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Pterygium Surgery by Conjuctival Autograft with Autologous Blood Fixation versus Fibrin Glue

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A B S T R A C T

Aims and Objective: To compare the outcome between autologous blood and fibrin glue fixated conjunctival autograft in pterygium surgery. ***Methods and Materials***: A retrospective comparative study was carried out in 40 eyes that had a primary nasal pterygium excision in tertiary hospital in South Gujarat from January 2023 to June 2023. The patients were divided into 2 groups, in Group 1 autograft was attached with autologous blood and in Group 2 with fibrin glue. Groups were compared for surgical time, postoperative discomfort and recurrence. ***Result***: The average surgical time was least with glue i.e 37.5 min, and 45.2 min for without glue. The postoperative discomfort was minimal in both groups. No recurrence was found in both groups till 6months follow up. ***Conclusion***: The fibrin glue is most effective method for attaching autograft with least surgical time and postoperative discomfort. Autologous blood is an effective alternative easily available, economical than glue with less surgical time and postoperative discomfort.

Keywords: Pterygium, Glueless, Sutureless, Autologous blood.

INTRODUCTION

Pterygium is a degenerative condition of the sub-conjunctival tissue which proliferates as vascularized granulation tissue to invade the cornea, destroying the superficial layers of the stroma and Bowman's membrane, whole being covered by the conjunctival epithelium [1].

Its prevalence varies from 0.3 to 29% in different parts of the world [2]. Pterygium is managed conservatively unless it is progressing towards the pupillary area causing excessive astigmatism, resulting in decreased vision. Surgical removal is the treatment of choice but recurrences after a successful excision continues to remain a challenge [3].

Bare sclera excision alone is associated with recurrence rates of about 30 to 70%. Conjunctival autografting after pterygium excision is associated with lower recurrence rates (2 to 9%) and relatively few sight threatening complication [4, 5]. After pterygium surgery, the conjunctival autograft is secured in place with sutures. The presence of sutures associated with complications such as discomfort, increased lacrimation and potential suture complications [6].

With the invention of newer alternatives such as fibrin glue and autologous blood, suture related complications have reduced. Fibrin glue is a blood- derived product, its use is associated with the risk of transmission of blood related diseases.

In these cases, autologous blood is a good alternative as it is easily available only exception being patients who regularly take blood thinners or who suffer from a coagulation factor deficiency. This study has been conducted to compare the efficacy of fibrin glue as compared to autologous blood in attaching the conjunctivalautograft.

MATERIALS AND METHODS

This is a retrospective comparative case series of patients with a primary nasal pterygium who underwent excision from January 2023 to June 2023 in tertiary care hospital.

A free conjunctival autograft from superior bulbar conjunctiva was used to cover the bare sclera after pterygium excision. Based on the technique used to fix the graft, patients were divided into two groups of 20 each. In Group 1 Autologous blood was used to fix the graft and in Group 2 Fibrin glue was used.

SURGICAL PROCEDURE

All surgeries were performed under local anesthesia using 2% lignocaine and 0.5% bupivacaine. Peribulbar block was given. Superior rectus bridle suture was applied. Pterygium was excised using a sharp blade.

Conjunctival limbal autograft measuring the same size as the defect was obtained from the supertemporal quadrant of the bulbar conjunctiva. The graft was flipped over the cornea and brought near the area of bare sclera.

In Group 1, a small conjunctival blood vessel was nicked with 26 G needle, blood was allowed to ooze over the bare sclera and the graft was placed over it. The graft was ironed out by applying gentle pressure using spatula, the graft was not disturbed for further 10 minutes. In Group 2 Fibrin glue was used.

The mixing of the component was done as per the direction, after preparation they are drawn in two different syringes. Two to three drops of solution was placed on scleral bed and graft is immediately flipped over the area of conjunctival defect and smoothened out with spatula. Postoperatively, patients from both the groups were treated with eye drop moxifloxacin+ dexamethasone four times a day for a week then tapered over next 2 weeks. Artificial tear drops were also given for 4 weeks.

All patients were seen on day 1, day 3, day 7, day 14, 1 month, 3 month, 6 months postoperatively. During each visit, pain, foreign body sensation, discomfort, any complication and status of graft was seen. At the final visit at 6 months, the presence of recurrence, if any was noted.

RESULTS

In Group 1, there were 12 (60%) males and 8 (40%) females and in Group 2, there were 13 (65%) males and 7 (35%) females. The age of the patients ranged from 26 to 68 years.

The average surgical time taken for Group 1 was 45.2 minutes and for Group 2 was 37.5 minutes, the mean surgical time was less for Group 2 (fibrin glue) as compared to Group 1 (autologous blood).

Pain and foreign body sensation were seen in 6 to 10 cases of Group 1 and 4 to 6 cases of group 2 which reduced within a week.

Subconjunctivalhemorrhage was seen in two cases of Group 1 which stabilized over a period of 1-2 weeks and it was not seen in any case of Group 2. Graft retraction was seen in one case of Group 1 and it was not seen in any case of Group 2.

All the patients were evaluated for signs of recurrence of pterygium, at the end of 6 months of follow up no fresh recurrence was seen in both the groups.

Post Operative Evaluation

Table 1: Postoperative evaluation

Signs and Symptoms	DAY 1		DAY 3		DAY 7		DAY 14	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Pain	10	4	8	3	4	2	0	0

Foreign body sensation and lacrimation	6	6	4	4	0	0	0	0
Subconjunctival hemorrhage	2	0	2	0	2	0	0	0
Graft retraction	1	0	1	0	1	0	0	0
Recurrence	0	0	0	0	0	0	0	0

Signs and Symptoms	**DAY 30**		**3 MONTHS**		**6 MONTHS**	
	Group 1	**Group 2**	**Group 1**	**Group 2**	**Group 1**	**Group 2**
Pain	0	0	0	0	0	0
Foreign body sensation and lacrimation	0	0	0	0	0	0
Subconjunctival hemorrhage	0	0	0	0	0	0
Graft retraction	0	0	0	0	0	0
Recurrence	0	0	0	0	0	0

DISCUSSION

The standard treatment for pterygium is excision with CAG, however the outcome is compromised by recurrence and surgical complications. The use of CAG was first described by Kenyon *et al.,* in 1985, the recurrence rate dropped from 89% in case of bare sclera to 2%.

Fibrin glue is generally considered safe but carries a risk of blood related disease transmission. Pan *et al.*, in their meta-analysis supported superiority of glue over suture. It is mandatory to maintain the cold chain, failure in maintaining drops the efficacy.

Autologous blood is an good alternative, de Wit *et al.*, in their study of 15 eyes considered autologous blood safe and offer comparable results to suture or glue.

Graft stability is an issue with autologous blood. In Dr Ashok K Sharma study, out of 150 cases 2 cases had graft retraction.

CONCLUSION

Both the techniques used to secure the conjunctivalautograft were effective in reducing the recurrence rate. The fibrin glue is the most effective method for fixating conjunctivalautograft with least surgical time and post operative discomfort, but high cost and availability was an issue. Autologous blood is an effective alternative which is easily available and economical as compared to fibrin glue but graft retraction was seen in some cases.

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