



CONJUNCTIVAL AUTOGRAFT PLUS TOPICAL AVASTIN: ACCOMPANIMENT IN PTERYGIUM TREATMENT

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ABSTRACT

Pterygium results when there is aberrant wound healing characterised by centripetal growth of limbal epithelial cells followed by squamous metaplasia giving rise to pterygial epithelium with goblet cell hyperplasia. A prospective, randomized, comparative, interventional study was conducted to treat pterygium. This study was done with an aim to examine the efficacy of post-operative topical Bevacizumab drops in preventing recurrence of pterygium excision with autologous graft placement. Results show that low-dose topical Avastin and Conjunctival autograft are more effective as adjunctive treatment after excision of primary pterygia.

KEYWORDS: Pterygium, Vascular Endothelial Growth Factor, Conjunctival in situ autografting and Bevacizumab.

INTRODUCTION

Pterygium consists of three distinct parts: cap, head and the body. Cap is a flat zone on cornea that consists mainly of fibroblasts invading and destroying the Bowman's membrane. Head a vascular area lies behind the cap and is firmly attached to the cornea. The body/tail is mobile area of the bulbar conjunctiva, which can be easily dissected from the underlying tissue. Primary pterygium is a fibrovascular proliferation combined with subconjunctival elastotic degeneration. Histopathologically pterygium is an aberrant wound healing process, characterized by centripetal growth of a leading edge of altered limbal epithelial cells, squamous metaplastic epithelium, underlying stroma of activated, proliferating fibroblasts, inflammatory cells, and extracellular matrix remodeling neovascularization [Illustration 1].

Vascular Endothelial Growth Factor (VEGF) levels are known to increase during the healing response post inflammation, with the peak reaching around day 7. Reduced vision due to encroachment of the visual axis and irregular astigmatism, chronic irritation and recurrent inflammation, restriction of ocular motility, and cosmesis, warrant an immediate intervention.

Evolution in treatment techniques of pterygium surgery:

1) Bare sclera technique- In this procedure excision of head and body of the pterygium is done while the bare scleral bed is allowed re-epithelializing. This

procedure can be done with or without the use of adjuncts. (beta irradiation, thiotepa eye drops) - 89%

- 2) Use of intra- or postoperative mitomycin C (MMC). It is used as an adjunctive treatment because of its ability to inhibit fibroblasts. Its effects are similar to beta irradiation.
- 3) Antineoplastic agents, amniotic membrane transplantation- It is postulated that the basement membrane of amniotic membrane contains factors important for inhibiting inflammation and fibrosis and promoting epithelialization.
- 4) Conjunctival autograft (CAG) with or without limbal stem cells - 2 %

It has been seen that after excision and reconstructing with either of the graft i.e. AMG, CAG and limbal stem cell, altered ocular surface still remains.

AIM

To examine the efficacy of post-operative topical Bevacizumab drops in preventing recurrence of pterygium.

METHOD

This prospective, randomised, comparative, interventional study was conducted on the patients admitted in The Department of Ophthalmology, Bokaro General Hospital, Bokaro steel city. A total of 25 patients with pterygia were included in study and randomly divided into two groups

Group A: pterygium excision with autologous graft placement.

Conjunctival in situ autografting (CISAG): In this procedure pterygial conjunctiva is dissected from 1mm inside limbus, rest of the neck and apex was excised. Fibrotic tissues were meticulously dissected from conjunctiva and sclera. Curuncular end was placed along limbus over bare sclera. Clotted blood helped to keep graft in place [Illustration 2].

Group B: pterygium excision with autologous graft placement combined with topical Avastin therapy post-operatively.

Method of preparation of bevacizumab eye drops-To prepare 5 mL of bevacizumab, 1.0% (10 mg/mL)-intravenous solution (25 mg/mL)

-stock benzalkonium chloride solution, 0.5% (5 mg/mL)
-sterile saline

RESULT

The recurrence rate of Group B and Group A was 30% and 39% of eyes, respectively, after mean follow-up (in recurrence-free patients) of 12.3 and 13.5 months, respectively. The recurrence rate after Bare Sclera technique was significantly higher (P = .002), 88%, after mean follow-up (in recurrence-free patients) of 9.3 months. Increasing age was associated with significantly fewer recurrences (P = .006) after controlling for pterygium type (atrophic, noninflamed, or inflamed) and treatment group. Only 6% of recurrences were noted

after the sixth postoperative month. Major complications included symblepharon (two), loose autograft (one), and pyogenic granuloma (two). No group had significantly more complications. [Illustration 3]. Pre-operated and post-operated examinations of a patient was evaluated. [Illustration 4].

ILLUSTRATIONS

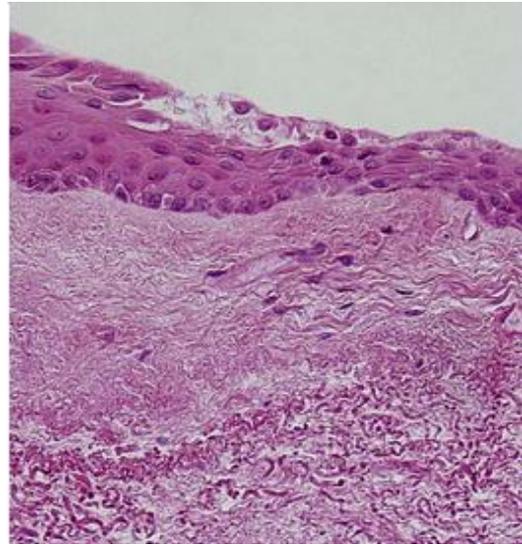


Illustration 1: Histopathological section o pterygium.

