



PTERYGIUM; AUTOLOGOUS BLOOD VERSUS SUTURES IN PTERYGIUM EXCISION WITH CONJUNCTIVAL AUTOGRAFT.

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ABSTRACT... Objectives: To compare graft stability, patient discomfort and surgical time between autologous blood and sutures for autologous conjunctival graft adherence in pterygium surgery. **Study Design:** Prospective interventional study. **Setting:** Department of Ophthalmology, Pak Red Crescent Medical and Dental College, Dina Nath. **Period:** January 2017 to December 2017. **Materials and Methods:** Fifty eyes of fifty patients requiring pterygium surgery were enrolled. The patients were divided in two groups (A and B). Under peribulbar anesthesia pterygium was excised in all patients. Bare sclera was covered with conjunctival autograft using autologous blood as adhesive agent in Group A while in Group B conjunctival autograft was fixed with 10/0 Nylon sutures. The patients were examined postoperatively on day 1, day 7, day 14 and day 30. The groups were compared in terms of surgical time, graft displacement and patient discomfort. **Results:** Mean surgical time was (20.96 ± 2.05 minutes) in Group A and (30.04 ± 3.38 minutes) in Group B. There was nasal displacement of conjunctival autograft in 3 (12%) of patients on 1st post-operative day in Group A whereas no graft displacement was seen in any case of Group B. Level of patient discomfort measured on visual analogue scale in Group A was (0.56 ± 0.92 on day 1, 0.40 ± 0.71 on day 7, 0.04 ± 0.20 on day 14 and 0 ± 0 on day 30). In Group B level of patient discomfort was (3.92 ± 1.12 on day 1, 1.24 ± 1.09 on day 7, 0.12 ± 0.33 on day 14 and 0 ± 0 on day 30). **Conclusions:** The use of autologous blood to affix the conjunctival autograft in pterygium surgery is a reliable method. It is associated with less patient discomfort post operatively and requires shorter surgical time, as compared to conjunctival autograft with sutures.

Key words: Pterygium, Autologous Blood, Conjunctival Autograft.

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INTRODUCTION

Recurrence is the major complication of pterygium excision. Different strategies¹⁻⁵ adopted to minimize this complication include per operative use of mitomycin- C, Beta radiation, excimer lasers, amniotic membrane graft to the bare sclera, conjunctival rotational flaps and conjunctival graft with or without stem cells. Now a days conjunctival graft with limbal stem cells is considered as gold standard.⁶⁻⁷ The success of pterygium surgery depends on time consumed during surgery, post surgical stability of autologous graft and patients comfort or satisfaction.

Sutures no doubt provide better stability to the autologous conjunctival graft. However, the sutures also cause additional trauma to the surgical site and a nidus for post operative infection. Moreover

presence of suture in conjunctival tissue induces inflammatory response. Applying suture is also time consuming.⁸ For these reasons eye surgeons switched to fibrin glue as adjuvant to paste conjunctival autograft on bare sclera. Use of fibrin glue proved to be less time consuming and provided contact and adherence to the underlying tissue.⁹⁻¹² However fibrin glue is costly and not easily available in market. Moreover there is risk of transmission of viral diseases through fibrin glue.¹³ Autologous blood is now being used as adhesive agent to affix conjunctival graft. Autologous blood is cost effective and has no associated risk of viral transmission. This study was conducted to compare graft stability, patient discomfort and surgical time between autologous blood and sutures for autologous conjunctival graft adherence in pterygium surgery.

MATERIALS AND METHODS

The study was conducted at Department of Ophthalmology, Pak Red Crescent Medical and Dental College, Dina Nath from January 2017 to December 2017. Fifty eyes of fifty consecutive patients with primary nasal pterygium were enrolled. Patients with history of mechanical or chemical trauma were not included in study. Patients having temporal pterygium, double pterygium and recurrent pterygium were also excluded. The patients were randomized to two groups; A and B. In Group A autologous blood was used as adhesive agent while in Group B sutures were used to secure the graft.

All surgeries were performed by same surgeon after obtaining informed consent. Peribulbar anesthesia was given. Complete anesthesia and akinesia was assured. Eye speculum was inserted. 2% Xylocaine was injected into the body of pterygium and under the superotemporal conjunctiva. Body of pterygium was dissected and excised. Pterygium head was then uprooted using corneal forceps. Tenon capsule underlying and surrounding the body of pterygium was excised. Corneal bed was scraped with surgical knife No. 15. Dimensions of conjunctival defect were measured using caliper. In Group A the oozing blood was allowed to accumulate on bare sclera whereas minimal cauterization was applied in Group B to control bleeding. An ultra thin free limbal conjunctival graft 1mm larger than conjunctival defect was harvested from superotemporal conjunctiva and placed over the conjunctival defect. Limbal side of graft was kept over limbal side of scleral bed. In Group A the autologous blood was used as adhesive agent and we waited for 4 extra minutes after placing the graft so that the graft could adhere strongly to underlying sclera. In Group B 4-5 sutures of 10/0 nylon was applied to secure the graft. An overnight patch was applied to the operated eye. Post-operatively eye drops containing a mixture of ofloxacin and dexamethasone were prescribed to all patients of both groups. Eye drops were instilled 4 times a day for first week and the tapered gradually in next three weeks. Any graft displacement noticed on first postoperative day was readjusted on same day.

