



Autologous Blood For Conjunctival Autograft Fixation in Pterygium Surgery

KEYWORDS

Autologous blood, Conjunctival autograft, Pterygium Excision

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ABSTRACT AIM : Aim of this study is to evaluate the advantages of new technique of autologous blood for attaching conjunctival autograft after pterygium excision.

MATERIALS AND METHODS : Retrospective study of 50 patients who underwent surgery for primary nasal pterygium was conducted. Autologous conjunctival graft was taken from the superotemporal quadrant and it was used to cover the bare sclera after pterygium was excised. Patients own blood was used for attaching the graft. 6 months follow up data was analyzed.

RESULTS : Out of 50 patients 33 (66 %) were females and 17 (34 %) were males and the mean (SD) age was 43.82(12.66) (Table .1) There were no intra operative complications. All the patients had nasal pterygium and signed informed consent. 2 (4 %) patients had lost their grafts. 2 (4 %) patients had graft retraction. Pterygium recurrence was seen in 1 (2 %) patient. 45 (90 %) patients had no complications. (Table. 2).Cosmesis was excellent in all cases.

CONCLUSION : The conjunctival autograft fixated with autologous blood has been shown to be safe and effective. This technique has excellent outcome, less time consuming and cost effective for the patient. This technique has advantage over fibrin glue and sutures as it prevents the adverse reactions associated with them.

1. INTRODUCTION

A Pterygium is a wing shaped fold of conjunctiva encroaching on to cornea. It typically develops in patients who live in hot climates and may represent a response to ultraviolet exposure and chronic surface dryness. A pterygium histologically shows elastotic degenerative changes in vascularized subepithelial stromal collagen ^[1].

Early pterygium is usually asymptomatic. Pterygium causes dryness, burning and itching due to irregular wetting of the cornea. Pterygium causes defective vision due to induced astigmatism or direct encroachment onto the visual axis. Lesions larger than 3.5mm onto the cornea are likely to be associated with >1 Diopter astigmatism ^[2]. In early pterygium patients can be advised to use lubricants and protective eyewear.

1.1 Indications of Surgery

- Pterygium causing foreign body sensation,
- Defective vision
- 3 to 4 mm encroachment on the cornea,
- Cosmetic intolerance.
- Diplopia due to interference with ocular movements

1.2 Surgical Techniques

Recurrence is the most common complication of pterygium surgery. Several techniques have been advised to reduce the rate of recurrence. These include bare sclera excision, conjunctival and conjunctival limbal autograft and use of amniotic membrane ^[3]. In addition several adjunctive therapies included the use of Beta irradiation and Mitomycin C ^[4] has been recommended due to their antifibrotic and anti angiogenic properties. Amniotic membrane transplantation is used for advanced cases with bilateral heads or those who might need glaucoma surgery later ^[5].

Bare sclera technique was done earlier but had a high rate of recurrence between 24 to 89%. Kenyon et al introduced the surgical technique of using Conjunctival autograft in the management of primary and recurrent pterygium ^[6]. Suturing the Conjunctival autograft is a standard surgery .In this method the grafts are stable and recurrence rate is around 15%.Pterygium Extended Removal Followed by Extended Conjunctival Transplant (P.E.R.F.E.C.T) is described by Dr .Hirst ^[7]. He reported only one recurrence in a series of 1000 cases. Suture related problems like post operative discomfort, chronic inflammation and granuloma formation and long surgical time around 20 to 40 minutes are disadvantages of suturing the auto conjunctival grafts ^[8].

The use of fibrin glue during pterygium surgery was first described by Cohen et al in 1993 ^[9]. This is faster and simpler. Post operative pain and discomfort are less ^[10, 11]. Disadvantages with fibrin glue are it is expensive than sutures and is difficult to obtain. Fibrin glue has potential risk of transmission of viral disease and hypersensitivity reactions as it is a blood derivative ^[12].

The latest approach is fixation of the graft with autologous blood, a technique also known as suture and glue free autologous graft ^[8]. Patients own blood is used as a bioadhesive or fixative ^[14] Autologous blood is natural, has no extra cost, no associated risk and can overcome post operative irritation, redness, and foreign body sensation. Surgical time is very less when compared to suturing technique ^[13, 14].

2. MATERIALS AND METHODS

2.1 Type of Study

Retrospective study

The present study was conducted in Department of Ophthalmology NRI General Hospital. 50 patients of primary

nasal pterygium were included in the group. All the patients underwent pterygium excision with suture and glue free autologous graft.

2.2 Inclusion Criteria

- Primary nasal pterygium

2.3 Exclusion Criteria

- Recurrent pterygium
- Temporal pterygium
- Patients using anticoagulants, blood thinners or Aspirin.

