INTRAOPERATIVE USE OF "MITOMYCIN C" FOR PREVENTION OF POSTOPERATIVE PTERYGIUM RECURRENCE

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SUMMARY

Eighty-eight eyes of 70 male and 18 female patients with primary pterygium were selected for the study. All of them were applied 0.04% of Mitomycin C intra-operatively for 03 minutes. Same surgical technique was used in all patients. Recurrence rate was 17% at an average of 14.3 months of follow up. Two patients had persistent epitheliopathy for six months, which then healed. Other minor complications included mild pain and lacrimation in twenty patients and postoperative infection in one patient. There was no case of sight threatening complication like cornea-scleral necrosis.

INTRODUCTION

A pterygium is a wing-shaped, fibro vascular connective tissue overgrowth of bulbar conjunctiva onto the cornea, positively correlated to ultraviolet radiation.[1] It is a worldwide disease, more common in countries, where there is more sunlight exposure and dust. It is an entity posing problems both to surgeons and patients.

Simple excision to bare sclera has a recurrence range from 24% to 89%.[2-3] Intraoperative Mitomycin C as an adjunctive treatment for primary and recurrent pterygium after surgical excision has a reported recurrence rate of 3.33% to 12.5%.[4-5-6]

The purpose of this study was to investigate the rate of recurrence and the complications after resection of primary pterygia using bare sclera technique with Mitomycin C, 0.04%, applied for 3 minutes during surgery.

MATERIAL AND METHODS

Between the period of June 1999 to March 2000, total eyes of 88 patients with

primary pterygium were enrolled in the study at the department of Ophthalmology Hayatabad Medical Complex, Peshawar. The patients were interviewed using a pre-operative questionnaire. This included demography and previous medical, surgical and ocular history. A complete eye examination was also done. Pre-operatively corrected & uncorrected VA was recorded. Exclusion criteria included keratitis, uveitis, dry eyes, glaucoma, dacryocystitis and chronic allergic conjunctivitis. We partially adapted the simple grading system previously reported by Tan DH et al [7]. This classified the appearance of the pterygium under slit lamp bio-microscopy into 3 grades based on the relative translucency of pterygium tissue. Grade 1(atrophic) included pterygia in which episcleral vessels underlying the body of pterygium were un-obscured and clearly distinguished. Grade 3 (fleshy) included pterygia in which episcleral vessels underlying the body of pterygium were totally obscured and looked hot and inflamed. Grade 2(intermediate) included all other pterygia not falling into these two grades. All the patients were given topical drops of 0.5% chloropheniol + 0.05% prednisolone acetate four times a day for 10-15 days as to control any inflammation and infection before surgery. The same surgical technique was employed in all cases. Corneal and conjunctival anesthesia was achieved with topical 0.5% proparacain instilled several times and 0.3-0.4 ml of 2% lignocain with 1: 200,000 adrenaline was injected sub-conjunctively in the body of pterygium with 27 G needle. Pterygium excision was performed using a 15 number blade under a microscope, starting from the apex and dissecting to the scleral extension, having the bare sclera exposed for 4-5 mm in a crescent shape. Scissor was used to cut the pterygium from the sclera. The corneal dissection was done carefully to optimally remove the pterygium and still not do a deep keratectomy. The blade was then used to polish and smooth the corneal surface and clean any remnant still adherent to the cornea. Bipolar cautery was used to control bleeding during surgery. A sponge soaked with 0.04% of Mitomycin C was applied to the bare sclera for 03 minutes. After completion of exposure time, the sponge was discarded and copious amount of Ringer lactate solution was used to rinse the bare sclera and conjunctiva. The edges of the conjunctiva were anchored to the sclera using interrupted nylon 10/0 sutures with buried knots. The sutures were removed after 07 days. A combination of tobramycin -dexamethasone ointment was placed and a pressure patch was applied. On the first postoperative day, the patch was removed and topical regimen started. A broad-spectrum antibiotic drop was given six times a day for 2 weeks and then stopped. 0.5% prednisolone acetate was given four times a day for 2 weeks and tapered over next two months. At night a combination of tobramycin-dexamethasone ointment was applied for one month. After two weeks topical antibiotics drops were replaced with artificial tears four to six times a day for rest of the study period. Follow up visits were scheduled for the post-operative days 1, 7, 15, 30 and then every two months thereafter. Recurrence of any fibro vascular tissue past the corneo-scleral limbus on to clear cornea in the area of previous pterygium excision was considered a treatment failure.

