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ORIGINAL RESEARCH

An observational study to compare the outcome of conjunctival autograft after extended excision of pterygium along with and without cyclosporine for primary fleshy pterygium

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ABSTRACT

Introduction: Pterygium is a degenerative disease of the conjunctiva, characterized by cellular proliferation, tissue remodeling and inflammation. The conventional conjunctival autograft done for pterygium removal is considered to be efficient with less recurrence rate. A modification of it, the extended conjunctival autograft following extended pterygium removal, which removes all the pterygium tissue from the eye with improved cosmesis and least recurrence rate. On using 0.05% topical cyclosporine postoperatively, decreases the recurrence rate to the least. Our aim is to study the efficacy of conjunctival autograft after extended pterygium excision in primary fleshy pterygium and to determine the recurrence rate after surgery with and without cyclosporine. **Methodology:** This study was conductedas a Prospective, observational, case-control study in patients with primary fleshy pterygium, who satisfy the inclusion criteria after obtaining consent.60 patients were selected and divided into two groups. 30 patients were included in Group I in whom surgery (extended pterygium removal followed by extended conjunctival autograft) with post-operative 0.05%topical cyclosporine was given 6 hourly for 6 months and 30 patients in Group II had surgery done with postoperative placebo drops (lubricants). **Results and discussion:** There was no statistically significant differences based on age, sex, preoperative visual acuity, astigmatism between the two groups. On analysis of results Group II patients on placebo, had 20% recurrence compared to group I patients on cyclosporine with 0% recurrence rate which was statistically significant with p value of 0.024. There was an improvement in baseline visual acuity and a decrease in astigmatism postoperatively in both the groups. The postoperative complications and side effects were almost equal in both groups, which was not statistically significant suggesting that 0.05%topical cyclosporine is a safe and effective drug for postoperative use. **Conclusion:** The study to compare the efficacy of extended conjunctival autograft followed by extended pterygium removal with post-operative 0.05%topical cyclosporine shows significant results in visual acuity improvement, with least complications and low recurrence. Hence, it is an effective method for pterygium removal with least complications and recurrence.

Keywords: Pterygium, autograft, extended excision, cyclosporine.

INTRODUCTION

The word pterygium comes from the ancient Greek word pterygion, meaning wing. Triangular wing-shaped fibrovascularsubconjunctival tissue is slow-growing and non-cancerous. It can cause visual problems by creeping into the cornea, affecting the superficial stroma and Bowman's membrane. It is caused by UV light-induced degeneration of the conjunctival connective tissue. People who live in tropical and subtropical regions, where they are subjected to dry, dusty, sunny, and windy conditions, as well as those who are more exposed to UV rays (such as farmers and arc welders), are more likely to experience it as they age. Until the visual axis is affected, vision is unaffected. The majority of patients seek cosmetic enhancements from their providers. [1,2]

The way pterygium is treated has changed over time. Following pterygium surgery, the recurrence rate is comparatively high, ranging from 2% to 40%. The current therapy options for pterygium management include the following: Air-assisted pterygium surgery, suture-less small incision pterygium surgery with

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fibrin tissue glue, bare sclera with intraoperative mitomycin-c, bare sclera with beta irradiation, sliding or rotational conjunctival autograft, conjunctival autograft, limbal conjunctival autograft (LCAG), amniotic membrane transplant, use of antimetabolites such as thiotepa, 5-fluorouracil (5-FU), mitomycin-c (MMC), deep anterior lamellar keratoplasty, and medical management with Avastin.[3-6]

An immunosuppressive medication called cyclosporine is frequently used in post-allogenic organ transplants to lower the possibility of organ rejection. It attaches itself to immunocompetent T lymphocytes' cytosolic cyclophilin (immunophilin) and prevents the release of interleukin and lymphokines, which lowers effector T-cell function. Topical cyclosporine A is used to treat dry eye and a variety of ocular surface conditions. In comparison to the control group (17.9%), a study demonstrates that topical application of 0.05% Cyclosporine for three months after pterygium excision and conjunctival autograft results in a lower recurrence rate (3.4%). [7-10] Postoperative sequelae, such as fibrovascular proliferation, tenon's granuloma, graft scarring, and postoperative discomfort, were considerably lower in the cyclosporine group. It is proposed that postoperative application of 0.05% Cyclosporine topically following primary excision of pterygium is safe and efficient. Based on this our aim is to study the efficacy of conjunctival autograft after extended pterygium excision in primary fleshy pterygium and to determine the recurrence rate after surgery with and without cyclosporine.

MATERIALS AND METHOD

This study was conducted among 60 patients with primary fleshy pterygium, who satisfy the inclusion criteria attending the OPD as well as in a tertiary care teaching hospital. Extended pterygium removal with conjunctival autograft was done in all 60 patients. Among the 60 patients,30 patients were allocated as group I who receive postoperative cyclosporine eye drops and 30 patients were allocated as group II who will not receive cyclosporine eye drops and the results were studied for recurrence and complications.

Patients with primary fleshy pterygium 30 -60 years age group, both sexes with diminished vision due to astigmatism or encroachment on pupillary area and progressive nasal pterygium causing cosmetic disfigurement, persistent discomfort, restricted ocular mobility were included in the study. Whereas patients with ocular surface diseases, dry eyes, autoimmune diseases, atrophic and intermediate pterygium, H/O trauma, secondary pterygium due to chemical burns, pseudopterygium, recurrent pterygium and temporal pterygium, glaucoma and those allergic to cyclosporine were excluded.

