

Autologous blood as tissue adhesive for conjunctival Autograft in primary nasal pterygium surgery

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Abstract

Background: Pterygium is a degenerative condition of the subconjunctival tissues which proliferate as vascularized granulation tissue to invade the cornea, which induces corneal astigmatism. Clinically slit lamp is used to conform the diagnosis.

Aim: To describe a simple method of achieving conjunctival autograft adherence during pterygium surgery avoiding potential complications associated with the use of fibrin glue or sutures.

Objectives: To analyze the outcomes and its advantages of natural fibrin (autoblood) as tissue adhesive for conjunctiva graft fixation, also Cost-effect for patient.

Materials and methods: This study was carried out in the Department of Ophthalmology for a period of one year. 50 consecutive patients with primary nasal pterygium was taken for this study. Primary nasal pterygium operated with conjunctival autograft taken from superior bulbar conjunctiva with limbal stem cells. Graft fixation was done by the oozing blood clot as tissue adhesive in the bare sclera after pterygium excision. Peribulbar anesthesia was used. Graft adherence and positioning is examined 20min after surgery.

Result: a total 50 patients, mean age more than 40 years, 30 female and 20 male underwent autologous conjunctival graft post pterygium excision. Follow up was day 1, day 7 and every month till 6 months. There were no intra or post operative complication and cosmetic was excellent, cost effective.

Conclusion: Autoblood used for graft fixation in pterygium surgery have excellent outcome and is less time consuming and avoids suture related problems, cost effective for patient.

Keywords: Pterygium, autologous, autograft, astigmatism.

Introduction

Pterygium is a degenerative condition of the subconjunctival tissues which proliferate as vascularized granulation tissue to invade the cornea, which induces corneal astigmatism. The use of fibrin glue above sutures with improved comfort, decreased surgical time, reduced complication and recurrence rate¹. Suture related complications include infection, granuloma formation, and chronic inflammation is reduced in autologous conjunctival graft². Natural fibrin glue derived from fibrinogen and thrombin, the two elements of human blood and when mixed works by simulating the later stage of coagulation process. Conjunctiva represents a mucosal surface, which can be grafted on the scleral bed by using autologous serum as a tissue adhesive.

Methods and materials

This study was carried out in the Department of Ophthalmology for a period of one year. Case series of 50 consecutive patient of primary nasal pterygium, under which there was 30 male and 20 female patients, above 40 years age operated with conjunctival autograft taken from superior bulbar conjunctiva with limbal stem cells. Graft fixation was done by the oozing blood clot as tissue adhesive in the bare sclera after pterygium excision. Peribulbar anesthesia was used, surgery time was recorded. Graft adherence and positioning is examined 20min after surgery, the eye was patched and the patch removed next day morning. Follow up were done on day 1, day 7 and every month till 6 months.

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Surgical steps

Peribulbar anesthesia given and then eye painted and draped. The body of the pterygium is dissected 4mm from the limbus, down to bare sclera, and reflected over the cornea. The pterygium head and cap is avulsed using artery forceps followed by careful excision of corneal remnants. Only the thickened portions of the conjunctiva and the immediate adjacent and subjacent Tenon's capsule showing tortuous vasculature are excised. Where possible, hemostasis is allowed to occur spontaneously without the use of cautery. If no blood is available to provide autologous fibrin, small veins and capillaries puncture are done purposely to encourage a thin layer of fresh blood to cover the bare sclera. The size of the defect (mm²) is measured with Castoviejocallipers. A thin tenon free conjunctivalautograft, with limbal stem cells, is taken with the help of knife from the superior bulbar conjunctiva from same eye. The limbal edge of the graft is carefully positioned at the host bare sclera over the blood film. The scleral bed is viewed through the transparent conjunctiva and to ensure residual bleeding does not relift the graft, small central hemorrhages are tamponaded with direct compression using non-toothed forceps until hemostasis is achieved, usually within 8–10 min. The stabilization of the graft is tested centrally and on each free edge to ensure firm adherence to sclera. Postoperatively, steroid drops were initially given four times a day and tapered over 6 weeks while antibiotic drops were administered four times a day for 1–2 weeks.

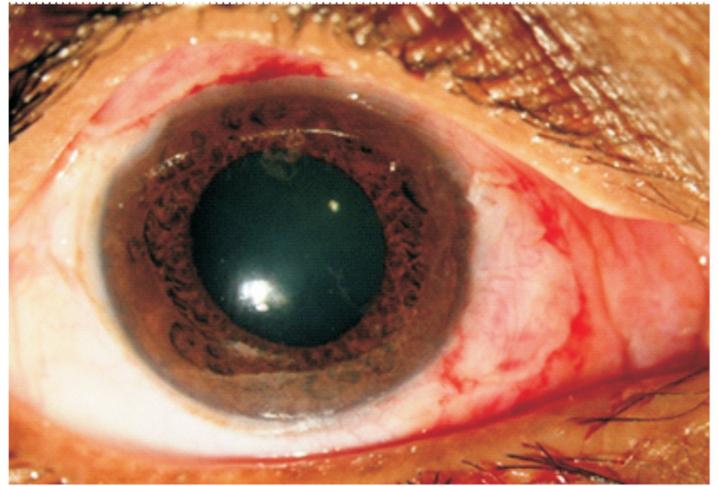


Figure 2. conjunctival autograft fixation with auto blood

Table1. Outcome of the graft

Outcome	No (%)
No Complications	43 (86)
Graft loss	2 (04)
Recurrence rate	NIL
Sub Graft hemorrhage	5 (10)
Graft edema	NIL
Total	50

Patients had faster rehabilitation without much discomfort as in suture fixation.

Discussion

Conjunctival graft fixation with natural fibrin glue, a tissue adhesive derived from two blood clotting factors, fibrinogen and thrombin, is superior over sutures in respect to better cosmetic, faster surgical and more comfortable patient rehabilitation time, better hemostasis and reduced post operative inflammation causing a reduction in recurrence rate [3]. Where else synthetic glue is costly, less readily available and bio-degradable within 3 hr of preparation , carries the potential risk of viral disease transmission and anaphylactic reaction [4].

Conclusion

Autoblood used for graft fixation in pterygium surgery is having excellent outcome and is less time



Figure1. Nnasal pterygium of Right eye

consuming and avoids suture related problems,safe, effective and cost effective for patient [5,6].

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References

1. Hyun ho kim, Hong jaemun, Young jeung park , Conjunctivolimbal autograft using a fibrin adhesive in pterygium surgery; Korean J Ophthalmol 2008 sep;22(3):147-154.
2. Koranyi G, seregard S, kopp ED. The cut and paste method for primary pterygiumsurgery : l o n g t e r m f o l l o w u p . Actaophthalmologicascandinavica 2005;83:298-301.
3. Singh PK, Singh S, Vyas C, Singh M; conjunctivalautograft without fibrin glue or sutures for pterygium surgery; cornea 2013 Jan ; 32 (1): 104-7.
4. Alston SM, Solen KA, Mohammad SF ; New method to prepare autologous fibrin gl on demand; Transl Res.2007 Apr; 149(4): 187-95, USA.
5. Malik KP, Goel R, Gupta SK; efficacy of s u t u r e l e s s a n d g l u e f r e e limbalconjunctivalautograft for primary pterygiumsurgery ; Nepal J ophthalmol 2012 Jul ; 4(8) : 230-5.
6. Anita Panda, Sandeepkumar, Abhiyan Kumar; Fibrin glue in ophthalmology; Indian Journal of ophthalmology 2009 sep-oct; 57(5): 371-379.

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