

Inferior Conjunctival Autograft for Primary Pterygia: A Surgical Advantage

Tukaram Ranbaji Gitte, Mayur Kulkarni, Gauri Kulkarni

Department of Ophthalmology, MIMSR Medical College, Viswanathpuram, Ambajogai Road, Latur, Maharashtra

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ABSTRACT

This was a prospective non-comparative interventional case series study enrolling 25 eyes of 25 patients with primary pterygium between June 1, 2014 and April 30, 2015. The purpose of this study was to evaluate the outcome of pterygium excision with inferior conjunctival autografting for primary pterygium using autologous blood for sutureless grafting. All patients underwent the standard surgical technique for pterygium excision with inferior conjunctival autografting. The study variables were complications of surgery and recurrence rates during a follow-up period of 6 months. The mean age of the patients was 43 ± 7.97 (range 26–64) years. The mean size of conjunctival autograft was 3.2×4.5 mm. No complications did occur. There was conjunctival scarring at the donor site in 4 patients, and there was no symblepharon formation or restriction of upgaze. Inferior conjunctival autograft of 6'O Clock position instead of routine graft from 12'O Clock position is an effective technique with a low recurrence rate. This is a useful technique when it is not possible or desirable to use the superior conjunctiva as a donor source. It is an especially good option for preserving the glaucoma filtration site for the future.

KEYWORDS: autografting, conjunctival, inferior, pterygium surgery

INTRODUCTION:

The prevalence of pterygium varies from country to country relative to proximity to the equator. It is more common in warm and dry climates. The prevalence of pterygium is 2%–7% in the US and 1.1% in Australia^[1,2].

Pterygium is a degenerative ocular surface disorder with wing-shaped fibrovascular growth of the bulbar conjunctiva onto the cornea, which is strongly correlated with ultraviolet light exposure, dryness, exposure to wind, dust, and heat, and oncogenes or viruses. Pterygium has a bimodal age distribution, occurring particularly in the young and the elderly^[1,3-5]. Treatment of pterygium is surgical^[6].

Kenyon and colleagues reported the first use of free conjunctival autografting for pterygium surgery in 1985^[7]. Several large multicentre studies have shown

that conjunctival autografting has a low recurrence rate, and in all these studies the graft was taken from the superior bulbar conjunctiva^[7-15].

However, there is limited information available regarding the efficacy of a graft taken from the inferior conjunctiva. The purpose of this study was to determine the outcome of surgery using inferior conjunctival autografting and to address the importance of preserving the glaucoma filtration site and small incision cataract surgery at 12'O Clock position.

MATERIALS & METHODS:

This study is prospective, non-comparative, interventional case series of 25 eyes having consecutive primary pterygium operated with conjunctival autografts taken from inferior bulbar conjunctiva. Graft was fixed using own blood clot as tissue adhesive which oozed in the bare sclera after pterygium excision. The eye was patched and the patch removed next day morning. Patients having pterygium registered in Ophthalmology OPD at MIMSR Medical College, Latur, Maharashtra were included in the study.

Corresponding Author:

Dr Tukaram Ranbaji Gitte

Professor and Head,

Department of Ophthalmology,

MIMSR Medical College, Viswanathpuram,

Ambajogai Road, Latur (Maharashtra)

Phone No.: +91 8806225644

E-mail: trgitte11@gmail.com



Inclusion criteria were diminution of vision either because of astigmatism or encroachment on pupillary area, progressive nasal pterygium, marked cosmetic deformity, patients of either gender and patients in age group of 26-64 years.

Exclusion criteria included temporal, recurrent, atrophic pterygium, patients on anticoagulants, patients with ocular surface diseaseseg-blepharitis, Sjogren syndrome and dry eye, history of previous ocular surgery or trauma, pterygium with cystic degeneration, pseudopterygium.

The surgical technique adopted herein was as follows:

Peribulbar block was given. The body of the pterygium was dissected 4 mm from the limbus, down to bare sclera, and reflected over the cornea. The pterygium head and cap was avulsed using tooth forceps followed by careful excision of corneal remnants by crescent or 15 no blade. Thorough excision of pterygium was done. Care was taken to avoid conjunctivalplica excision and extensive dissection of tenons was avoided. Where possible, haemostasis was allowed to occur spontaneously without the use of cautery.

