



Outcome of Pterygium Excision with Pedunculated Conjunctival Flap versus Conjunctival Free Graft Surgery.

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Abstract

Purpose: To compare the surgical time and recurrence rate of pterygium excision with pedunculated conjunctival flap and conjunctival free graft surgery in primary pterygium.

Methods: A nonrandomized prospective control study was performed in 45 eyes of 39 patients with pterygium from July 2006 to July 2008. Six patients had bilateral pterygium and 3 patients had double-head pterygium which pterygium excision with pedunculated conjunctival flap was performed at nasal site and conjunctival free graft at temporal site. Twenty-eight operations were performed by pedunculated conjunctival flap technique (group A) and 20 operations were performed by conjunctival free graft technique (group B)

Results: There were 26 females (66.7%) and 13 males (33.3%). Pterygium involved right eye in 20 cases (44.4%) and left eye in 25 cases (55.6%). The mean age was 64 years, range 34-88 years. The mean followed-up time was 9.2 months, range 3-20 months. The average surgical time in group A was 35.83 minutes (range 20-60 minutes) that was significantly less than 65 minutes (range 35-90 minutes) in group B ($p=0.000$). There was no significant difference of recurrent rate in group A (7.14%) and group B (20%) ($p=0.184$).

Conclusion: Although pedunculated conjunctival flap and conjunctival free graft surgery are both effective to reduce recurrence rate after pterygium surgery, the pedunculated conjunctival flap is more conjunctival-preserved and less surgical time consuming. This technique can be an alternative procedure for pterygium surgery, especially for glaucoma patients.

Keywords: pterygium excision, pedunculated conjunctival flap, conjunctival free graft.

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Introduction

Pterygium is a common disease in worldwide, including Thailand. It is a degenerative change of the conjunctiva that is caused by many factors. The most important factor is ultraviolet rays. This triangular-shaped lesion can grow and invade the cornea causing visual disturbance from astigmatism or pupillary involvement. Cosmetic problem is also a major complaint among patients who undergo pterygium surgery.

There are many techniques for pterygium excision⁽¹⁻⁶⁾ including conjunctival free graft, bare sclera, sliding flap, and rotational flap techniques. The most common used technique in Thailand is conjunctival free graft attribute to its low recurrence rate from 40-75% in bare sclera technique to 2-5% in conjunctival free graft technique⁽³⁾. However, this technique has a limitation of use in glaucoma patients who need to reserve superior conjunctiva for glaucoma drainage surgery.

Pedunculated conjunctival flap is a new technique that perform by created conjunctival flap adjacent to the pterygium site then sliced and sutured along the limbal wound edge of bare sclera. The superior bulbar conjunctiva is not affected in this technique and operation time will be less than conjunctival free graft technique^(2,4,5).

Although, there were few case series of pterygium excision with pedunculated conjunctival flap, no comparative study previously has been reported. The aim of this study was to compare the surgical time and recurrence rate of pterygium excision with pedunculated conjunctival flap and conjunctival free graft surgery.

Material and methods

Study design

This study was approved by the Ethics committee, Faculty of Medicine, Ramathibodi Hospital, Mahidol University. A nonrandomized prospective

control study was performed in 45 eyes of 39 patients with pterygium from July 2006 to July 2008. The total number was 48 operations, 28 were performed by pedunculated conjunctival flap technique (group A) and 20 were performed by conjunctival free graft technique (group B).

There were 6 patients who had bilateral pterygium. Three of them underwent surgery with pedunculated conjunctival flap in both eyes and the others had a different technique of surgery in each eye. Three patients had double-head pterygium which pterygium excision with pedunculated conjunctival flap was performed at nasal site and conjunctival free graft at temporal site.

Demographic data including sex, age and laterality and surgical time for each technique were recorded. Patients were followed-up for complications and recurrence. Statistical analysis was performed with student's t-test and Chi-square test. The significant was set at 0.05.

Surgical procedure

The procedure was performed under microscope starting with a several drops of 0.5% tetracaine hydrochloride eye drop before surgery. An eye speculum was placed and then 0.25-0.5 ml. of 2% lidocaine with 1: 80,000 adrenaline was injected under the pterygium. The pterygium was excised by using tooth forcep and wescott scissor, leaving bare sclera. Cauterization was done to achieve haemostasis. The corneal surface was smoothed by No. 15 blades. In group A (Figure 1), the length of the conjunctival flap was measured from the width of bare area at limbus. A thin conjunctival flap of 2 mm. in width was created from superior or inferior conjunctiva. The flap was rotated along the limbus and then sutured to the episclera with 10-0 nylon. A pressure patch was applied⁽¹⁾. In group B, conjunctival free graft was harvested from superior bulbar area to cover bare area and sutured with 10-0 nylon.

