



CONJUNCTIVAL AUTOGRAFT WITH MITOMYCIN C VERSUS WITHOUT MITOMYCIN C IN SURGERY OF PRIMARY PTERYGIUM AT TERTIARY CARE CENTRE MUZAFFARPUR

Ophthalmology

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ABSTRACT

Objective: To compare and evaluate the efficacy of conjunctival autograft with mitomycin C and without mitomycin C (MMC) techniques as two treatment options for primary pterygium. **Material and Methods:** Retrospective comparative study carried in 60 patients included 60 eyes with primary pterygium. 30 eyes of 30 patients (group A) underwent pterygium excision followed by conjunctival autograft. 30 eyes of 30 patients (group B) underwent pterygium removal followed by intra operative application of 0.02% MMC for 2 minutes with conjunctival preservation. Both groups were compared in terms of surgery time, pterygium size, cosmetic effect, pterygium recurrence and complications. **Results:** Mean pterygium size was $(3.5 \pm 0.50 \text{ mm}$ and $3.2 \pm 0.74 \text{ mm})$ in group A and B, respectively ($p = 0.1$). Mean surgery time was significantly shorter in MMC group ($20.40 \pm 5.00 \text{ min}$) as compared to conjunctival autograft group ($28.00 \pm 7.0 \text{ min}$) ($p < 0.001$). Pterygium recurrence was not seen in any of the patient. Mean follow up time was (6 ± 3 and 6 ± 2 months) in group A and B, respectively ($p = 0.4$). **Conclusion:** Both conjunctival graft with and without MMC techniques are comparable as regard of pterygium recurrence. MMC technique has significantly shorter surgery time, better cosmeses and lower incidence of complications. Preserving the conjunctiva should be considered when the patient has a history of glaucoma or there is insufficient conjunctiva.

KEYWORDS

Conjunctival autograft; Intraoperative MMC, Primary pterygium .

INTRODUCTION

Pterygium is a fibrovascular proliferation arising from the conjunctiva of the eye that grows in a wing like fashion over the cornea. Vision is affected when the growth obstructs the pupil or induces irregular astigmatism[3]; therefore, the proliferated tissue should be removed at that time. Cosmetic purposes and chronic eye irritation are among the indications of pterygium surgery. The currently used surgical techniques are bare sclera[5,1], primary closure, amniotic membrane, rotational conjunctival flaps[7,2] conjunctival autografting[9,4] as well as adjuvant for aborting regrowth using different treatment modalities such as thiotepa[12], β radiation[12], or mitomycin C (MMC). Having similar success rates, simple pterygium excision with non- bare sclera MMC technique is both simpler and less time consuming when compared to other grafting techniques. Another benefit of this technique includes preserving the conjunctival tissue. Mitomycin C is an antimetabolite, antiproliferative and alkylating compound derived from *Streptomyces caespitosus*. The blood supply to pterygium is derived mainly from the surface conjunctiva[6], and MMC is considered an effective method to reduce pterygium recurrence[13]. Conjunctival autograft is another effective method to reduce the recurrence. The conjunctival graft will cover the defect, and abort the fibrovascular growth onto the cornea, thereby reducing pterygium recurrence[14].

In this study, I compared two methods; pterygium removal with conjunctival autografting with MMC application and conjunctival autografting without MMC application. The two methods were compared in terms of surgery time, cosmetic effect, recurrence rate, pterygium size, and complications.

MATERIAL AND METHODS

This study all patients gave informed consent. Retrospective comparative study included 60 eyes of 60 patients with primary pterygium performed between April 2019 and March 2020. Thirty eyes of 30 patients (group A) underwent pterygium excision followed by conjunctival autograft. Thirty eyes of 30 patients (group B) underwent pterygium excision followed by intraoperative application of 0.02% MMC for 2 minutes with conjunctival autograft. Demographic data of patients including pterygium size, surgery time, pterygium recurrence, surgery outcome, complications and follow up time were reported. The inclusion criteria were presence of surgically indicated primary pterygium due to vision deterioration, chronic eye irritation, cosmetic problems, and more than 1.5 mm growth on the cornea.

