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STUDY OF SURGICAL OUTCOME OF IPSILATERAL CONJUNCTIVAL AUTOGRAFT IN CASES OF PRIMARY DOUBLE PTERYGIUM

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ABSTRACT

INTRODUCTION: This study was designed to describe a modified technique for management of primary double pterygium using ipsilateral conjunctivo- limbal auto graft and to know its surgical outcome and success rate.

MATERIAL AND METHODS: This was an interventional study in which 35 eyes of 35 patients were included for conjunctivo-limbal autograft for primary double pterygium. Conjunctivo-limbal autograft was taken from nasal side of neck and body of pterygium to cover the temporal bared area left after excision of pterygium. The same procedure was followed for the opposite side. The patients were followed up on day 1 and after 1 week, 6 weeks, 6 months and 1 year to check for any recurrence or complications.

RESULTS: Average age of patients was 56.35±10.25 while male is to female ratio was 2.5 :1, 2 (5.71%) cases had recurrence, 5 (14.28%) cases had post operative graft oedema which resolved with medication. No serious complication observed. This modified technique had 94% success rate.

CONCLUSIONS: Modified technique was easy technique to manage double pterygia with less limbal stem cell dysfunction. Preservation of superior conjunctiva also needful for trabeculectomy or small incision cataract surgery. Advantages of this technique are cost effective, easy learning curve, no complications from mitomycin C (0.02%) like sclera melting, granuloma formation etc.

KEYWORDS : Autograft, Limbal Stem Cell, Primary Double Pterygium

INTRODUCTION

Pterygium is a fibroelastotic, fibrovascular, wing shaped hyaline degeneration of the bulbar conjunctiva on to the cornea, usually in the horizontal meridian of the palpebral fissure. Risk factors are exposure to UV light, environmental, microtrauma to the ocular surface localized limbal stem cell dysfunction (LSCD) & a genetic (p53) predisposition. [1]

It affects young, middle, old aged males and females. The pathogenesis consist of initial disruption of the limbal corneal-conjunctival epithelial barrier, progressive "conjunctivalization" of the cornea with cellular proliferation, inflammation, connective tissue remodelling with angiogenesis etc. [2]

Pterygium occurs mostly on the nasal side, which can be attributed to light coming to the temporal cornea and being focused on the nasal cornea. [3] Double-head pterygium, that is, nasal and temporal pterygia in the same eye is rare. In studies by Dolezalová, the incidence was found to be 2.5%. [4] It has Head: which rests on cornea, Cap: a semilunar infiltrating portion in front of the head showing opaque spots (Fuch's spots) suggestive of progression, Neck: constricted portion, Body: remaining bulk of mass.

The indications for surgery include progressive, reduced vision due to encroachment of the visual axis and irregular astigmatism, chronic irritation and recurrent inflammation, restriction of ocular motility and cosmesis. Several surgical modalities have been devised for pterygium excision Techniques, include simple excision, bare sclera technique, free conjnctival membrane technique, transplantation of pterygium in lower fornix (McReynold's technique), limbal-conjunctival autograft & amniotic membrane graft with fibrin glue. Adjunctive treatments include cyclosporine A, thiotepa, mitomycin C, daunorobucin and beta irradiation to reduce the recurrence rate.

As we know, conjunctival autograft (CAG) is the gold standard in the management of primary pterygium. [5] However, it may not be sufficient to cover the bare scleral defect in a double-head pterygium. Superior and inferior bulbar CAG has been effective, but it is difficult to obtain a thin graft and can lead to unexpectable loss of limbal stem cells. Amniotic membrane transplantation (AMT) has been found to be effective in these cases, but it is not easily available to all surgeons and cost is a limiting factor.

So in this study we tried a modified technique for the management of double head pterygium. we had taken conjunctival autografts from the neck-body of double head pterygium itself to cover the bare sclera of the opposite side caused by excision of pterygium. and further surgical outcome was evaluated.

MATERIAL & METHODS

In this study 35 diagnosed cases of double pterygium were included. Out of 35 cases only 35 eyes were included for surgical process and further evaluation. The study was conducted in Regional Institute of Ophthalmology, IGIMS, Patna, Bihar from May 2014 to April 2017. Study was approved from departmental research committee. Informed and written consent were taken from each study participants.

INCLUSION CRITERIA

1) Patients of all age and either sex
2) Patients with primary double pterygium with grade 1, 2 and 3

EXCLUSION CRITERIA

1) Patients with grade 4 double pterygium
2) Patients with recurrent pterygium
3) Patient with ocular disease other than grade 1, 2 and 3 primary double pterygium

All surgery was done by same surgeon. Collected data included patients age, sex, visual acuity, ocular medical and surgical history, surgical technique and complication. Pterygium was graded according to corneal involvement.

1) Grade 1: crossing limbus
2) Grade 2: midway between limbus and pupil
3) Grade 3: reaching up to pupillary margin
4) Grade 4: crossing pupillary margin.