If no blood was available to provide autologous fibrin, small perforating veins and capillaries are purposely cut (though seldom required) to encourage a thin layer of fresh blood to cover the bare sclera. The size of the defect was measured in millimetres with Castroviejo calliper. Careful dissection between donor graftconjunctiva and Tenon's layer was done while fashioning the 1mm oversized conjunctivo-limbal graft from inferior conjunctiva of the same eye. The limbal edge of the graft was carefully positioned at the host limbal tissue edge. The auto graft edges were carefully undermined by lifting the conjunctival edges of the host area. The scleral bed was viewed through the transparent conjunctiva and to ensure residual bleeding does not re-lift the graft, small central haemorrhages were tamponaded with direct compressionusing non-toothed forceps until haemostasis was achieved, usually within 3 to 4 minutes. The stabilization of the graft was tested by moving the eye ball temporally to ensure firm adherence to sclera. Postoperatively, antibiotic and anti-inflammatory drops were given for four times a day for two weeks. Oral antibiotics, anti-inflammatory and vitamin C were given for 5 days.

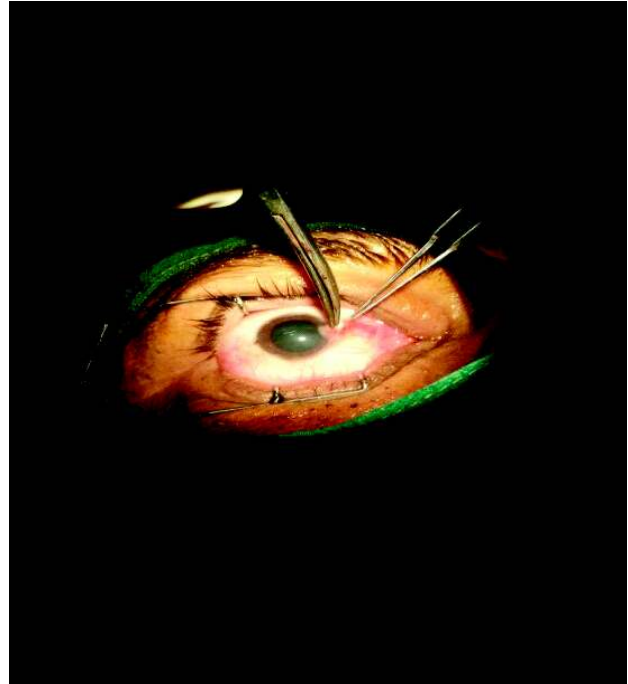


Figure 1: Pterygium head dissection.

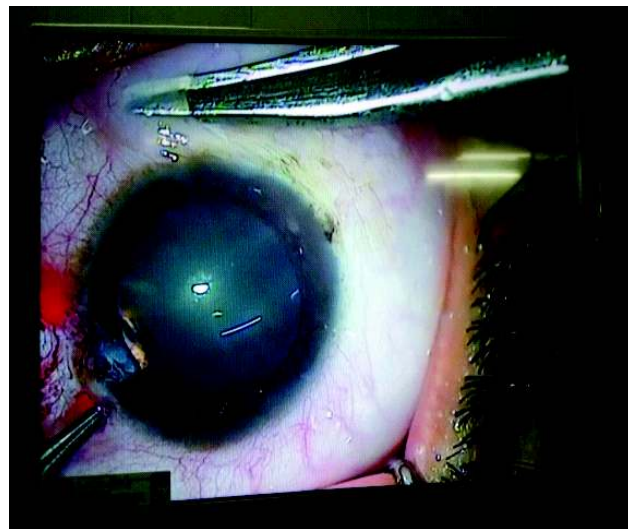


Figure 2: Inferior Conjunctival autograft is being taken.

RESULTS:

We performed surgery on 25 eyes from 25 patients, but no patient was lost during follow-up. Hence, in this study, we enrolled only 25 eyes from the 25 patients who completed the six months of follow-up. Demographic and baseline characteristics of the patients are shown in Table1. Table 2 shows that patients in the younger age groups and those engaged in outdoor occupations had a tendency to recurrence of pterygium.