2.4 Surgical Steps

Informed consent was taken from all the patients. Peribulbar anaesthesia was used in all the cases. All the cases were operated using operating microscope. Under aseptic conditions, lid speculum was inserted. 0.1 ml of 2%xylocaine was injected into the pterygium body. The head of the pterygium was avulsed from the underlying cornea. Advantages include quicker epithelialization, minimal scarring and a resultant smooth corneal surface^[15]. The body of the pterygium along with the underlying tenons was excised using Westcott scissors. Haemostasis of the scleral bed was achieved by tamponade and very minimal cautery was used when necessary. The area of the conjunctival defect was measured with Castoviejo calipers and a free conjunctival limbal autograft of around 0.5 -1mm oversize was obtained from the superotemporal quadrant of the bulbar conjunctiva. Meticulous dissection was performed to remove most of the tenons tissue in the autograft. A thin film of blood clot was allowed to form over the bare sclera. The graft is moved over the conjunctival defect, with care taken to maintain the limbus to limbus and stromal side down orientation. The limbal edge of the graft is carefully positioned at the host limbal tissue edge. No attempt is made to directly close the full extent of the excision wound, allowing natural graft positioning without tension^[12]. The edges are held with forceps for 8 to 10 minutes to give adequate time for graft fixation to occur. Care was taken not to leave any sub graft blood. Excessive haemorrhage in the graft bed was tamponaded. The position of the graft was evaluated after 20 minutes. Pad and bandage was applied and was removed on the next day.

Post operative steroids drops were initially given 4 times a day and were tapered over 6 weeks while antibiotic drops were administered 4 times a day for 1 to 2 weeks. Follow up was done on day 1, day 7 and every month for 6 months.

3. RESULTS

Out of 50 patients 33 (66 %) were females and 17 (34 %) were males and the mean (SD) age was 43.82(12.66) [Table .1] There were no intra operative complications. Post operative examination was done under slit lamp. Any complaints of foreign body sensation, pain, watering was noted. 2 (4 %) patients had lost their grafts. 2 (4 %) patients had graft retraction. Pterygium recurrence was seen in 1 (2 %) patient. 45 (90 %) patients had no complications. [Table .2]

Table .1

Results	
Female	33 (66 %)
Male	17 (34 %)
Right Eye	29 (58 %)
Left Eye	21 (42 %)
Age (Mean ± SD)	43.82 ± 12.66

Table .2

Outcome of the Graft	
No Complications	45 (90 %)
Graft Loss	2 (4 %)
Graft Retraction	2 (4 %)
Pterygium Recurrence	1 (2 %)
Total	50 (100%)

4. DISCUSSION

Conjunctival autograft using sutures was a standard procedure. The grafts were stable with acceptable cosmetic results. Suture related problems like post operative inflammation, granuloma formation, pain, foreign body sensation were present. The presence of sutures may lead to prolonged healing and fibrosis. Subsequent complications such as symblepheron formation, forniceal contracture, ocular motility restriction, diplopia, scleral necrosis and infection are much more difficult to manage and may be sight threatening^[16].

Fibrin glue usage is faster and simpler with less post operative complications. Fibrin glue is expensive and difficult to obtain. Foreign materials or Plasma derived products such as fibrin glue may produce possible hypersensitivity reactions or anaphylaxis in susceptible individuals and transmission of viral diseases^[12].

Suture and glue free autologous graft has no extra cost or associated risks and can overcome the post operative irritation, pain and foreign body sensation to a great extent. The procedure was cosmetically better. The opposition of the lids to the bulbar conjunctiva provides a natural biological dressing and confers a unique wound healing environment.^[12]. The main disadvantage of this method is the risk of graft getting lost in the immediate post operative period. Graft loss is usually seen in first 24 to 48 hours. These complications were associated with larger grafts. This could be due to inadequate excision of the pterygium tissue or leaving too much tenons tissue on the graft^[10]. Meticulous dissection of the subepithelial graft tissue is respected^[12]. This study was performed in a tertiary care centre with huge turnover of cases. Some of the cases were done by Post Graduate students under guidance with excellent outcome. Exact learning and easy reproducibility with far greater results is the advantage of this procedure. The limitations of our study are, it consisted of a small study population and a short follow up period of 6 months. Larger prospective studies are required to evaluate the long term efficacy of this technique.

5. CONCLUSION

Pterygium excision and conjunctival auto graft with autologous blood is a viable surgical option for management of primary pterygium. The feasibility of adherence of graft without glue and sutures is promising. This procedure has excellent outcome. It is cost effective and safe for the patients. The potential risks associated with the use of fibrin glue and suture related problems are avoided in this technique.

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7. CONFLICT OF INTEREST : None declared.

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