

A Comparison between Conjunctival Autograft with Bare Sclera Technique in Pterygium Excision and Its Recurrence

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Abstract

Background: Pterygium is a fibrovascular growth that originates from conjunctiva encroaching onto the cornea. This study deals with the comparison between conjunctival autograft with bare sclera technique in pterygium excision and its recurrence. Several surgical and adjunctive medical therapies have been tried to reduce the fibrovascular activity and recurrence rate but none of its where universally accepted. This study might take an important role during treatment of pterygium.

Methods: This study was done in the Kamlesh Netralaya Hospital, Ambikapur, Surguja, Chhattisgarh, between the periods of 2016 and 2018. A total of 120 eyes diagnosed with pterygium, of which 70 eyes operated with conjunctival autograft technique and 50 eyes were operated with bare sclera technique selected for this study. The patients with hypertension, diabetes mellitus, cataracts, dry eye syndrome, and pseudopterygium were excluded, and every patient has to fill a consent form. Slit-lamp examinations and routine investigation were done before the procedure. Post-operative follow-up visits of patients were scheduled and during follow-up visit operated eye was examined under slit lamp, and complication was recorded in tabulated form.

Results: The present study was done on 120 eyes diagnosed with pterygium, of which 70 eyes (42 males and 28 females) operated with conjunctival autograft technique and 50 eyes (28 males and 22 Females) were operated with bare sclera technique selected for the study. Mean age in conjunctival autograft technique was 45.05, maximum age was 65, and minimum age was 30 wherein bare sclera technique mean age was 53.76, maximum age was 60, and minimum age was 45. The recurrence rate in conjunctival autograft technique was nil and recurrence rate in bare sclera technique was 4 (8%). In this study, 96 (80%) eyes (patients) are having an outdoor occupation and 24 (20%) eyes (patients) having indoor occupation, respectively.

Conclusion: The present study revealed that conjunctival autograft technique having a minimum or nil recurrence rate of pterygium compared with bare sclera technique. Incidence of pterygium was more in male compared to female and pterygium was common inpatient having outdoor occupation compare to indoor. Hence, this studies useful for an ophthalmologist, clinicians for proper clinical diagnosis and treatment of disease.

Key words: Bare sclera technique, Conjunctival autograft technique, Occupation, Pterygium, Recurrence rate

INTRODUCTION

Pterygium was derived from Greek word Pterygos = little wing. 3000 years ago pterygium was recognized. Susrutha describes pterygium way back in 1000 B.C. in India, and

it was also distinguished by Hippocrates, Galen, Celsius, etc. Pterygium defined as a wing-shaped, benign condition characterized by fibrovascular growth that originates from conjunctiva encroaching onto the cornea. This is showing with high ultraviolet radiation (UVR) and some other environmental pathogenesis such as dry eye, wind, dust, heat, infection, smoke, chemicals, and pollens play an important role.^[1] The risk of pterygium is higher with an occupation such as salt workers, postmen, policemen, and limited health service due to long exposure of sunlight.^[2] The exact cause or pathogenesis of pterygium is still not completely unstated.^[3] Asia and other countries around the world located between 37° north and 37° south of the

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www.ijss-sn.com

Month of Submission : 03-2018

Month of Peer Review : 04-2018

Month of Acceptance : 04-2018

Month of Publishing : 05-2018

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equator is known as extends of pterygium belt. Pterygium disease is common in this equatorial belt.^[4] Pterygium is a common disease in Indian rural areas because India is located in a “within a peri-equatorial ‘pterygium belt’ of latitudes.”^[5] The incidence of pterygium is more in male compared to female.^[6] Morphology pterygium having three parts: The cap (flat zone on the cornea that consists mainly of fibroblasts that occupy and obliterate Bowman’s membrane), the head (vascular region that lies behind the cap and attached to the cornea), and the body/tail (the movable region of the bulbar conjunctiva, which can be dissected from the underlying tissue).^[7]

Surgical techniques which have been commonly used for the excision of pterygium are bare sclera, conjunctival autograft, and amniotic membrane transplantation, but none of its where universally accepted because of variable recurrence rates. Thus, the adjunctive medical therapies have been included into the management of pterygium and they are conjunctival flaps, lamellar keratoplasty, mucous membrane grafts, chemotherapy by Thiotepa, radiation therapy by radon bulbs, radium plaques, beta irradiation ablation with erbium YAG laser, smoothing the corneal surface with excimer laser, and antimetabolite such as 5-fluorouracil and Mitomycin c but all these adjunctive medical therapies have their own potential side effects.^[8]

The aim of present study was to a comparison between conjunctival autograft with bare sclera technique in pterygium excision and its recurrence.

