

Primary nasal pterygium excision with sutureless and glue-free technique of conjunctival autograft: a case series of 24 eyes

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Abstract

Aim: To evaluate the efficacy and complication of sutureless and glue-free conjunctival autograft for the management of primary pterygium over a period of one year.

Methods: Prospective, interventional, hospital-based study. Twenty-four eyes of 24 patients with primary nasal pterygium were graded, and excision was performed by a single surgeon. To prevent recurrence, a free conjunctival autograft was taken from the superior quadrant from the same eye and the bare sclera was covered without the use of sutures or fibrin glue, allowing natural autologous coagulum of the recipient bed to act as a bioadhesive. The eye was patched for 24 hours. Postoperatively, patients were put on topical eye drops (polymixin 0.5%, neomycin 0.5%, and dexamethasone 1%) four times daily for four weeks, and oral antibiotics and methyl prednisolone 3x4 mg per day for 5 days. Patients were followed up postoperatively on day 1, 1 week, 6 weeks, 6 months, and 12 months. They were examined for haemorrhage, wound gape, graft shrinkage, granuloma, graft dehiscence, recurrence, or any other complication.

Results: The mean age of the patients was 56.96 ± 11.51 years (range 35-81 years). There were 18 females (75%) and 6 males (25%). The following complications were noted: granuloma in three eyes (12.5%), overriding graft onto the cornea in three eyes (4.17%), and recurrence in one eye (4.17%). No other complications were noted. Average surgical time was 16 ± 2 minutes.

Conclusion: Sutureless and glue-free limbal conjunctival autografting is a treatment modality for primary nasal pterygium with no additional cost and has only one recurrence case in 24 cases.

Keywords: conjunctival autograft, glue-free technique, pterygium surgery

Introduction

Conjunctival autografting has also been advocated for the management of recurrent pterygium. Limbal conjunctival autograft is currently the most popular surgical procedure. The most common method of autograft fixation is suturing. However, it has its own drawbacks, such as increased operating time, postoperative discomfort, inflammation, buttonholes, necrosis, and giant papillary

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conjunctivitis.¹

The aim of pterygium surgery should not only be to excise the pterygium, but also to prevent its recurrence. Generally, pterygium recurrences occur within the first six months after surgery. One such method to prevent recurrence is autologous limbal conjunctival grafting. Limbal conjunctival autograft transplantation re-establishes the barrier function of the limbus, and hence, significantly lowers the recurrence rate. It is either attached with sutures or with biological adhesives such as fibrin glue, which is derived from pooled human plasma, or autologous fibrin. Suturing of the autograft is rather difficult and requires surgical experience and technical skill. Suzuki *et al.* reported that the use of silk or nylon sutures cause conjunctival inflammation and Langerhans cell migration into the cornea.²

The fibrin used commercially for gluing can be substituted by the patients' own blood. If time is given for the blood to collect and then for the graft to adhere to the bare area, adequate adhesion can be achieved. The apposition of the lids to the graft bed facilitates a biological dressing and confers a wound-healing environment.

Materials and methods

This was a prospective, interventional, hospital-based study. Twenty-four eyes of 24 patients with primary nasal pterygium were graded, and excision was performed by a single surgeon. To prevent recurrence, a free conjunctival autograft was taken from the superior quadrant of the same eye and the bare sclera was covered without the use of sutures or fibrin glue, allowing natural autologous coagulum of the recipient bed to act as a bioadhesive.

Inclusion criteria

Patients of all ages and of either sex presenting with primary nasal pterygium. Temporal pterygium was not included, as it is very rare.

Exclusion criteria

Recurrent pterygium, glaucoma, retinal pathology requiring surgical intervention, history of previous ocular surgery or trauma, pseudo pterygium, HIV/hepatitis B.

Surgical technique

Topical anaesthesia was given preoperatively. The body of the pterygium was dissected 4 mm from the limbus down to the bare sclera. The pterygium was removed from the cornea by avulsion. Only the thickened portion of conjunctiva and the immediate adjacent and subjacent Tenon's capsule showing tortuous vasculature were excised. An oversized graft by 1 mm was used after measuring with the Castroviejo caliper. The graft was taken from the superior 12 o'clock position. Care was taken to include as little as possible of Tenon's tissue in the

graft. The graft was placed on the bare sclera and positioned so as to maintain the limbus-limbus orientation. The graft was resected with the help of conjunctival scissors. No fluid or air was used for making the graft. The graft was kept exposed to the scleral bed for ten minutes by applying gentle pressure with fine non-toothed forceps. Small bleeds in the scleral bed cause serum to ooze in small quantities, acting as an adhesive. Large bleeds lift the graft from the scleral bed with subsequent complications and should be tamponated before placing the graft.

The eye was bandaged and patched for 24 hours. Postoperatively, patients were put on topical eye drops (polymyxin 0.5%, neomycin 0.5%, and dexamethasone 1%) four times daily for four weeks, as well as oral antibiotics and methyl prednisolone 3x4 mg per day for five days. Patients were followed-up postoperatively on day 1, 1 week, 6 weeks, 6 months, and 12 months. They were examined for haemorrhage, wound gape, graft shrinkage, granuloma, graft dehiscence, recurrence, or any other complication.