One surgeon performed all the surgical procedures. Each patient gave written informed consent before the surgery. The surgical procedure was performed under peribulbar anesthesia with lidocaine HCl 20

mg/ml. The pterygium was dissected at the limbus using Westcott's scissors, the head of the pterygium was peeled off the surface of the cornea and subconjunctival fibrous tissue was completely excised. The surface of the cornea was then smoothed by the Diamond burr. For the graft technique, flap was taken from the superotemporal limbus. The conjunctival flap was gently dissected avoiding the Tenon's capsule, transferred to the defect area and was secured in place to the episclera and surrounding conjunctiva with interrupted 8.0 Vycryl sutures. In other group, after pterygium removal and dissection of subconjunctival fibrovascular tissue, piece of sponge soaked in 0.02% MMC were then applied to the scleral bed for 2 minutes. The areas were then thoroughly irrigated with balanced salt solution after removing the sponge material and then the preserved conjunctiva was sutured to the adjacent conjunctiva at the limbus using 8.0 Vycryl sutures. A subconjunctival injection of dexamethasone, gentamicin was given at the inferior fornix. After the surgery all the patients were prescribed prednisolone and moxifloxacin eye drops 4 times a day for 4 weeks. All Vycryl sutures were removed by the end of the third week postoperatively and patients were examined at days 1, weeks 1 and then monthly till the end of the follow up period.

RESULTS

Demographic and clinical data of the study groups are listed in table 1. Mean patient age (years) was 56.8 ± 12.5 (range 30-77) in the conjunctival autograft group, 58.7 ± 14 (range 35-78) in the MMC group. Mean pterygium size was $(3.5 \pm 0.50 \text{ mm}$ and $3.2 \pm 0.70 \text{ mm})$ in conjunctival autograft and MMC groups, respectively ($p = 0.1$). Mean age was comparable in all study groups ($p = 0.5$). The surgical procedure was successful in all cases. Mean follow up time was 6 ± 3 in conjunctival autograft group and 6 ± 2 months in MMC group ($p = 0.4$). The corneal defect was completely epithelialised within three days after surgery in all patients. Complications such as corneal edema, corneal infection, scleral necrosis, pyogenic granuloma were not seen in any of the patients. Regrowth of pterygium was not seen in any of the patients throughout the follow up period. Three patients of the conjunctival graft group (10%) were unsatisfied after surgery because of conjunctival injection at surgery site. In autograft MMC group, mean surgery time ($20.4 \pm 5 \text{ min}$) was found to be significantly shorter as compared to conjunctival autograft group ($28.0 \pm 7 \text{ min}$) ($p < 0.001$).

Table 1 A comparison between some of the most important indexes studied in the patients of both groups by means $\pm$ standard deviation (SD).

Variables	Conjunctival autograft group -A (n=30)	MMC group - B (n=30)	P- value
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Age [mean (SD) years]	56.8 ± 12.5	58.7 ± 14	0.5
Male/Female ratio	21/9	20/10	
OD/OS	20/10	18/12	
Follow-up [mean (SD) months]	6 ± 3	6 ± 2	0.4
Surgery time [mean (SD) minutes]	28.0 ± 7	20.4 ± 5	< 0.001
Pterygium size [mean (SD) mm]	3.5 ± 0.50	3.2 ± 0.70	0.1
Recurrence	-NIL	-NIL	
Injection at surgery site	3 patients	-NIL	
Corneal infection	-NIL	-NIL	
Dellen	-NIL	-NIL	

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DISCUSSION

Many surgical techniques have been employed to treat pterygium; however, recurrence has been observed in many of these methods[8]. Highest rate of recurrence was reported in bare sclera technique[10]. In conjunctival graft technique, the recurrence rate was reported to vary between 3.5 and 39 percent[11]. Some studies showed that conjunctival autograft method were similar to those achieved when intraoperative mitomycin C was used[16]. In the current study, conjunctival autografting technique and autografting with MMC were evaluated in terms of efficacy, complications, recurrences and surgery time. The current study showed that, autografting with MMC technique was free from complications, provided satisfactory cosmeses and saved extra surgery time when compared with grafting technique. Mean surgery time was significantly shorter in autografting with MMC groups (20.4 ± 5.00 min) than in the graft group (28.00 ± 7.00 min) ($p < 0.001$). One study[15] showed that conjunctival graft required longer surgery time (18-32) min, than MMC technique (6-22) min. Three patients of the conjunctival graft group (10%) were unsatisfied because of conjunctival injection at surgery site. In this study, no grafts were lost. On the other hand, MMC with conjunctival autografting was analyzed in this study in which the sclera was not left bare. Pterygium removal augmented with intraoperative MMC can reduce the regrowth of pterygium because MMC inhibits the proliferation of fibroblasts at the site of resection. Complications as corneal infection, persistent corneal ulcer and scleral thinning were not observed in MMC group throughout the follow up period.

In conclusion, both conjunctival autograft and non-bare sclera MMC methods have comparable results regarding pterygium recurrence. Autografting with MMC technique has significantly shorter surgery time, better cosmeses and lower incidence of complications. Preserving the conjunctiva should be considered when the patient has a history of glaucoma or when there is insufficient conjunctiva.

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