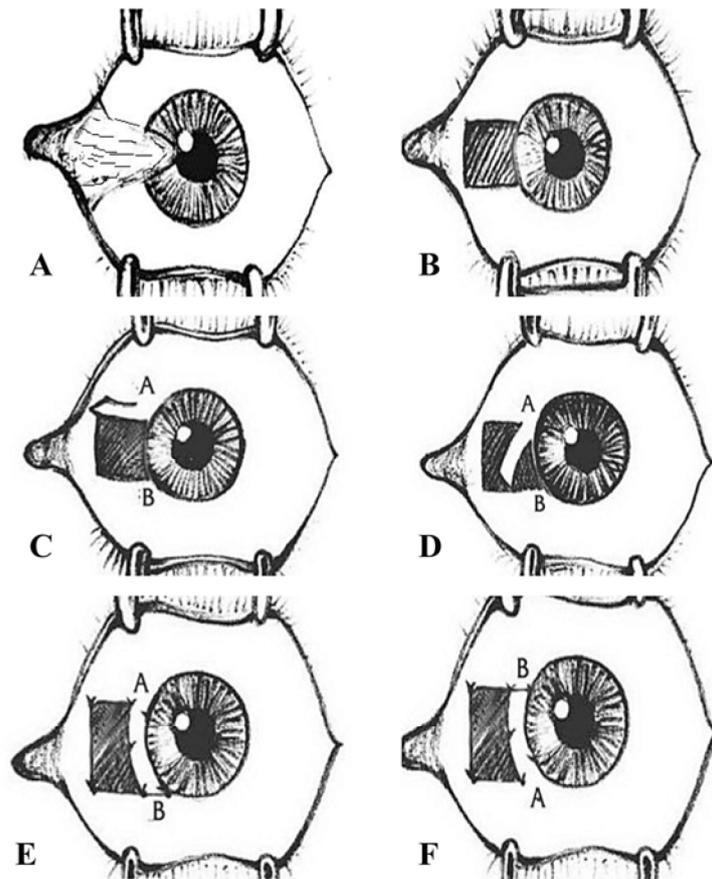


Fig.1 pterygium excision with pedunculated conjunctival flap technique.

A. pterygium at nasal site B. bare area of sclera after removal of pterygium . C.and D. pedunculated conjunctival flap was done and rotated along limbus with superior base. E. the final sutured position of superior conjunctival flap. F. the final sutured position of inferior conjunctival flap.
(modified with permission from Orasa Horatanaruang, Ref. 1)

Post-operatively, a topical polymyxin B sulphate 6,000 unit combined with neomycin sulphate 3,500 unit and dexamethasone 1.0 mg (maxitrol® ophthalmic ointment) was administered 4 times daily for 7 to 10 days and then switched to topical 0.1% dexamethasone combined with 0.5% chloramphenicol and 0.025% tetrahydrozoline HCl (spersadexoline® eye drop) 4 times daily until 1 month post-operative. Patients were followed up at day 2, 1 week, 3 weeks, 3, 6 and 12 months. Sutures were removed at 1 week.

Results

There were 13 males (33.3%) and 26 females (66.7%). Pterygium involved right eye in 20 cases (44.4%) and left eye in 25 cases (55.6%). The mean age was 64 years, range 34-88 years. The mean followed up time was 9.2 months, range 3-20 months. The mean surgical time in group A was 35.83 minutes, range 20-60 minutes and group B was 65 minutes, range 35-90 minutes. The mean surgical time in group A is statistically significant less than group B (Table.1).

Table 1 Comparison of surgical time and recurrent rate between pterygium excision with pedunculated conjunctival flap and free conjunctival graft techniques

	Group A Pedunculated conjunctival flap	Group B Free conjunctival graft	P value
Age (years)			
Mean (range)	59.6 (44-88)	59.9 (43-88)	
No. of operations	28	20	
Surgical time (min)	n = 21*	n = 13*	
Mean \pm SD	36.43 \pm 11.63	65 \pm 16.58	0.000
No. of recurrence (%)	2 (7.14%)	4 (20%)	0.184

* Data is not available in some patients

The recurrence rate of group A was 7.14% (2 in 28 eyes) and was found at 6 months in both cases. Recurrence rate of group B was 20% (4 in 20 eyes) and mean time of recurrence was 4.5 months (range 1-8 months).

There was no recurrence of pterygium in 6 patients with bilateral disease. In 3 double-head pterygium cases, there was one patient that had recurrence of pterygium in the site that was operated by free conjunctival graft technique at 8 months of follow up.

Discussion

The authors demonstrate that pedunculated conjunctival flap technique can be performed in any size of pterygium and less time consuming than conjunctival free graft technique. It has an advantage in glaucoma patients whose superior or inferior bulbar conjunctiva could be preserved if glaucoma draining surgery is needed in the future.

Pedunculated conjunctival flap change the direction of the conjunctival blood vessels that can prevent the invasion of the recurrent fibrovascular

tissue into the cornea.

The authors found that the recurrence rate after pterygium excision with pedunculated conjunctival flap is less than free conjunctival graft technique, although there is no statistically significant difference.

The limitation of this study are small sample size, it couldn't be randomized because owing to technical reason all glaucoma patients with pterygium have to undergo pedunculated conjunctival flap surgery. In addition, because of time limitation, in order to have a larger number of patients involved, the procedure has to be performed by two house physicians. The surgical time was varying markedly because of the difference in each inherent technique.

In conclusion, pedunculated conjunctival flap is found to be safe, simple and less surgical time consuming than conjunctival free graft technique, although the recurrence rate is not different between these two procedures. This new technique can be an alternative procedure for pterygium surgery. However, a larger, randomized, prospective double masked study with longer follow-up may be needed.



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