Total surgical time was measured from the first conjunctival cut to the removal of the lid speculum, *i.e.*, the time taken from the excision of pterygium to the time to secure the graft on the bed. Postoperative symptoms such as pain, foreign body sensation, watering, redness, photophobia, etc., and complications were documented. Recurrence was defined as a conjunctival growth extending for more than 1 mm over the corneal surface.

Results

The mean age of the patients was 56.96 +/- 11.51 years (range 35-81 years). There were 18 females (75%) and 6 males (25%). The following complications were noted: granuloma in three eyes (12.5 %), overriding graft onto the cornea in three eyes (4.17%), and recurrence in one eye (4.17%). No other complications were noted. Average surgical time was 16 ± 2 minutes. The case summary for all patients are showed in Table 1.

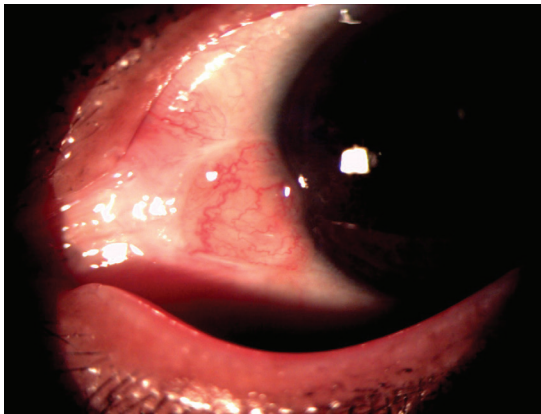
Table 1. Case summary

No.	Gender	Age (years)	Pterygium grade	H+1	H+7	H+30	Complication
1	Female	35	2	3-03-2016 Graft + edema	10-03-2016 Graft + edema		Granuloma day 40 th postop
2	Female	52	2	28-05-2016 Graft-	4-06-2016		
3	Male	60	4	29-01-2016 Graft + good			

No.	Gender	Age (years)	Pterygium grade	H+1	H+7	H+30	Complication
4	Female	69	2	13-05-2016 Graft + good	20-05-2016 Graft + good		
5	Male	66	4	30-03-2016 Graft + good	6-04-2016 Graft + edema		Granuloma day 30 th postop
6	Male	51	3	12-02-2016 Graft + edema	20-02-2016 Graft + edema		Granuloma day 14 th postop
7	Male	54	4	22-02-2016 Graft + good	27-02-2016 Graft+ granuloma		Granuloma day 15 th postop
8	Female	39	2	11-5-2016 Graft + good	26-05-2016 Graft + good		Recurrent PTG day 40 th
9	Female	43	3				Granuloma
10	Female	49	3	20-05-2016 Graft + good	25-05-2017 Graft + good		
11	Female	48	3	10-02-2016 Graft+ good	15-02-2016 Graft+ good		Granuloma day 31 th postop
12	Female	52	3	29-01-2016 Graft + edema	10-02-2016 Graft + good		
13	Female	52	2	28-01-2016 Graft + good		25-02-2016 Graft + good	
14	Female	65	4	23-02-2016 Graft + good			
15	Female	81	3	16-02-2016 Graft + good			Granuloma day 7 th postop
16	Male	63	3				
17	Female	71	2	20-04-2016 Graft+ edema	25-04-2016 Graft + edema		
18	Male	73	4				
19	Male	55	4		28-03-2016 Graft + edema		

Primary nasal pterygium excision with sutureless and glue-free technique

No.	Gender	Age (years)	Pterygium grade	H+1	H+7	H+30	Complication
20	Female	67	4	30-03-2016 Graft + good			
21	Female	54	3	25-02-2016 Overriding of the graft onto the cornea		13-04-2016 Overriding of the graft onto the cornea	
22	Female	50	4	11-03-2016 Graft + good			
23	Female	69	3	24-01-2016 Graft + good			
24	Female	47	2	13-04-2016 Graft + good			



Discussion

Ashok *et al.* states that the sutureless and glue-free conjunctival autograft technique is simple, easy, safe, effective, and less time-consuming than the sutured limbal autograft technique, with less postoperative discomfort and adverse events encountered with the use of suture material and the patients.⁴ This study provided follow-up for up to a year (January 2016 until June 2017), given that pterygium recurrences occur within the first six months after surgery.⁵

Limbal conjunctival autograft transplantation re-establishes the barrier function of the limbus, therefore significantly lowering the recurrence rate. It is either attached with sutures or with biological adhesives such as fibrin glue,

which is derived from pooled human plasma, or with autologous fibrin.³ Suturing of the autograft is rather difficult and requires surgical experience and technical skills. Suzuki *et al.* reported that the use of silk or nylon sutures cause conjunctival inflammation and Langerhans cell migration into the cornea.²

Conclusion

Sutureless and glue-free limbal conjunctival autografting following pterygium excision is a safe, effective, and economical option for the management of primary pterygium.

References

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