Time of surgery was recorded from insertion to removal of eye speculum. The patients were followed up on 1st, 7th, 14th and 30th day of surgery. On each visit patients were evaluated in terms of graft stability and patients complaints about pain and irritation. Visual analogue scale (VAS) was used to record postoperative patient discomfort. The scale was graded between 0 to 10 with zero indicating no discomfort (pain and irritation) and 10 indicating maximum discomfort ever experienced by the patient.

RESULTS

Fifty eyes of 50 patients were studied. Cases were divided into two groups. Cases in Group A received conjunctival autograft was affixed with autologous blood while in Group B conjunctival autograft was secured with sutures. The demographic profile of the patients is summarized in Table-I.

Mean surgical time was 20.96 ± 2.1 (range 17-25) in Group A and 30.04 ± 3.34 (range 24-36) in Group B. In three patients from Group A the graft was temporally displaced to override cornea for less than a millimeter. None of the patients of both groups had loss of graft. On first post-operative day mean VAS score in Group A was 0.56 ± 0.92 (range 0-3) and in Group B was 3.92 ± 1.12 (range 2-6). On 7th post operative day mean VAS score in Group A was 0.40 ± 0.71 (range 0-2) and in Group B was 1.24 ± 1.10 (range 2-6). Similarly On 14th post operative day mean VAS score in Group A was 0.04 ± 0.20 (range 0-2) and in Group B was 0.12 ± 0.33 (range 2-6). However at the end of one month patients from both groups were completely symptom free and satisfied.

	No. of eyes	Males Number (%)	Females Number (%)	Age (years) Mean \pm SD (Range)
Group A	25	15 (60%)	10 (40%)	43.96 \pm 11.87 (29-80)
Group B	25	13 (53.8%)	12 (46.2%)	44.48 \pm 11.12 (28-76)

Table-I. Demographics

	Mean \pm SD (Range)
Group A	20.96 \pm 2.1 (17-25)
Group B	30.04 \pm 3.38 (24-36)

Table-II. Surgical time

	Graft displacement Day 1
Group A	3 (12%)
Group B	0

Table-III. Graft displacement

DISCUSSION

Various techniques have been employed for anchoring conjunctival autograft to the bare sclera. We compared two such techniques. In Group A the autologous blood was used as adhesive agent while in Group B 4-5 sutures of 10/0 nylon were applied to secure the graft. The outcome was evaluated in terms of stability of the graft, post-operative patient comfort and time consumed during surgery. Fixation of conjunctival autograft with autologous blood proved to be less time consuming. In our study the mean surgical time was 20.96 \pm 2.1 for Group A and 30.04 \pm 3.38 for Group B. It was comparable to mean surgical time reported by Ashok Sharma et al. which was 23.20 \pm 1.55 minutes when conjunctival graft was affixed with autologous blood and 37.76 \pm 1.89 minutes when it was secured with sutures.¹⁸ It was also comparable to mean operative time recorded in study conducted by Elwan in which autografting with autologous blood took 24 \pm 5.64 minutes and suturing of conjunctival autograft took 28.64 \pm 6.45 minutes.¹⁷

Displacement or complete dislodgement of graft is considered to be one of major complications that occur in immediate post operative period in autologous blood graft. P. Peeush and S. Sarkar reported dislodgement of graft occurring in first

24-48 hours.¹⁴ D de Wit et al reported that no such dislodgement or displacement occurred in any of the cases and all the grafts affixed with autologous blood remained stable post-operatively.¹⁵ In our study complete dislodgement occurred in none of the cases. This is because after placing the graft we waited for 3-4 minutes to allow the blood to clot under conjunctiva and let the adhesion of the graft get stronger. However in three cases of group A the graft was temporally displaced to overlap the cornea for less than a millimeter. Narayen N reported overriding of graft in 1.92% of cases.¹⁶ The probable reason was incomplete akinesia after peribulbar block. The nasal movement of eyeball was responsible temporal displacement of graft. The graft was readjusted on first post-operative day.

Post-operative patient discomfort (pain and irritation) was assessed using VAS score was much less in autologous blood group as compared to suture group. The symptoms were maximum on first post operative day and then gradually disappear in two weeks time in both groups. The results were similar to Elwan's study which he conducted on similar 2 groups, where he concluded that post operative signs and symptoms of patients discomfort were significantly lower in sutureless group as compared to sutured autograft.¹⁷ In another study conducted by Kim et al., patient symptoms disappeared in 23 out of 36 eyes (64%) in one week and after two weeks of surgery there were no symptoms of patient discomfort.¹⁰

CONCLUSION

The use of autologous blood to affix the conjunctival autograft in pterygium surgery is a reliable method. It is associated with less patient discomfort post operatively and requires shorter surgical time, as compared to conjunctival autograft with sutures.

	VAS Score Day 1 Mean \pm SD (Range)	VAS Score Day 7 Mean \pm SD (Range)	VAS Score Day 14 Mean \pm SD (Range)	VAS Score Day 30 Mean \pm SD (Range)
Group A	0.56 \pm 0.92 (0-3)	0.40 \pm 0.71 (0-2)	0.04 \pm 0.20 (0-1)	0 \pm 0 (0)
Group B	3.92 \pm 1.12 (2-6)	1.24 \pm 1.09 (0-3)	0.12 \pm 0.33 (0-1)	0 \pm 0 (0)

Table-IV. Patient discomfort score on visual analogue scale



The complication of graft displacement can be overcome by giving appropriate peribulbar anesthesia and assuring complete akinesia.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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2	Qundeel Shaukat	Data collection	
3	Nasir Mahmood	Data collection	