Surgical procedure

A standard surgical technique similar to Rao et al. [6] 2% Xylocaine was used as local peribulbar anesthesia. Head of the pterygium was avulsed from the corneal surface using toothed forceps and an iris spatula. The corneal and limbal areas were scraped clean of residual tissue with a crescent blade. Gentle wet field cautery was used to achieve hemostasis. Temporal pterygium was first operated. Conjunctival incision was taken at the head of pterygium which was extended over the breadth of pterygium. Tenon's tissue was seperated

& excised almost upto approximately 3.5-4mm temporally & upto breadth of pterygium vertically. Head of pterygium was then excised. Same procedure was followed on nasal pterygium & tenon's was excised upto 3-4 mm nasally & over breadth of pterygium. Measurement of graft size was done with Castroviejo Caliper. Conjunctiva over nasal pterygium was cut to fit the planned conjunctival defect on the other side. Nasal conjunctival graft was then prepared & kept on the same bed. Similar procedure was done on temporal conjunctival graft. Then the nasal sided conjunctival graft was transferred to temporal defect side with vice versa procedure was followed. The graft was attached using 8-0 Coated Vicryl (Ethicon) Polyglactin Violet Braided maintaining limbal orientation of grafts on either side. The eye was patched. Post operatively topical prednisolone acetate eye drops were given 8 times for 7 days along with taper dose for each five days. Topical moxifloxacin for 7 days and 0.5% carboxy methylcellulose drops were use topically for 3 weeks. Patients were examined on postoperative day 1 and later asked for follow-up after 1 week, 6 weeks, 6 months and 1 year. Recurrence was defined as fibrovascular tissue in growth of 1.5 mm or more beyond the limbus onto the clear cornea.

Recurrence of pterygium was the primary outcome, whereas Tenon's granuloma, graft retraction, graft edema, subconjunctival hemorrhage, and dellen were considered other outcome variables**.**

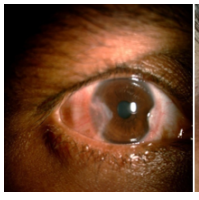

Fig.1 preoperative

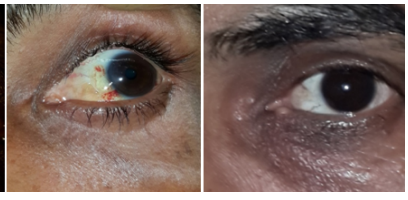

Fig. 2 post operative

Statistical analysis: Study data were analysed and tabulated with the help of Instat Graph Pad software. Data were analysed in the form of ratio and percentage.

RESULTS

On analysis of 35 eyes with primary double-head pterygium operated by this technique the following results were obtained.

Average age was 56.35±10.25years. Male (n=25) and Female (n=10) ratio was 2.5:1. The left eye constituted 21 eyes and right eye was 14 eyes. A total of 5.71% (2 eyes out of 35) had recurrence of which one had nasal, one temporal. The two eyes in which recurrence occurred due to graft loss might have developed excessive graft retraction in the early postoperative period. 14.28% (5 eyes out of 35) had postoperative edema but resolve on follow up period. Two cases presented with suture related allergic papillae with congestion Some loose sutures were removed at follow-up of 1 week. The remaining sutures were removed at 6-week follow-up.

Table 1 Outcomes of this study

Complications	No. of pt.(%)
Edema	5 (14.28%)
Graft retraction	02 (5.71%)
Recurrence (Temporal)	01 (2.85%)
Recurrence (Nasal)	01 (2.85%)
Recurrence (Temporal and nasal)	00
Recurrence(Total)	02 (5.71%)
Dellen	00
Tenon's granuloma	00
Suture related allergic papillae with congestion	02 (5.71%)

Success rate was 94% in this study using ipsilateral conjunctival autograft for primary double pterygium cases in follow up period of 1 year.

DISCUSSION

Recurrence is the one of the major complications of pterygium surgery. The procedure of choice of operation should be to minimize the recurrence rate along with better visual cosmetic appearance. In our study, we used the conjunctival autograft from neck and body from perygium of same eye to preserve the superior and inferior conjunctiva to avoid loss of limbal steam cells, post operative dryness, ocular surface disorders and future glaucoma filtering surgery. There are Various options available for the management of double-head pterygium are vertical split CAG with limbus-limbus orientation, split CAG with horizontal graft, superior and inferior bulbar CAG, and AMT, but none of them has worldwide acceptance. Conventional bare sclera technique is not done routinely because of high recurrence rate. [7] Various adjunctive therapies have been tried with pterygium excision so as to prevent recurrence. Use of beta irradiation or thiotepa eye drops, antimitotic drugs (MMC and 5-fluorouracil), fibrin glue, and AMT have been used. [8] Various complications of MMC have been noted such as punctuate keratopathy, scleral melt, corneal melting. [9] Amniotic membrane is costly, requires preservation and availability is an issue sometimes. Previous studies have reported higher recurrence rate with AMT compared to conjunctival grafting. [10] Fibrin glue for securing graft gives advantages of easy fixation and better postoperative comfort, but it has high cost and risk of transmission of infectious agents such as parvovirus B19 and prion. [11] Most recently, a new technique named “pterygium extended removal followed by extended conjunctival transplant” for double-head pterygium was published by Hirst and Smallcombe and showed excellent cosmetic results with no recurrence rate in 20 eyes at 1-year follow-up. [12]

In general, the pterygium recurrence occurs within the first 6 months after surgery. In our study, the overall rate of recurrence was 5.71.% (2 eyes out of 35) which was comparable to other published studies.

CONCLUSION

Autografting of conjunctiva from temporal to nasal & vice versa with preservation of limbal stem cells (LSC) is easy technique to manage double pterygia. Preservation of superior conjunctiva also needful for trabeculectomy or small incision cataract surgery. Advantages of this technique are cost effective, easy learning curve, no complications from mitomycin C (0.02%) like sclera melting, granuloma formation etc.

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Conflict of Interest: None
Ethical Clearance: Taken

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