

## ORIGINAL ARTICLE

**Comparison of Conjunctival Autograft Versus Bare Sclera Technique as Treatment Modalities for Primary Pterygium**SOHAIB AFZAL<sup>1</sup>, FARAH QAMAR<sup>2</sup>, SAFEET SHAHBAZ KHAN<sup>3</sup>, MUHAMMAD AHMED<sup>4</sup>, SHUJAH UR REHMAN<sup>5</sup>, RABBIA QAMMER<sup>6</sup><sup>1</sup>Senior registrar, Department of Ophthalmology, Shahida Islam Medical and Dental College<sup>2</sup>Final Year MBBS, Quaid-e-Azam Medical College<sup>3</sup>Senior Registrar, Department of Ophthalmology, Bakhtawar Amin Memorial Trust Hospital / Bakhtawar Amin Medical College<sup>4</sup>Post Graduate Resident, Department of Ophthalmology, Jinnah Hospital Lahore<sup>5</sup>PGR-4, Department of EYE, UNIT 3, Mayo hospital Lahore<sup>6</sup>Resident Trainee of Ophthalmology, CMH PeshawarCorresponding author: Sohaib Afzal, Email: [Sohaib.afzal03@yahoo.com](mailto:Sohaib.afzal03@yahoo.com)**ABSTRACT****Background:** Pterygium is a fibrovascular conjunctival growth within the palpebral fissure extending onto the corneal surface. Recurrence is a common post-op complication of pterygium excision surgery, with various rates depending on the techniques used for its excision.**Objective:** Comparison of conjunctival autograft versus bare sclera technique as treatment modalities for primary pterygium.**Material & Methods:** This study was done in the Department of Ophthalmology of tertiary care hospital. In a prospective randomized controlled trial a sample size of 102 eyes with primary pterygium were allocated into two equally sized groups (51 patients in each): Group A underwent pterygium excision by bare sclera method, Group B underwent pterygium excision followed by conjunctival autograft. Both groups were analyzed and compared, for recurrence and complications with a mean follow-up time of 3 months.**Result:** Pterygium recurrence was detected in 16 (31.37%) patients using bare sclera technique (group A) and in 4 (7.84%) patients using conjunctival autograft technique (group B), that reveal a statistically significant difference ( $p = 0.003$ )**Conclusion:** Both surgical techniques are effective for pterygium excision but there is a statistically significant difference ( $p = 0.003$ ) of pterygium recurrence between both techniques. Pterygium excision with conjunctival autograft should opt for better results in terms of recurrence as well as other complications. Bare sclera technique can be opted for preserving conjunctiva in case of glaucoma or scarring but at the expense of pterygium recurrences.**Keywords:** Pterygium, conjunctival autograft technique, bare sclera, recurrence.**INTRODUCTION**

Pterygium is an abnormal growth of fibrovascular tissue on the surface of the cornea.<sup>1</sup> Astigmatism is the primary cause of decrease visual acuity, as it extends over the peripheral cornea progressively and cause mechanical traction on the cornea, or it may block the visual axis due to stromal fibroblasts overgrowth accompanied by inflammatory cells.<sup>2</sup> Other complaints of advanced pterygium are glare sensitivity, poor contact lens fitting, and monocular diplopia. Morphologically pterygium have 3 parts consists of a head, body and cap. On the basis of extension over the cornea, it is divided into three grades, Grade I (less than 2mm on the cornea) Grade II (2 to 4mm) and Grade III (more than 4 mm/in the visual axis).<sup>3</sup> Ultraviolet radiation is considered to be the major precipitating factor, despite of no evidentiary proof, other than warm dusty climate, dry eyes, etc. The reported prevalence of pterygium is 2-7% worldwide and its recurrence,<sup>4</sup> which is the most common post-op complication after excision, varies from 24-89%.<sup>5</sup> Early pterygia are managed conservatively by ocular lubricants and eye wears to block ultraviolet radiation. Different surgical techniques including, bare sclera, conjunctival autografting, primary conjunctival closure, amniotic membrane graft as well as an adjuvant modalities such as mitomycin C (MMC),  $\beta$  radiation, thiotepa, to inhibit the recurrence, are used for the treatment of advanced pterygia when they obscure the visual axis.<sup>6</sup> Conjunctival autografting has been reported with desired outcomes as limbal epithelium in the conjunctival autografting maintains the barrier function as compared to bare sclera technique of excision, which is less time consuming method.<sup>7,8</sup>

**Objective:** Comparison of conjunctival autograft versus bare sclera technique as treatment modalities for primary pterygium.**MATERIALS AND METHODS**

This study was conducted in Ophthalmology department. In a randomized controlled trial a total of 102 eyes with primary pterygium. Each group contained 51 patients and calculated as Level of confidence ( $\alpha$ ) = 5%, Power of study ( $1-\beta$ ) = 80%, taking pterygium recurrence in 22.85% cases using bare sclera technique and in 5.71% cases using conjunctival autograft technique. All

