SLIDING CONJUNCTIVAL FLAP IN THE SURGICAL MANAGEMENT OF PTERYGIUM: A BETTER APPROACH

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ABSTRACT

Objective: To note the frequency of recurrence of pterygium after surgical management using "Sliding Conjunctival Flap Technique" and "Bare Sclera Technique" thereby finding out a better technique where least recurrence occurs.

Design: Prospective interventional study.

Duration and Place of Study: Study was carried out between February 2003 and February 2005 at Department of Ophthalmology, Military Hospital Rawalpindi initially and completed at Eye Department CMH Khuzdar, Balochistan.

Patients and Methods: Surgical intervention was carried out on ninety patients with virgin pterygium; who had no other ocular pathology. Patients were selected from routine OPD using non randomized convenience sampling and were divided into two groups; Group A and Group B. Group A included 42 patients and were managed using "bare sclera technique, while Group B comprised of 48 patients and were managed using "sliding conjunctival flap technique". Patients were followed up for 1 year post-surgically at regular intervals. All patients were prescribed a standard treatment and results were documented.

Results: It was found that at the end of 1 year, 9 (21.42%) patients in Group A developed recurrence and only 3 (6.25%) patients in Group B developed recurrence. The results were found to be statistically significant (P-value <0.05).

Conclusion: Patients operated upon using sliding conjunctival flap technique had less frequency of recurrence of pterygium than those operated upon using bare sclera technique.

Keywords: Pterygium, frequency, recurrence, conjunctiva, sliding/rotation flap, bare sclera.

INTRODUCTION

Pterygium is a common ocular disease in our geographical zone. Several methods of management of pterygium have been described. These include avulsion, excision (bare sclera), excision with primary closure (sliding/rotation conjunctival flap), excision with conjunctival autograft, use of antimetabolites with bare sclera technique and other less commonly performed procedures [1]. The purpose of this study was to find out the better surgical technique out of "sliding conjunctiva flap technique" and "bare sclera technique". Frequency of recurrence of pterygium was noted with either technique by follow-up of patients for upto 1 year post-operatively, and conclusions were drawn. (Note: The terms "sliding conjunctival flap technique" and "rotation conjunctival flap technique" have interchangingly been used by various researchers).

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PATIENTS AND METHODS

A total of ninety patients were selected from outpatients between February 2003 and February 2005 at Department of Ophthalmology, Military Hospital

Rawalpindi and later at Eye Department Combined Military Hospital Khuzdar, Balochistan. In patient selection, technique of non-randomized convenience sampling was adopted. Patients included both serving and retired armed forces personnel and their families. If willing, they were first evaluated through detailed history and thorough clinical examination. Pterygia chosen for the inclusion in the study were those with corneal encroachment by 2mm. Patients with conjunctivitis, scarring or any ocular disease or previous surgery was excluded. Patients were divided into two groups: group A and group B; group A included 42 patients and were managed using bare sclera technique, while group B comprised of 48 patients who were managed using sliding conjunctival rotation flap technique. The surgical technique used was that the pterygium was excised under topical and local anaesthesia with subconjunctival injection of 0.5-1 ml of 2% xylocaine with 1:100,000 adrenaline beneath and around the pterygium with 25 gauge needle. Topical anaesthetic (0.5% proparacaine) drops were also used 1–2 minutes before the subconjunctival injection of 2% xylocaine. The patient was draped and a wire speculum was placed to keep the lids open during surgery.

Pterygium was lifted and excision was started from corneal side using No. 15 surgical blade. Then rest of the pterygium tissue along with adjacent Tenon's capsule was excised off with the help of spring action scissors and the sclera beneath was left exposed in bare sclera technique. However, in the other group, the edges of conjunctival tissue were sutured together after undermining the adjacent conjunctival tissue with spring action of blunt tipped scissors to enhance tissue mobility for subsequent mobilization for a good wound closure. The eye was patched for 24 hours after instillation of 0.5% chloramphenicol eye drops and ointment for lubricant/antibiotic action.

Post-operatively, patients were followed up in outpatients on the 1st and 7th post operative day, at one and six months and then after one year. All the patients were treated with topical steroids and topical antibiotics till complete re-epithelialization of the wound took place. These were tapered off slowly. Morphological characteristics were carefully studied under slit lamp and any thickening or encroachment or re-growth of the pterygial tissue on the cornea was recorded. All patients were prescribed a standard regimen of prednisynth eye drops, 1 drop thrice daily, ointment chloramphenicol -HC applied aty night and oral mefenamic acid 500 mg thrice daily for three days.