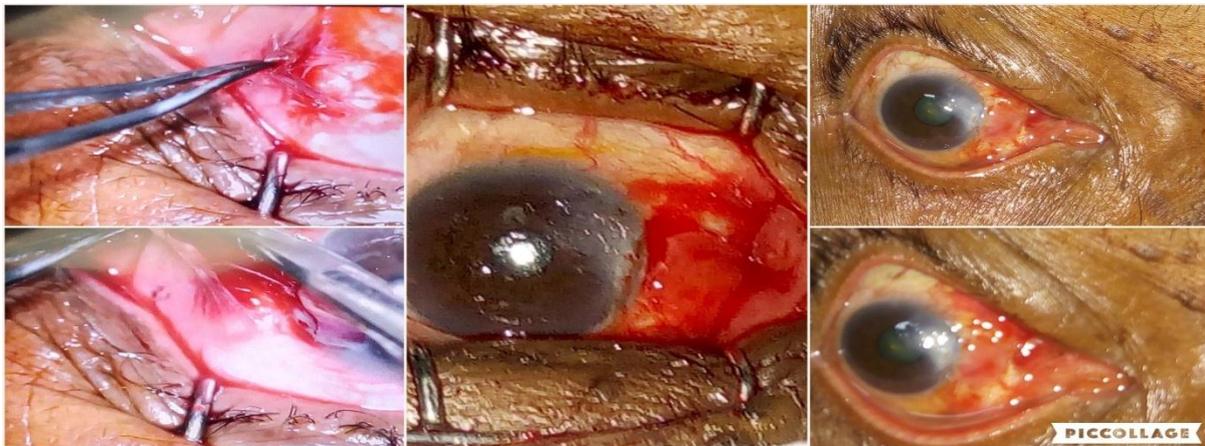


Illustration 2: Conjunctival in situ autografting (CISAG).

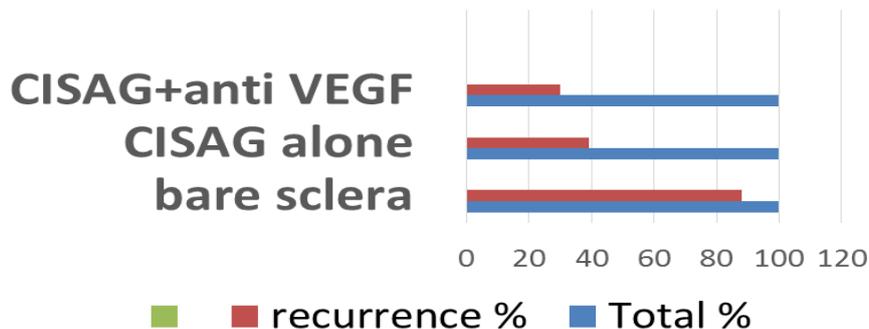


Illustration: 3 Result showing comparison between the outcome of group A and group B.

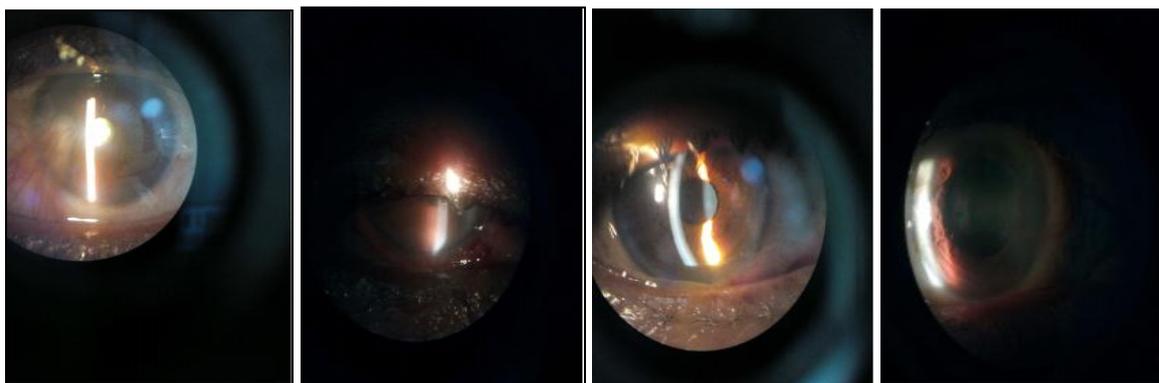


Illustration: 4 Pre-operated and post-operated examinations.

DISCUSSION

Pterygium is often prevalent in developing countries with scarce health resources and in this setting can be a blinding disease. In bare sclera technique the head and body of the pterygium is excised leaving behind the bare scleral bed where the main pathology lies, leading to re-epithelisation and recurrence. Whereas in conjunctival in-situ autograft technique the head, neck of pterygium along with abnormal subepithelial tissues and tenon's is removed repositioning the conjunctival graft. In our study it is observed that due to the anti inflammatory effect of anti-vegf agents post op fibrosis and recurrence have significantly reduced. In previously conducted studies it has been established that other topical agents like Mitomycin C can cause Complications like severe secondary glaucoma, corneal edema, corneal perforation, corectopia, iritis, sudden onset mature cataract , scleral calcification and incapacitating photophobia and pain. Anti Vegf agents in comparison showed no significant side effects. Though in our study it is clearly concluded that CISAG with post operated Anti VEGF drops have superior outcomes, it requires further studies and research to establish it as a preferred choice of management.

CONCLUSION

Low-dose topical Avastin and Conjunctival autograft are more effective as adjunctive treatment after excision of primary pterygia in this area of Jharkhand. Both methods have significantly lower rates of recurrence than bare sclera excision alone, neither is associated with severe complications after one year of follow-up. Increasing patient age is associated with significantly less risk of recurrence.

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