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Recurrence of Primary Pterygium in Bare Sclera Versus Conjunctival Autograft Technique

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Abstract

Background: Pterygium is an abnormal fibrovascular subconjuctival tissue that encroaches upon the cornea causing visual disturbances. Surgical removal is the treatment of choice for pterygium. *Aim:* To compare the recurrence rate of pterygium in Bare sclera vs Limbal conjunctival autografting and to study the underlying risk factors associated. *Materials and Methods:* It is a prospective study conducted at Department of ophthalmology, Nalgonda Government Medical College, Nalgonda. Patients who presented with primary pterygium were grouped into 2 categories. Group 1 underwent baresclera technique. Group 2 underwent conjuctival autografting and were followed up for a period of 1 year. *Result:* In Group 1 showed recurrence rate of 30.50% (18 patients) as compared to Group 2 which showed recurrence rate o f 3.21% across all age groups. Males have recurrence rate of 39.02% (16 patients) in group 1 as compared to 2.43% (1 patient) in group 2. People employed outdoor have recurrence rate of 40.90% (18 patients) in group 1 as compared to 2.27% (1 patient) in group 2. Nasal pterygium has recurrencr rate of 36.8% (14 patients) in group 1 as compared to 2.63% (1 patient) in group 2. Mean recurrence rate was higher in Group 1 (34.66%) as compared to Group 2 (2.53%). *Conclusion:* Limbal conjunctival autografting is a safe effective procedure for pterygium surgery with lower recurrence rate.

Keywords: Pterygium; Recurrence; Conjunctival autograft; Bare sclera.

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Introduction

Pterygium is a common lesion occurring worldwide. The name "Pterygium" comes from the Greek word "Pterygos" which means "wing.".[1] It is an abnormal fibro-vascular subconjunctival tissue which encroaches the cornea. It is triangular in shape and is a benign lesion more frequently located nasally than temporally.

Ocular irritation, hyperemia and vision loss are the most common clinical symptoms.[2] The main histopathological change is elastotic degeneration of conjunctival collagen.[3]

In 1985 Kenyon et al first described conjunctival autografting for the management of recurrent pterygium and reported a low recurrence rate of 5.3% with this method.. Since then Limbal conjunctival autografting has been found to be a safe and effective procedure.[4–7]

However some studies still show some recurrence with conjunctival autografting,[8,9] hence it is necessary to study some of the underlying factors which influence pterygium recurrence.

In our study we aim to compare recurrence rates between two surgical techniques Bare sclera and Conjunctival autografting and study the underlying risk factors which influence recurrence of pterygium.

Materials And Methods

A prospective study was carried out at Government Medical College, Nalgonda from December 2018 to March 2020.

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130 patients who presented to the outpatient department with primary pterygium were selected.

These patients were grouped into two categories. Group 1 (60 patients) underwent pterygium excision with Bare sclera technique and Group 2 60 patients underwent pterygium excision with Limbal conjunctival autografting.

10 patients who lost follow up were excluded from the study.

Preliminary data comprising of age, sex and occupation were collected.

Preoperatively a thorough slit lamp examination was done including visual acuity and location of the pterygium. In cases of bilateral pterygia the more aggressive one was excised.

Systemic investigations such as blood pressure and random blood sugar were done and Written consent was obtained.

These patients were followed up post operatively at Day 1, 1 week, 1 month, 3 months, 6 months upto 1 year and recurrence and its time were noted.

Inclusion Criteria: All patients who presented with Primary pterygium.

Exclusion Criteria: Patients with recurrent ptergium, pseudopterygium, dry eye disease, collagen vascular disorders , those patients using antimetabolites such as Mitomycin C and 5–Flourouracil and those who lost follow up were excluded from the study.

Surgical Technique

5 ml of peribulbar block was given to attain anaesthesia.

10% povidone iodine was used to paint the skin and 5% povidone iodine instilled onto the conjunctiva.

Universal eye speculum was used to retract the lids and expose the globe.

The pterygium head was dissected using crescent blade and the cornea was scraped till the remnant tissue was removed. The body was dissected and separated from the conjunctiva and sclera using blunt holding forceps and westcott scissors taking care to avoid the rectus muscles.

In Group 1 patients, the pterygium was excised with westcott scissors and the sclera was left bare.

In Group 2 patients, after pterygium excision, a site for Limbal conjunctival autograft was selected from the superotemporal quadrant. 2% lignocaine was injected subconjunctivally to separate the conjunctiva from the underlying tenon's capsule.

The size of the graft is taken approximately 1mm larger than the defect created by pterygium excision on the conjunctival side and upto the limbus on the corneal side. The graft is rotated and placed on the bare sclera maintaining the limbus to limbus orientation. The sides of the graft were tucked into the adjacent conjunctiva i:e; the no glue no stitch technique.

The speculum was removed and pad and bandage applied for a day.

Postoperatively topical antibiotics were prescribed to Group 1 patients and Antibiotic steroid combination was given to Group 2 patients.

Follow up was done on Day 1, 3, 1 week, 1 month, 3 months, 6 months and 1 year and recurrence was noted.

Observation and Results

Table 1: Age wise distribution of Pterygium recurrence in Bare sclera vs conjunctival autograft technique.

In the 20–30 age group, 2 patients(50%) showed recurrence in group 1 and 0patients(0%) showed recurrence in group 2.

In 31–40 year age group, 9 patients (52.90%) showed recurrence in group 1 and 1patient (5%) showed recurrence in group 2.

In 41–50 years age group, 4 patients (19.04%) showed recurrence in group 1 and 1 patient (5%) showed recurrence in group 2.

Table 1: Distribution based on Age.