MATERIALS AND METHODS

The present study was conducted in the Kamlesh Netralaya Hospital Ambikapur, Surguja, Chhattisgarh, between the period of 2016 and 2018. A total of 120 eyes diagnosed with pterygium, of which 70 eyes (42 males and 28 females) operated with conjunctival autograft technique and 50 eyes (28 males and 22 females) were operated with bare sclera technique selected for the study. All patients, i.e. male and female patients in the age group of 20–70 years were included in this study. The patients having hypertension, diabetes mellitus, cataracts, dry eye syndrome, pseudo pterygium were excluded from the study. Every patient have to fill a standard proforma consent form which included Name, age, sex, address etc., after explaining the procedure. Occupation (Outdoor, Indoor) and family history of Pterygium taken from hospital record.

Pre-operative Procedure

Xylocaine sensitive test is done, routine investigations such as blood pressure, complete blood count, random blood sugar, and detailed slit-lamp examinations were done before

the operation. Intramuscular in gluteal region tetanus toxoid vaccine was given to the patients before procedure shown in Figures 1 and 2.

Operative Procedure

The patient was shifted to the operation theater placed in supine position in operation table. Thorough cleaning of eye to be operated was done with betadine 7.5% solution i.e. povidone iodine solution. Peribulbar block 5 ml local anesthesia was administered which 2% lidocaine, adrenaline, and 01% bupivacaine. Now lid wire speculum placed in the eyelid for proper viewing of the operation site. The pterygium body was hold with tooth forceps and separated gently including the adjacent tenon’s capsule with the help of crescent knives (D-Blade), and after separation of mass, it was dissected with corneoscleral scissors without damage to medial rectus muscle and surrounding area this technique is known as Bare sclera technique shown in Figure 3. Now the bare sclera of the eye was cleaned with normal saline and measured with a Vernier Caliper. The graft tissue was taken from superior

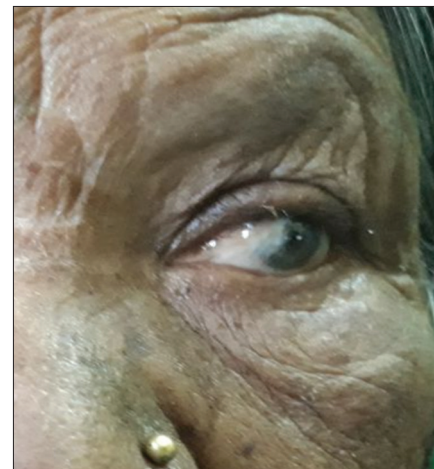


Figure 1: Pre-operative pterygium



Figure 2: Pre-operative pterygium

sclera according to the measurement of caliper 0.5 mm additional. Then this graft tissue was placed on bare area of sclera and it was sutured using 10.0 silk and fix by applying 4–5 suture in the autograft tissue this procedure is known as conjunctival autograft technique shown in Figure 4. Now the antibiotic ointment was applied and pad bandage done.

Post-operative Procedure

Bandage opened after 12 h of surgery. Antibiotic and prednisolone eye drop was prescribed 6 times per day for 1 month in tapering dose. Oral tablets such as Diclofenac and serratiopeptidase were given B.D for 3 days from the day of surgery. Post-operative follow-up visits of patients were scheduled 1st day, 1st week, 1st month, 3rd month, and 6th month. During follow-up operated eye was examined under slit lamp, and complication such as pterygium recurrence, visual acuity, and corneal perforation was recorded. All the data were recorded in tabulated form.