STATISTICAL ANALYSIS

Data was analyzed using SPSS version-10.0. Chi-square test for categorical variables and t-test for numerical variables were applied to check the significance of the difference between two groups..

RESULTS

Group-A included 42 patients and roup B comprised of 48 patients who were managed using Sliding Conjunctival Rotation Flap technique. The groups are identical age-wise and gender-wise ($P>0.05$). The mean age of patients was 39 years; the male to female ratio was 6:1. Sex distribution is given in table-1. At the end of one year, it was found that 9 (21.43%) of patients in group A developed recurrence and only 3 (6.25%) of patients in group B developed recurrence (fig. 1&2). The results were found to be statistically significant ($P<0.05$).

DISCUSSION

A pterygium is a horizontally oriented triangular growth of abnormal tissue that invades the cornea from the canthal region of the bulbar conjunctiva [1]. Its development is unrelated to antecedent injury or inflammation. Exposure to dust, dryness, wind and the sun are possible causative factors [2]. Basically, it is an elastotic degeneration of the sub-conjunctival tissues; which proliferates as a vascularized granulation tissue to invade the cornea

destroying the superficial corneal layers of stroma and Bowman's membrane. Activated fibroblasts in the leading edge of the pterygium invade and fragment Bowman's layer as well as a variable amount of the superficial corneal stroma. Histopathology of the abnormal collagen in the area of elastotic degeneration shows basophilia with hematoxylin and eosin stain. This tissue also stains with elastic tissue stains, but it is not true elastic tissue, in that it is not digested by elastase [3]. Pterygium is most commonly situated on the nasal side but may occur on the temporal side whereby it is labeled as atypical Pterygium. The condition is quite common in Pakistan due to the geographical location of the country being situated in temperate zone, with plenty of sunshine (besides other factors).

A pterygium can be divided into three recognizable parts: body, apex (head), and cap [1]. The raised triangular portion of the Pterygium with its base toward the canthus is the body, while the head forms the apex of the triangle, just posterior to the cap. A sub-epithelial cap or "halo" may be present just central to the apex and forms its leading edge.

Physicians have struggled for thousands of years with this unsightly condition. Numerous techniques have been used in its management. But only surgical treatment has offered permanent relief. The non-surgical modalities of treatments do not relieve the patient of the problem permanently and also cause complications. The surgical excision is associated with a high rate of recurrence. Recurrence is an encroachment of fibrovascular connective tissue across the limbus and into the cornea for any distance in the position of previous pterygium. Surgical techniques which have been used include avulsion, excision (bare sclera) [4], Excision with primary Ccosure (sliding/rotation conjunctival flap) [4], Excision with conjunctival autograft [4], Use of antimetabolites [5-7] with bare sclera technique [8] and other less commonly performed procedures such as amniotic membrane transplantation following excision [9] and recently documented "cut and paste" technique [10].

Table-1: Sex distribution of groups.

	Female	Male	Total
Group-A	7	35	42
Group-B	6	42	48
Total	13	77	90

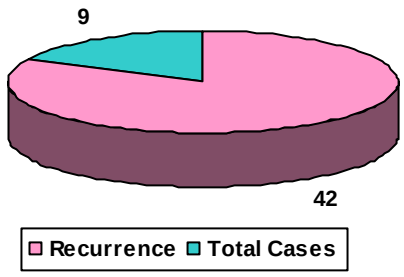

Fig. 1: Recurrence in group A (bare sclera technique).

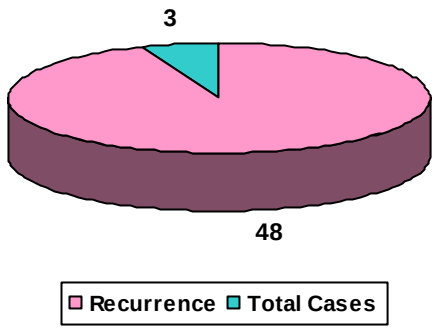

Fig. 2: Recurrence in group B (conjunctival rotation flap technique).