patients were recruited by applying Non-probability, purposive sampling technique. Patients of age 20-60 years, both genders presenting with pterygium involving at least 1mm of the cornea causing astigmatism, are included. But patients with a history of ocular trauma, previous ocular surgery, taking anti-glaucoma medications, and recurrent pterygium were not included. Informed consent was taken from all subjects after providing complete details about nature of study. 102 patients fulfilling the criteria of inclusion were selected and admitted to the Ophthalmology department. All selected cases were randomized into two groups pre-operatively and were operated by the same consultant ophthalmologist. In Group A (bare sclera technique) patients, after incising conjunctiva just medial to the head of a pterygium, with the help of Westcott's scissors the body of pterygium was dissected from conjunctiva. Same process is repeated toward underline conjunctiva of fornix and caruncle, avoiding any conjunctival button-holing. Fibrous tissue on the cornea was scrapped off with No. 15 blade. In group B (conjunctival autograft technique) patients, the pterygium was resected first as in bare sclera technique. The size of the conjunctival graft was determined using calipers and excised. A limbus-limbus orientation was maintained of the conjunctival autograft. The graft was secured using interrupted 10-0 nylon sutures. Post operatively patients in both groups received same regimen of topical moxifloxacin with dexamethasone eye drops every 2 hourly for the first postoperative week and then tapered over next 5-6 weeks, tablet diclofenac (50 mg) twice daily for 3 days and 1% atropine eye ointment twice daily for 3 days. Both groups were analyzed and compared fortnightly in terms of recurrence and complications for 3 months. Demographic and clinical data was statistically analyzed using statistical package SPSS, version 20.0, for Windows (SPSS Inc., Chicago, Illinois, USA). Numerical data were presented as mean  $\pm$  SD while categorical data were presented as frequency and percentage. A comparison between the groups with respect to the outcome was analyzed by chi square. P value  $\leq 0.05$  was considered as significant.

## RESULTS

Table 1: Demographic and clinical data of patients in the bare sclera and conjunctival autograft groups.

Characteristics	Bare sclera technique	Conjunctival autograft technique
Age Mean $\pm$ SD Range	41.90 $\pm$ 9.65 20-60	43.82 $\pm$ 8.90 20-60
Sex Male Female	32 (62.75) 19 (37.25)	32 (62.75) 19 (37.25)
Laterality Right Left Bilateral	25 (49.02) 18 (35.29) 08 (15.69)	23 (45.10) 26 (50.98) 02 (3.92)
Residence Urban Rural	26 (50.98) 25 (49.02)	30 (58.82) 21 (41.18)

The study conducted on 102 eyes of 102 patients that randomly categorized into either Bare sclera group(A) (n = 51) or Conjunctival autograft group(B) (n = 51) and followed postoperatively for 3 months. In bare sclera group(A), there were 32 (62.75%) males and 19 (37.25%) females with age ranged from 20-60(years) with  $\pm$  SD value 41.9  $\pm$  9.65 while in conjunctival autograft group(B) there were 32 (62.75%) males and 19 (37.25%) females with age ranged from 20-60(years) with  $\pm$  SD value 43.82  $\pm$  8.90.

Table 2: Comparison of outcome in terms of recurrence.

		Bare sclera technique		Conjunctival autograft technique	
		Cases	%age	Cases	%age
Recurrence	Yes	16	31.37	04	7.84
	No	35	68.63	47	92.16

P value is 0.003 which is statistically significant.

The conjunctival autograft technique (group B) had a significantly lower number of recurrences i.e. 04 (7.84%) patients as compared to 16 (31.37%) patients using bare sclera technique (group A) with a p-value of 0.003 as shown in Table 2.

## DISCUSSION

This study was conducted to analyze and compare two surgical techniques, to optimize pterygium excision surgery, in terms of its recurrence, complications, and better cosmesis. Bare sclera technique, as once popular among surgeons initially, is now replaced by variety of new adjunctive methods with aim of reducing the complications and recurrence post-operatively.<sup>9</sup> An autologous conjunctival graft reduces the risk of scleral necrosis. Lower recurrence rate in conjunctival autograft technique is mainly due to barrier formed by normal conjunctiva and it restricts the abnormal growth of proliferative tissue toward limbus. In this study, we observed male predominance over females, as they are more prone to the harsh and dusty environments and more exposed to ultraviolet radiations due to outdoor activities. Khan N also reports male dominance as his data have 63% males and 37% females cases.<sup>10</sup> Middle age group is predominant in our data (42.45  $\pm$  9.13 years) ranging from 41-60 years of age i.e. 63 (61.76%) also reported by Salagar KM et al<sup>11</sup> and Rao SK et al.<sup>12</sup> In 1985, Kenyon et al. first described the conjunctival autograft technique with a recurrence rate of 5.3%.<sup>13</sup> In our study, we observed the recurrence rate of 7.84% (n=4) using a conjunctival autograft technique and 31.37% (n=16) using the bare sclera technique, compared to Narsani AK who reported 7.69% of recurrence in 2008.<sup>14</sup> The findings in our study are in agreement with the

forementioned articles. This study had some limitations, as it did not address the visual outcome after the removal of pterygium. Pterygium can cause a reversible decrease in visual acuity, and restoration of vision is an important indication for its excision. Changes in keratometry and astigmatism should also be considered when planning pterygium surgery besides its recurrence and cosmesis. Other post-op complications of pterygium excision should also be considered such as infection, granuloma, perforation, hemorrhage, and conjunctival scarring besides its recurrence. Other surgical techniques should also be considered especially in patients with conjunctival scarring, chronic use of topical medications such as glaucoma, and the role of the use of adjunctive therapies.

## CONCLUSION

Both surgical techniques are effective for pterygium excision but there is a statistically significant difference (p = 0.003) of pterygium recurrence between both techniques. Pterygium excision with conjunctival autograft should opt for better results in terms of recurrence as well as other complications even in patients of primary surgery of pterygium. Bare sclera technique can be opted for preserving conjunctiva in case of glaucoma or scarring but at the expense of pterygium recurrences.

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