Figure 3: Bare sclera technique post-operative



Figure 4: Conjunctival autograft technique post-operative

RESULTS

The present study was done on 120 eyes diagnosed with pterygium, of which 70 eyes (42 males and 28 females) operated with conjunctival autograft technique and 50 eyes (28 males and 22 females) were operated with bare sclera technique selected for the study. All patient lies in the age group of 20–70 years were included in this study. Mean age in conjunctival autograft technique was 45.05, maximum age was 65, and minimum age was 30 wherein bare sclera technique mean age was 53.76, maximum age was 60, and minimum age was 45 shown in Table 1. The recurrence rate in conjunctival autograft technique was nil and recurrence rate in bare sclera technique was 4 (8%) in this study. In this study, 96 (80%) eyes (patients) are having an outdoor occupation and 24 (20%) eyes (patients) having indoor occupation shown in Table 2.

DISCUSSION

Pterygium is a fibrovascular wing-shaped encroachment from conjunctiva onto the cornea. It is a common disease in India because India located “within a peri-equatorial ‘pterygium belt’ of latitudes.”^[5] UVR especially UVR-A and UVR-B (290–400 nm), hot and dusty climate is a frequent environmental risk factor for the development of

Table 1: Distribution of pterygium based on age and gender

Age (year)	Conjunctival autograft technique		Bare sclera technique	
	Male	Female	Male	Female
20–30	0	01	0	0
31–40	11	14	0	0
41–50	13	10	05	04
51–60	17	01	23	18
61–70	01	02	0	0
Number of eye	42	28	28	22
Total number of eye	70		50	
Mean age	45.05		53.76	
Maximum	65		60	
Minimum	30		45	

Table 2: Classification based on occupation

Technique	Number of eye	Occupation	
		Outdoor	Indoor
Conjunctival autograft technique	70	55	15
Bare sclera technique	50	41	09
Total (%)	120 (100)	96 (80)	24 (20)

Table 3: Comparative studies of recurrence rate among the various study of world.

Studied by	Conjunctival autograft technique		Bare sclera technique	
	Number of Patients	Recurrence rate	Number of patients	Recurrence rate
Alpay <i>et al.</i> 2009[10]	18	3 (16.6%)	21	8 (38.09%)
Khan <i>et al.</i> 2010[8]	34	03 (8.80)	30	11 (36.6)
Ahmed <i>et al.</i> 2012[11]	15	01 (6%)	15	06 (40%)
Kompalli 2016[12]	25	2 (8%)	25	6 (24%)
Present study	70	0	50	04 (8%)

pterygium.^[3] The excision of pterygium with bare sclera was commonly used technique but recurrence rate was more compared to conjunctival autograft technique and operation time is less in bare sclera technique. Conjunctival autograft technique was first describe in 1985.^[8]

This study reveals the comparison between conjunctival autograft with bare sclera technique in pterygium excision and its recurrence. The present study was done on 120 eyes diagnosed with pterygium, of which 70 eyes (42 males and 28 females) operated with conjunctival autograft technique and 50 eyes (28 males and 22 females) were operated with bare sclera technique selected for the study. All patient lies in the age group of 20–70 years were included in this study. Mean age in conjunctival autograft technique was 45.05, maximum age was 65, and minimum age was 30 wherein bare sclera technique mean age was 53.76, maximum age was 60, and minimum age was 45 shown in Table 1.

In this study, incidence of pterygium is more common in male than female which correlates with the study of Shah *et al.*^[9] and Khan *et al.*^[8]

In this study, recurrence rate in conjunctival autograft technique was nil and recurrence rate in bare sclera technique was 4 (8%) which correlates with the study of Khan *et al.*,^[8] Alpay *et al.*,^[10] Ahmed *et al.* 2012,^[11] and Kompalli 2016^[12] shown in Table 3.

In this study, 96 (80%) eyes (patients) having an outdoor occupation and 24 (20%) eyes (patients) having indoor occupation which correlates with the study of Salagar and Biradar^[13] shown in Table 2.

CONCLUSION

The present study exposed that conjunctival autograft technique having a minimum or nil recurrence rate of pterygium compared with Bare Sclera Technique. Incidence

of pterygium was more in male compared to female and pterygium was common inpatient having outdoor occupation compare to indoor.

Hence, this studies useful for an ophthalmologist, clinicians for proper clinical diagnosis and treatment of disease.

ACKNOWLEDGMENT

We would like to thanks all the staffs, faculty who supported us during this study.

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How to cite this article: Jain A. A Comparison between Conjunctival Autograft with Bare Sclera Technique in Pterygium Excision and Its Recurrence. *Int J Sci Stud* 2018;6(2):123-126.

Source of Support: Nil, **Conflict of Interest:** None declared.