Uncorrected and best corrected visual acuity was recorded for all 6 patients. Keratometry values were recorded.Slit lamp examination was done and the pterygium was graded by Tan’s grading. Cornea, tear film, anterior segment, adnexa were examined.Dilated fundus examination was done. Nasolacrimal duct patency was done. Baseline IOP of both eyes were recorded. A single surgeon under peribulbar anesthesia operated all patients.Postoperative care was given according to patients symptoms, slit lamp examination was done to access graft edema, necrosis, haemorrhge, retraction. Statistical analysis was done using SPSS software.

RESULTS

Of the 30 patients in group I, 8(26.6%) patients were <45 years old, 14(46.6%) were 46-55 years old, 8(26.6%) were >55 year old. In group II, 9(30%) were <45 year old, 12(40%) were 46-55 year old, 9(30%)were > 55 year old. Majority of the subjects taken for study in both groups were between 46 and 55 years and less numbers were below 45 years and above 55 years.

In group I patients, 22(73.3%) were males and 8(26.6%) were females. In group II patients, 19(63.3%) were males and 11(36.6%) were females. The study showed male preponderance in pterygium formation associated with outdoor activity.

Among 30 patients in-group I, 11(36.6%) cases were presented with visual disturbance. 14 (46.6%) cases presented with symptoms of ocular discomfort. 1(3.3%) presented for cosmetic correction and 4(13.3%) for both visual and ocular discomfort. Among 30 patients in-group II, 12(40%) cases were presented with visual disturbance, 13(43%) were presented for ocular discomfort, 2(6%) for cosmetic correction and 3(10%) for both ocular and visual discomfort. Patients in both groups were presented mainly for ocular discomfort and visual disturbance.Pre-operative astigmatism was present in 29 patients in group 1 and 28 patients in group 2.

A scoring was done to assess the pain response of the patients post operatively. Each patient was assessed for pain on post op day 1 and day 7. About 12(5+7)20% of the patients experience pain in both the groups.Improvement in 1- 2 lines were noted postoperatively, by Snellen’s chart in both the groups, compared to the pre op uncorrected visual acuity.Only 1(33.3%) patient in group II had postoperative astigmatism on day 30 which was not significant.

Graft retraction was present in one patient in group 1 nd 2 patients in group II, In both groups there was no graft necrosis and dehiscence

Graft	Group 1	Group 2
Retraction/chemosis	1	2
necrosis	0	0
dehiscence	0	0

There was no recurrence noted in group I patients with postoperative cyclosporine, but in group II, 6(20%) patients had recurrence, which was found to be statistically significant with p value of 0.024 There was a recurrence rate of 20% in group II patients

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compared to group I patients with zero recurrence rate which was statistically significant and it proved the safety and efficacy of cyclosporine in preventing postoperative complications and recurrence after pterygium surgery.

DISCUSSION

A number of surgical procedures are available and are recommended like excision of pterygium with adjunctives, amniotic membrane transplantation, rotational auto graft, conjunctival autograft. The goals to be achieved by any approach for pterygium are No complications due to surgery, low recurrence rate, Good cosmesis and cost benefit.

The important benefit of conjunctival auto graft is preservation and restoration of the anatomy of conjunctiva and its interface with cornea in a more physiological pattern. That is why conjunctival auto graft is superior to all the available treatment techniques and most widely accepted. The modification of conjunctival autograft in which an extended area of pterygium was excised and replaced by an extended conjunctival autograft which results in very minimum recurrence and increased cosmesis. Although it was a good and safe procedure it has certain short comings like increased time duration ofsurgery, rectus muscle involvement, need for large sized autograft. No patients in either group developed graft necrosis, graft dehiscence, sclera thinning and corneal involvement.[11-14]

Postoperative 0.05% cyclosporine eye drops reduce the recurrence to the least. In our study it is clear that there is no significant side effects associated with topical cyclosporine compared to the other group. And there is no recurrence in patients on cyclosporine which proved it as an efficient and safe drug for postoperative use.The mean recurrence in all patients after pterygium excision has occurred around 3 months.

The efficacy of this procedure was studied with the already done conjunctival flap rotation technique with postoperative cyclosporine in 26 patients of treatment group, which resulted in 7.7% recurrence(2 patients) in treatment group and 20% in control group on retrospective basis. Another study of bare sclera technique with post-operative cyclosporine done in 18 patients, resulted in recurrence of 22.2%(4 patients) compared to 44.4% in control group. The p value in our study is 0.024 which is < 0.05 shows that there is statistical difference between the group I(cyclosporine group) and group II(placebo group) which is significant and proves that extended conjunctival autograft followed by extended pterygium removal with post-operative topical cyclosporine is superior to other techniques.[15,16]

The corneal curvature and the measured cylinders before and after surgery showed significant statistical changes and bought an improvement in the visual acuity because of a decrease in cylinders.[17,18]

CONCLUSION

The study to compare the efficacy ofconjunctival autograft followed by extended pterygium removal with post-operative topical cyclosporine shows significant results in visual acuity improvement, with least complications and low recurrence.Hence, adding cyclosporine will help in better efficacy and safety.

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