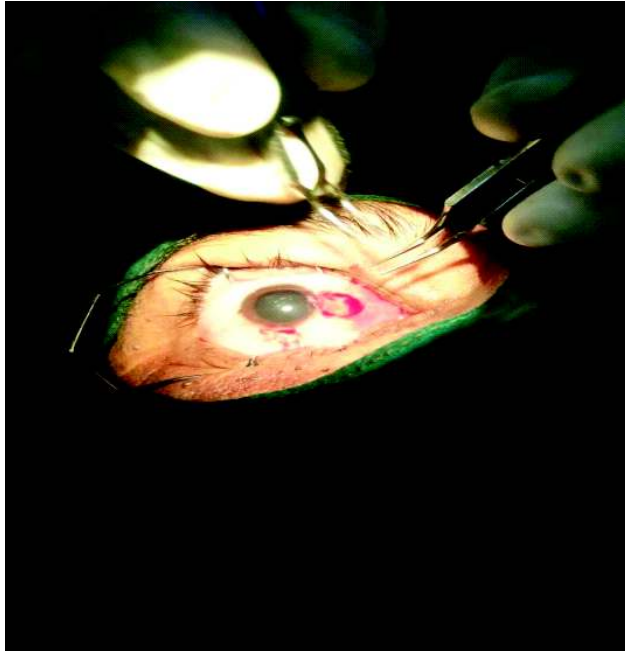


Figure 3: Allowing graft to adhere.

Table 1: Demographic and basic characteristics of patients.

Average age in years (SD)	43 (7.97)
Age in years (Range)	26 – 64
<u>Gender (No)</u>	
Male	14
Female	11
<u>Occupation (%)</u>	
Farmers	50
Laborers	34
Others	16

Abbreviations: SD, standard deviation; No, number.

Postoperative complications are shown in Table 3. Minor complications did occur, but no patient required resuturing and no recurrence was detected at 6 months after surgery. We observed conjunctival scarring at the donor site in four eyes (4%); however, there was no symblephar on formation or restriction of up gaze.

DISCUSSION:

Various surgical techniques have been used to treat pterygium. The diversity of techniques reflects the ongoing surgical challenge to devise the best method for treating pterygium. Many studies have

been published with conflicting results. Our surgical technique aims to preserve the glaucoma filtration site and, unlike most of the other autoconjunctival techniques, the graft is taken from the inferior conjunctiva. In our study, most patients were farmers (50%) and Labourers (34%) who have to work outside for long periods and are exposed to the hazardous effects of infrared and ultraviolet radiation present in sunlight. These findings are similar to those of most of the published studies^[5,6].

Syam et al have described the success of pterygium excision followed by inferior conjunctival autografting at a Sussex hospital in the UK. Surgery was performed by an experienced surgeon in 21 patients and by trainees in the remaining four cases.

Table 2: Risk factors for recurrence.

	No of patients	Percentage
<u>Age (years)</u>		
< 40	7	28.00
> 40	18	72.00
<u>Gender</u>		
Male	14	56.00
Female	11	44.00
<u>Occupation</u>		
Outdoor	21	84.00
Indoor	4	16.00
<u>Grade</u>		
1	16	64.00
2	9	36.00

The mean follow-up duration was 6 months. Recurrence was detected in one eye (3.3%). Conjunctival scarring was found at the donor site in 4 eyes (16%). There was no symblephar on formation.¹⁶Our study showed a recurrence rate of 4% and our findings were similar for minor complications. This could be due to our short follow-up period.¹⁶ Complications resulting from inferior conjunctival autografting are not serious and pose no threat to vision. Koc et al^[17] demonstrated that auto grafting from superior or inferior sites in primary pterygium cases showed no significant difference in recurrence rate, but in the event of recurrent pterygia, auto grafting from the inferior site resulted in a significantly ($p = 0.166$) higher likelihood of recurrence.

Our study shows a tendency for pterygium recurrence in the younger age groups. There was a tendency for recurrence in patients younger than 40

Table 3: Postoperative complications.

