachment of bulbar conjunctiva onto the cornea. Historically, pterygia were considered degenerative lesions, exemplified by degradation of Bowman's layer and elastosis. Currently, however, pterygia are described as a proliferative disorder resembling an aberrant wound healing response. Histopathologically, pterygia are characterized by a hyperplastic, centripetally directed growth of altered limbal epithelial cells accompanied by Bowman's layer dissolution, epithelial-mesenchymal transition, and an activated fibroblastic stroma with inflammation, neovascularization, and matrix remodelling, mediated through the concerted actions of cytokines, growth factors, and matrix metalloproteinases.<sup>1-3</sup>

The main indication for pterygium surgery is visual disturbance secondary to encroachment over the pupillary area or induced astigmatism. The technique of conjunctival auto grafts involves excision of the pterygium and covering the resulting bare sclera with

a free conjunctival graft harvested from an uninvolved site of the ocular surface, generally the superior or supratemporal sector of bulbar conjunctiva of the same or fellow eye.<sup>4-6</sup> Hence; the present study was conducted for comparing the efficacy of pterygium excision surgery with conjunctival autografts using sutures and fibrin glue in pterygium patients.

#### MATERIALS & METHODS

The present study was conducted for comparing the efficacy of pterygium excision surgery with conjunctival autografts using sutures and fibrin glue in pterygium patients. A total of 40 pterygium patients were enrolled in the present study. Written consent was obtained from all the patients after explaining in detail the entire research protocol.

Inclusion criteria for the present study included:

1. Patients with primary pterygium.
2. Patients willing for a follow up period of 6 months after surgery.

After a short history pertaining to ocular complaints and after excluding any ocular or general contraindications to surgery, patients were divided into 2 groups with 20 patients in suture group and 20 patients in glue group respectively.

Group A: The pterygium was excised and conjunctival autograft was sutured with 8-0 vicryl sutures.

Group B: Excision of primary pterygium with conjunctival autografting was done using fibrin glue.

All the patients underwent procedures according to their respective study groups. Follow-up was done and details were recorded. All the results were recorded and analysed by SPSS software.

Mean age of the patients of Group A and group B was 42.5 years and 40.9 years respectively. 60 percent of the patients of Group A and 65 percent of the patients of group B were males. Mean duration of surgery among patients of group A and group B was 29.3 minutes and 18.9 minutes respectively. Sub-conjunctival haemorrhage was present in 15 percent of the patients of Group A and was absent in group B. Significant results were obtained while comparing the complications in between the two study groups. Discomfort was present in 20 percent of the patients of group A and 5 percent of the patients of Group B respectively. Significant results were obtained while comparing the discomfort among the patients of the two study groups.

## RESULTS

Table 1: Duration of surgery

Duration of surgery	Group A	Group B	p- value
Mean (in minutes)	29.3	18.9	0.01 (Significant)
SD	5.23	4.26	

Table 2: Distribution of patients according to complications

Sub-conjunctival haemorrhage	Group A		Group B		p- value
	N	%	N	%	
Present	3	15	0	0	0.00 (Significant)
Absent	17	85	20	100	

Table 3: Comparison of discomfort among patients of the two study groups

Discomfort	Group A		Group B		p- value
	N	%	N	%	
Present	4	20	1	5	0.01 (Significant)
Absent	16	80	19	95	

## DISCUSSION

Pterygium is a degenerative disorder of the conjunctiva. Avoidance of environmental risk factors like sunlight, wind and dust by wearing UV rays protecting sunglasses and hat may prevent development of pterygium. These protective measures may help to prevent recurrence of pterygium after surgery. Despite advances in understanding of its pathogenesis, pterygium remains an ophthalmic enigma. Intriguingly, pterygia have a predilection for the nasal limbus and affect only humans, possibly reflecting the unique ocular morphology of humans, compared with nonhuman primates and other animals. Although there is no consensus regarding the pathogenesis of pterygia, epidemiological evidence, its association with sun-related disorders such as pinguecula and cataracts, climatic droplet keratopathy, and squamous cell and basal cell carcinomas, together with our in vitro studies, support the concept that UV radiation plays a major role in development of pterygium. Furthermore, the limbal predilection may be explained by the phenomenon of peripheral light focusing, in which incidental light passes through the anterior chamber and is focused at the distal (nasal) limbus where limbal stem cells (LSCs) reside.<sup>6-9</sup> Hence; the present study was conducted for

comparing the efficacy of pterygium excision surgery with conjunctival autografts using sutures and fibrin glue in pterygium patients.

In the present study, mean age of the patients of Group A and group B was 42.5 years and 40.9 years respectively. 60 percent of the patients of Group A and 65 percent of the patients of group B were males. Mean duration of surgery among patients of group A and group B was 29.3 minutes and 18.9 minutes respectively. Bahar I et al compared the results of conjunctival closure in pterygium surgery using fibrin adhesive versus vicryl sutures and found out that operating time was 16 minutes in the glue group (range 14-16 minutes) and 20 minutes in the suture group (range 20-29 minutes). Significantly less pain, photophobia, irritation, watering, foreign body sensation, dry eye, conjunctival chemosis were noted in the subjects treated with fibrin glue. There were no complications during the follow up period in the glue treated patients. Hence they concluded that use of fibrin glue significantly reduces the operating time and patients symptoms, pain and discomfort.<sup>10</sup>

Sub-conjunctival haemorrhage was present in 15 percent of the patients of Group A and was absent in group B. Significant results were obtained while comparing the complications in between the two study

groups. Discomfort was present in 20 percent of the patients of group A and 5 percent of the patients of Group B respectively. Significant results were obtained while comparing the discomfort among the patients of the two study groups. In another study conducted by Bahar I et al, authors compared the long term results of conjunctival closure with fibrin glue and Vicryl sutures in pterygium surgery and found out that operating time was lesser in the glue group. Significantly less pain and discomfort were noted in the subjects treated with the fibrin glue than with the sutures. Satisfaction was comparatively higher in the fibrin glue group. There were no complications during the follow up period of the glue treated patients. At the end of the follow up, recurrence occurred in the 5 eyes of the glue treated patients and 3 eyes of the patients with sutures. Thus they concluded that the use of glue in pterygium surgery significantly reduces the operative time and the patient pain compared with suturing. However it may be associated with a high recurrence rate.<sup>11</sup>

Jiang J et al conducted comparison of fibrin sealant and sutures for conjunctival autograft fixation in pterygium surgery and a one year follow up was done. They found that average operating time was significantly shorter in the fibrin sealant group and fewer postoperative symptoms were seen. By the end of 1 year follow up, the recurrence rate was 5% in the fibrin sealant group and 10% in the suture group and there was no statistically significant difference in complications between the two groups. They concluded that it is safe and effective to use fibrin sealant for conjunctival autograft fixation in pterygium surgery. This method causes much fewer postoperative symptoms and shortens surgery time significantly, and the long term results are also favourable.<sup>12</sup>

## CONCLUSION

From the above results, the author concluded that fibrin glue was more effective in treating pterygium patients.

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