The decision to remove a pterygium depends on several factors. These include the symptoms the patient has and is willing to endure and desire for cosmetic improvement. These lesions may become episodically inflamed, may grow to occlude the visual axis, may induce astigmatism, or may cause restriction of extraocular muscle movement in extreme, recurrent cases. In one study correlating Pterygium size and induced corneal astigmatism, it was found that once Pterygia reach a critical size (extension to >45% of the corneal radius), they induce visually significant asymmetric with-the-rule astigmatic changes. These changes may be detected only by corneal topography and not

by subjective refraction. A small pterygium with mild symptoms of photophobia and redness can often be managed with the use of topical preservative-free lubricants, vasoconstrictors, and a mild steroid. To prevent progression, some authors have advocated the use of ultraviolet-blocking spectacles.

Excision (bare sclera) technique is the fastest and most commonly performed surgical procedure on pterygium; however the frequency of recurrence was reported to be higher and more aggressive. In one study where bare sclera excision had been carried out, Tan [8] reported 38 (61%) cases of pterygium recurrence out of 62 cases. Our study also showed a high recurrence in 21.42% in our patients.

Excision with primary closure (rotation/sliding conjunctival flap) [4] has been advocated by many workers. The concept of undermining the adjacent normal conjunctiva, with presumably less ultraviolet light exposure, and re-approximating the wound margins is finding renewed interest. Rotation of a flap of superior conjunctiva is thought to prevent recurrence and provide a smooth surface at the limbus to encourage proper tear film distribution. A technique of sliding conjunctival flaps from both inferior and superior limbus to close the wound has been reported to have a 1-year recurrence rate of only 5% [4]. Our study also showed the frequency of recurrence was 6.25%, much lesser than that when using Bare Sclera technique.

CONCLUSION

Pterygium recurrence following surgical excision is a fairly common problem especially in high-risk population groups. In our study it was found that the patients operated upon by using sliding/rotation conjunctival flap technique had less frequency of recurrence of Pterygium than in those operated upon using bare sclera technique. It is therefore highly recommended that patients undergoing pterygium surgery for primary (virgin) pterygium, technique of conjunctival rotation flap rather than bare sclera technique, should be employed so that frequency of recurrence can be reduced. Although it was not part of the study, it was also observed that the final post-operative appearance was better in conjunctival rotation flap group, and that though recurrence may occur, it carries much less risk of corneal complications as compared to bare sclera technique where recurrence was found to be early and much more aggressive, and could involve central cornea and hence the visual axis. These facts may further be confirmed and analyzed separately in a subsequent study.

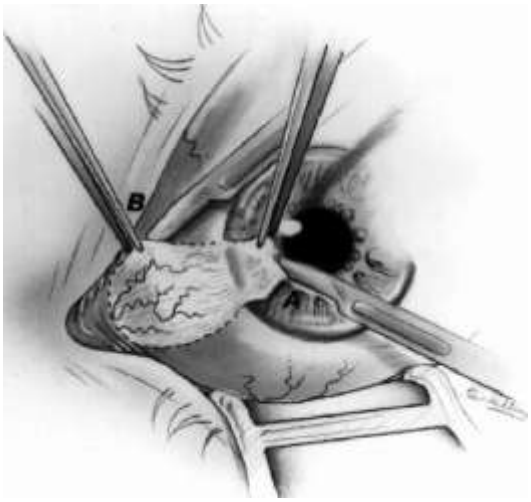

Fig- 3: Bare sclera excision can be started from the corneal apex or by incising around the conjunctival body of the pterygium[9].

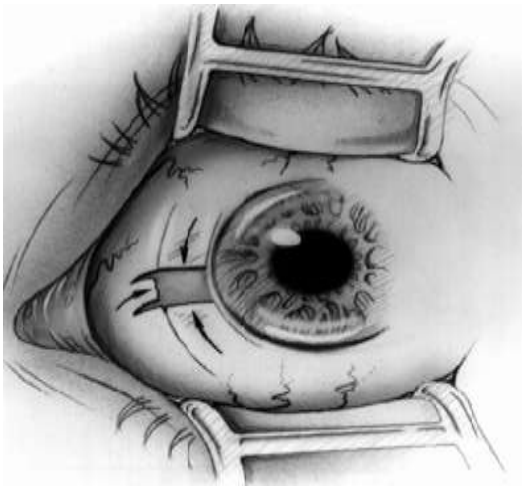

Fig 4: Conjunctival rotation flaps can be used to primarily close a pterygium excision site[9].

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