Age	No of Patients	Bare Sclera			Conjuctival Autografting		
		No of Pts	Recurrence	%	No of Pts	Recurrence	%
20–30	7	4	2	50%	3	0	0
31–40	34	17	9	52.90%	17	1	5.55%
41–50	41	21	4	19.04%	20	1	5%
51–60	25	12	2	16.66%	13	0	0
61 & above	13	6	1	16.66%	7	0	0
Total	120	60	18	30%	60	2	3.33%

Table 2: Distribution based on Sex.

Sex	No of Patients	Bare Sclera			Conjuctival Autografting		
		No of Pts	Recurrence	Rate	No of Pts	Recurrence	Rate
Male	82	41	16	39.02%	41	1	2.43%
Female	38	19	4	21.05%	19	0	0%
Total	120	60	20	33.33%	60	1	1.66%

Table 3: Distribution based on occupation.

Occupation	Total No of Pts	Bare Sclera Technique			Conjuctival Autografting		
		No of Pts	Recurrence	Rate	No of Pts	Recurrence	Rate
Outdoor	88	44	18	40.90%	44	1	2.27%
Indoor	32	16	6	4.25%	16	0	0%
Total	120	60	24	40%	60	1	1.66%

Table 4: Distribution based on Pterygium location.

Location	Total No of Pts	Bare Sclera Technique			Conjuctival Autografting		
		No of Pts	Recurrence	Rate	No of Pts	Recurrence	Rate
Nasal	85	43	14	32.55%	42	1	2.38%
Temporal	35	17	4	23.52%	18	1	5.55%
	120	60	18	30.50%	60	2	3.33%

Table 5: Comparative study of recurrence rate among various study of the world.

Studied by	Bare sclera technique		Conjuctival autogafting	
	No of pts	Recurrence rate	No of pts	Recurrence rate
Alpay et al 2009	21	8(38.09%)	18	3(16.6)
Khan et al 2010	30	11(36.6%)	34	3(8.82)
Ahmed et al 2012	15	06(40%)	15	1(6.66)
Kompalli et al 2016	25	6(24%)	25	2(8)
Present study	60	18(34.66%)	60	2(3.3)

In 51–60 years age group, 2 patients (16.66%) showed recurrence in group 1 and 0 patients (0%) showed recurrence in group 2.

In 61 years and above age group, 1 patient (16.66%) showed recurrence in group 1 and 0 patients (0%) showed recurrence in group 2.

18 patients (30%) out of 60 showed recurrence in group 1 where as in group 2, 2 patients (3.33%) out of 60 showed recurrence.

Table 2: Sex wise distribution of pterygium recurrence.

Out of the 120 patients presented 82 were male and 38 were female.

In group 1, 16 male patients (39.02%) out of 41 showed recurrence whereas in group 2, 1 male patient (2.43%) out of 41 patients showed recurrence.

4 female patients (21.05%) out of 19 in group 1 whereas 0 patients (0%) out of 19 in group 2 showed recurrence.

Irrespective of gender Group 1 patients showed more recurrence (33.3%) compared to group 2 (1.66%).

Pterygium occurred more commonly in outdoor.

Table 3: Incidence of pterygium recurrence based on occupation.

In this study 88 patients out of 120 were employed in outdoor occupation and 32 stayed in indoors.

There was a high incidence of recurrence noted in Group 1, 18 patients (40.90%) out of 44 patients as compared to group 2, 1 patient (2.27%) out of 44 showed recurrence in people employed in outdoor.

In indoor recurrence is noted more in group 1 compared to group 2.

Table 4: Pterygium recurrence based on location.

Pterygium mostly occurred nasally 76 out of 120 followed by temporally 32 out of 120 and least commonly occurred bilaterally 12 out of 120.

14 patients (36.8%) out of 38 in Group 1 and 1 (2.63%) out of 38 in Group 2 showed recurrence with nasal pterygia.

4 (25%) patients out of 16 in Group 1 and 1 (6.25%) out of 16 in Group 2 showed recurrence temporally.

2 (33.33%) patients out of 6 and 0 patients(0%) out of 6 showed recurrence who presented with bilateral pterygium.

Discussion

Pterygium is a common disease especially in tropical countries like India mainly due to hot and dusty climate. Various surgical techniques have been devised to prevent the recurrence of ptergium but Conjunctival autografting remains the most effective method with least recurrence rates.[10–13] This finding is in correlation to our study.

This study compares the two commonly performed procedures Bare Sclera vs Conjunctival Autografting in 120 patients who were grouped into two categories, 60 patients (Group 1) underwent Bare sclera technique and 60 patients (Group 2) underwent Conjunctival Autografting. The recurrence was found to be significantly higher in Group 1 as compared to Group 2.

Limbal stem cells act as a barrier against conjunctival invasion of the cornea which explains the lower recurrence rates in conjunctival autografting technique.[14]

The incidence of pterygium was found to be higher in individuals in the younger age group (<40 years), these patients also showed higher recurrence due to increased fibroblastic and inflammatory activity.

Males and people employed in outdoor occupations such as farmers and drivers showed higher incidence of pterygium due to exposure to ultraviolet radiations.[15] These patients showed more recurrence with Bare sclera technique.

Nasal location is the commonest site for the occurrence of pterygium due to focusing of ultraviolet radiation in that area. Nasal pterygia showed higher recurrence with Bare Sclera technique.

The average time after which pterygium recurrence was noted is 1 year.

The average time duration for the recurrence of ptergium is approximately 1 year post surgical excision.[16]

Conclusion

Higher incidence of pterygium is observed in young males, outdoor workers and on the nasal side. Bare sclera technique has higher recurrence rates compared to Conjunctival autografting. Hence, Limbal conjunctival autografting proves to be an efficient, safe and cost effective technique to prevent pterygium recurrence.

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