Postoperative Complications	No. of Eyes	Percentage
Wound gap \leq 0.05 mm	2	8
Graft edema	8	32
Retention cyst \leq 0.05 mm	1	4
Conjunctival scarring at donor site	4	16
Recurrence	1	4

years, but this was not statistically significant. Because this technique is safe and effective, inferior conjunctival autografting deserves better recognition.

CONCLUSION:

Inferior conjunctival auto grafting is an effective technique with a low recurrence rate. It is a useful technique when it is not possible or desirable to use the superior conjunctiva as a donor source. In countries like India where there is lack of public awareness about the devastating effects of glaucoma, attendance and regular follow-up in the early stages of the disease at eye centres, we can use the inferior bulbar conjunctiva safely routinely and effectively for grafting in pterygium surgery as a surgical advantage for preserving the glaucoma filtration site and small incision cataract surgery at 12'O clock position.

REFERENCES:

- Higgers JHC. Pterygium: its incidence, hereditary and etiology. *Am J Ophthalmol.* 1960;50:653–644.
- Panchapakesan J, Hourihan F, Mitchell P. Prevalence of pterygium and pinguecula: a Blue Mountains Eye Study. *Aust N Z J Ophthalmol.* 1998;26Suppl 1:S2–S5.
- Austin P, Jakobiec FA, Iwamoto T. Elastodysplasia and elastodystrophy as pathologic bases of ocular pterygium and pinguecula. *Ophthalmol.* 1983; 90: 96–109.
- Kunimoto DY, Kanitkar KD, Makar M, Friedberg M. Pterygium/ pinguecula. In: *The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease.* 4th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2004.

- Moran DJ, Hollands FC. Pterygium and ultraviolet radiation: a positive correlation. *Br J Ophthalmol.* 1984;68:343–346.
- Yanoff M, Duker JS. Conjunctival and corneal degenerations. *Ophthalmology.* 2004;1:446–447.
- Kenyon KR, Wagoner MD, Hettinger ME. Conjunctival autograft transplantation for advanced and recurrent pterygium. *Ophthalmology.* 1985;92:1461–1470.
- Prabhasawat P, Barton K, Burkett G, Tseng SC. Comparison of conjunctival auto grafts, amniotic membrane grafts, and primary closure for pterygium excision. *Ophthalmology.* 1997;104:974–985.
- Ma DH, See LC, Liau SB, Tsai RJ. Amniotic membrane graft for primary pterygium: comparison with conjunctival auto graft and topical mitomycin C treatment. *Br J Ophthalmol.* 2000;84:973–978.
- Tananuvat N, Martin T. The results of amniotic membrane transplantation for primary pterygium compared with conjunctival autograft. *Cornea.* 2004;23:458–463.
- Elmas K, Katýrcýogélu Y, Aslan B, Duman S. Primary pterygium excision, amniotic membrane graft, conjunctival autograft and primary closure techniques comparisons. *T Oft Gaz.* 2002;32:337–342.
- Ozkurt YB, Kocams O, Comez AT, Uslu B, Dogan OK. Treatment of primary pterygium. *Optom Vis Sci.* 2009;86:1178–1181.
- Rao SK, Lekha T, Mukesh BN, Sitalakshmi G, Padmanabhan P. Con-junctival-limbal auto grafts for primary and recurrent pterygia: technique and results. *Indian J Ophthalmol.* 1998;46:203–209.
- Shimazaki J, Yang HY, Tsubota K. Limbal autograft transplantation for recurrent and advanced pterygia. *Ophthalmic Surg Lasers.* 1996; 27:917–923.
- Lewallen S. A randomized trial of conjunctival auto grafting for pterygium in the tropics. *Ophthalmol.* 1989;96:1612–1614.
- Syam PP, Eleftheriadis H, Liu CS. Inferior conjunctival auto graft for primary pterygia. *Ophthalmol.* 2003;110:806–810.
- Koc F, Demirbay P, Teke MY, et al. Primary and recurrent pterygium conjunctival autografting. *T Oft Gaz.* 2002;32:583–588.

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