RESULTS

Of the 88 patients enrolled in the study, 70 were male and 18 were females. The mean age was 47 (range 25-60 years). The mean follow-up time was 14.3 months (range 9 months- 30 months). The number of patients in Grade 1 was 30, Grade 2 was 36 and Grade 3 was 22.

PUBLISHED RATES OF PTERYGIUM RECURRENCE AFTER EXCISION WITH INTRAOPERATIVE MMC

Author	Year	Type of Pterygium	No. of patients	Recurrence
Cano-Parra et al [5]	1995	Primary	30	3.33%
Mastropasqua et al [4]	1996	Recurrent	45	12.5%
Panda [6]	1998	Primary	25	12%
Present study	2002	Primary	88	17%

TABLE – I

Eighty of 88 patients (91%) had improved or similar Snellen acuity postoperative as compared to pre-operative. 8 patients (9 %) had reduced postoperative visual acuity. Two patients out of 88 (2.27 %) had persistent superficial punctuate keratitis till six months postoperative which then healed. Two patients (2.27%) experienced severe post-operative pain prompting parenteral analgesic for two days. Twenty patients (22%) suffered mild pain and tearing for 2 weeks. One patient (1%) suffered infection on 3rd postoperative day on the surgical site, which was controlled with intensive topical antibiotic therapy. A total of 15 patients (17%) had recurrence of pterygium and all of them were in first 3-month time. Most recurrences occurred in Grade 3 (6 cases), while in Grade 2, (5 cases) and Grade 1 (4 cases) recurred. There was not a single case of corneo-scleral necrosis.

DISCUSSION

Adjunctive medical and surgical techniques are now becoming the mainstay in primary and recurrent pterygium in order to decrease the rate of recurrence and improve the success rate.

Various adjunctive therapies like thiotepa and beta radiations have been used, but these measure have resulted in serious sight-threatening complications with variable rates of recurrences.[8,9] Intraoperative use of 5-fluoro-uracil to prevent pterygium recurrence has shown poor results and more complications. In one study 32.5% cases recurred within one year post operatively.[10] Recurrence rate following bare sclera technique with conjunctival auto graft range of 25.9%.[11] The conjunctival auto graft technique is more difficult. It also disturbs the conjunctiva in the super temporal area causing adhesions and loss of tissue for a future surgery. It cannot be done in patients with dry eyes or other conjunctival disorders. Using topical Mitomycin C following surgery has got serious sight-threatening complications.[12] The average time of pterygium recurrence varies from 4-6 months following bare sclera technique, 50-97% recurrences occur in first 4-12 months period following surgery.[13] In our study the average follow up period is 14.3 months (range 9-30 months), in which most of recurrences should have occurred. Excision techniques may be evaluated with reference to three principal criteria: safety, visual acuity and efficacy.[6] This study yielded few minor complications. There were two cases of persistent epitheliopathy, which resolved after six months. There was no sight threatening complications.[12] Eight patients who suffered decrease in postoperative visual acuity were those who have very advanced

pterygium reaching the papillary areas and only developed some corneal haze because of extensive surgery and also advances in their lens opacities over time. There is a clear male preponderance mainly because the woman stay at home most of the time as the male work in the fields, and is well in accordance with other study from this region.[10] Recurrence rates for pterygium excision with Intraoperative Mitomycin C are generally low. The recurrence rate in this study is slightly higher than that in reported cases.[4,5,6] The reason may be that pterygia are more prevalent with higher incidence of Grade 3 because ultra-violet light levels are known to be high in this part of the world. However the recurrence is in acceptable limit. There are some minor complications like pain, tearing, punctate epitheliopathy and dellen formation but is free from sight threatening complications common in postoperative topical Mitomycin C.

CONCLUSION

Intra-operative application of Mitomycin C is a safe and effective method for post-operative recurrence of pterygium.

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