

Outcome of Conjunctival Autograft in Pterygium Surgery

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Abstract

This Prospective study is designed to investigate the efficacy of conjunctival autograft in surgical management of primary pterygium.

The study was conducted at Tairunnessa Memorial Medical College and Hospital, Targach, Board bazar, Tongi, Gazipur and Kushtia General Hospital from July 2012 to June 2013. Fifty eyes with primary pterygia were selected for the study. Pterygium was graded depending on the extent of corneal involvement. We excluded the patients with recurrent pterygium, double headed pterygium, dry eye and history of previous intraocular surgery from our study. The mean patient age at the time of surgery was 41.9±8.1 years ranged from 30 to 60 years. The excision of pterygium with conjunctival autograft was done under peribulbar anaesthesia using 8-0 virgin silk. Then the patients were followed up for 12 months.

The excision of pterygium with conjunctival auto graft was done by applying same technique. All grafts were intact during the follow up period. There is recurrence in three patients that becomes evident within first three month.

Conjunctival autograft is a effective surgical technique for the treatment of pterygium. It is safe and uncomplicated procedure and prevents the recurrence of pterygium. It also reduces the risk of granuloma formation, scleral thinning and necrosis.

Key words: Conjunctival autograft, Recurrence.

Introduction

Pterygium means wing. It is a triangular fibrovascular subepithelial ingrowth of degenerative bulbar conjunctival tissue over the limbus onto the cornea. It is more common in men than women. It was described by Sushruta in India. It was noted by the great physicians of ancient time like Hippocrates, Galen and Celcius. Its incidence differs across the geographical site. A number of hypotheses have been approved to its aetiology. It is believed that pterygium is a growth disorder characterized by conjunctivalisation of the cornea due to localized ultra violet stimulated damage to the limbal stem cells. Destructive pterygial fibroblasts are also responsible for corneal invasion. It is also more frequent in hot, dry, windy, dusty and smoky environments^{1,2}. There is also a hereditary factor that may be responsible³. The pterygium belt extends around the world between the latitudes 35 degree north and 35 degree south of equator. The main histopathological changes in primary pterygium are elastotic degeneration of conjunctival collagen⁴. The impairment of visual acuity due to pterygium induced astigmatism or direct involvement of the pupillary area.

The surgical removal of pterygium is the choice of treatment. But removal is only half the battle; the other half is preventing recurrence. Recommended surgical management includes simple excision with or without adjunctive measures like postoperative Beta irradiation, thiotepa drops, intraoperative and postoperative mitomycin C and various techniques of conjunctival grafting⁵⁻⁸. After surgical removal whichever method is used there are still many recurrences. However autologous conjunctival grafting seems to be the best method, giving both low recurrence rate and high safety^{9,10}. Kenyon et al¹¹, first described a conjunctival autograft in 1985. They reported a recurrence rate of 5.3% and infrequent and relatively minor complications. The primary disadvantage of this technique is the prolonged operative time required when compared to the bare sclera technique.

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Material & Methods

The study was carried out at Tairunnessa Memrial Medical College and Hospital, Targach, Board bazar, Tongi, Gazipur and Kushtia General Hospital, Kushtia from July 2012 to June 2013. Fifty eyes with primary pterygia were selected for the study. Pterygium was graded depending on the extent of corneal involvement: Grade-I: crossing the limbus, Grade-II: midway between limbus and pupil, Grade-III: reaching up to the pupillary margin and Grade-IV: crossing the pupillary margin. We excluded the patients with recurrent pterygium, double headed pterygium, dry eye and history of previous intraocular surgery from our study. Patients were inquired specially about their occupation, duration of exposure, onset of pterygium, ocular symptoms, history of glaucoma, diabetes and hypertension. The mean patient age at the time of surgery was 41.9 ± 8.1 years ranged from 30 to 60 years.

The operation was done under peribulbar anaesthesia by applying same technique. Eye speculum is inserted. The neck is held with the fixation forceps and head of the pterygium is shaped from the cornea with No.15 blade. Two deriving incisions are given along the upper and lower borders of the pterygium. The pterygium is lifted with a hook and rotated nasally, while the dissection is carried out subconjunctally. The subepithelial thick triangular pathological tissue is removed in one piece. The conjunctiva over the head, neck and 2 mm of the body is excised to leave an area of bare sclera. Then Tenons capsule removed to provide a clean sclera bed. Tenons capsule should also be removed from the subconjunctival space adjacent to the outline of resection. A rectangular piece of conjunctiva dissected from upper temporal area. The graft tissue is placed over the bare area to cover it. Then it is sutured with 8-0 virgin silk. Donor site is closed with the same suture. The patients were evaluated post operatively at day 1, 1 week, 4 week, 8 week, 16 week, 24 week and 52 weeks.

Result

In this study, we observed recurrence in three patients (5%) and complications from conjunctival autograft are infrequent and not sight threatening. The study suggested that there is a relationship between age, occupation and recurrence of pterygium. As age advances, chances of recurrence become less and most of the recurrences becoming evident within first three months. The results are shown in tabulated form below:

Table-1: Shows distribution of age among the study group.

Age in years	No. of patients	Percentage (%)
30- 40	19	38
41- 50	17	34
51- 60	14	28

Table-2 : Shows grade of pterygium among the study group

Grade	No. of patients	Percentage
Grade-I	06	12
Grade-II	36	72
Grade- III	05	10
Grade-IV	03	06

Table-3: Shows occupation of patient among the study group

Occupation	No. of patients	Percentage
Outdoor workers	42	84
Others	08	16

Table-4: Post operative complications among the study group.

Complications	No. patients	Percentage
Graft edema	04	08%
Graft retraction	03	06%
Suture detachment	04	08%
Tenons cyst	01	01%
Granuloma	01	02%
Recurrence	03	06%

Discussion

Pterygium surgery has come a long way from the time of Susrata, but the 'ideal' one with a low or no recurrence, minimal complications and good cosmesis is still elusive. So, the management of pterygium is a constant challenge to the ophthalmologist due to high recurrence rate. The recent concept it is due to local limbal stem cell deficiency. The recurrence of pterygium can be reduced if stem cells are included in the conjunctival autograft. The simplest technique of bare sclera excision alone proved unsatisfactory because of high recurrence rates (30-70%)¹². Adjunctive treatment after bare sclera excision with Beta irradiation reduced recurrence rates to as low as 0.5%-10% but was associated with significant complications such as scleral necrosis.

In this study we observed recurrence in three patients (6%) and complications from conjunctival autograft are infrequent and not sight threatening. There were four patients with graft edema, three graft retraction, four suture detachment, one Tenons cyst and one granuloma.

The study suggested there is a relationship between age, occupation and recurrence of pterygium. As age advances, chances of recurrence become less and most of the recurrences becoming evident within first three months. In 1985, Kenayn et al¹¹ published report describing conjunctival autografting as a promising technique in the treatment of pterygium.

They documented the recurrence rate of 5.3% in the primary pterygium group. Sing G et al⁸, mentioned in their study that thirteen primary and two recurrent pterygia were treated with mitomycin-C, while fourteen primary and one recurrent pterygia were treated with conjunctival autograft. No recurrence were noted in the mitomycin-C group, while conjunctival autograft group had one recurrence (6.6%).

Baig MSA et al¹³, has reported in their study that 37 primary and 17 recurrent pterygia were treated with conjunctival autograft. The recurrence rate was 9.09% for primary pterygium and 17.6% for recurrent pterygium. Narsani AK et al¹⁴ observed simple excision of pterygium with conjunctival autograft has the lowest recurrence rate and minimum complication. They documented recurrence rate is 5.7% in primary pterygium group and 19% in mitomycin-C group. This study coincides with their observation.

Management of pterygium has been a challenge to both the surgeon and the patient due to its tendency to recur. Recurrent pterygium is more difficult to treat than primary pterygium because it is often accompanied by increased conjunctival inflammation and accelerated corneal involvement. Hirst et al¹⁵ reported repeated surgeries for pterygium tends to lessen the time to recurrence. Conjunctival autograft is a procedure which considers that damage to limbal stem cell is the cause of pterygium and hence replacement of limbal stem cell can prevent recurrence. This has learning curve and is a time consuming surgery. Thus in our study we conclude that use of Conjunctival autograft in a primary pterygium can prevent recurrence and provide acceptable outcome with no sight threatening complication.

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