

# Pterygium Excision Bare Sclera Technique versus Autologous Conjunctival Autograft: A Prospective Study

Isha, Govind Kumar

Government Medical College, Doda, Jammu and Kashmir, India

## Abstract

**Introduction:** Pterygium is a fibrovascular growth encroaching from the conjunctiva into the cornea. This study deals with the comparison of conjunctival autograft and bare sclera technique as treatment options for pterygium.

**Materials and Methods:** This study was done in the Ophthalmology Department of Government Medical College, Doda, Jammu and Kashmir. A total of 100 patients, diagnosed of pterygium were taken for the study, out of which 60 patients were operated on with conjunctival autograft and 40 patients were operated with bare sclera technique. Patients with hypertension, diabetes mellitus were excluded from the study. Post-operative complications and recurrence were noted. All the patients were between the age group of 20–65 years.

**Results:** The maximum age was 63 and the minimum age was 23 in conjunctival autograft whereas in bare sclera technique, the maximum age was 64 and the minimum age was 22. The recurrence rate of pterygium in conjunctival autograft was 1 (1.67%) and the recurrence rate of pterygium in bare sclera technique was 6 (15%).

**Conclusion:** The present study revealed that conjunctival autograft was a better treatment option compared to the bare sclera technique for excision of pterygium.

**Key words:** Conjunctival autograft, Fibrovascular Growth, Pterygium

## INTRODUCTION

Pterygium, a wing-shaped fibrovascular growth of the bulbar conjunctiva, is a common chronic ophthalmic condition.<sup>[1,2]</sup> Although pterygium is generally regarded as a benign and cosmetic concern, without proper treatment, it may result in significant visual morbidity or even potentially blindness in extreme stages.<sup>[3,4]</sup> Pterygium is commonly seen in India, which is a part of the pterygium belt.<sup>[5]</sup> It is a potentially blinding disease in the advanced stage when it encroaches visual axis, which can have significant impact on vision and require surgery for visual rehabilitation.<sup>[6]</sup> Although the etiology of pterygium is unclear, the most

common risk factor is ultraviolet light exposure, which induces oxidative stress and the expression of cytokines and growth factors in pterygial epithelial cells, initiating the cellular proliferation, blood vessel formation, tissue invasion, and inflammation.<sup>[7]</sup> Meanwhile, other confirmed risk factors include dry, warm, dusty climates; high winds; age; and sex.<sup>[8]</sup> Several modes of inheritance have also been reported such as autosomal-dominant, autosomal-recessive, sex-linked, and non-Mendelian modes of inheritance.<sup>[9]</sup>

Surgical techniques which have been commonly used for the excision of pterygium are bare sclera, conjunctival autograft, and amniotic membrane transplantation, but none of it is 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 Thiotepea, radiation therapy by radon bulbs, radium plaques, beta irradiation ablation with erbium YAG laser, smoothing the corneal

Access this article online



www.ijss-sn.com

**Month of Submission :** 02-2022  
**Month of Peer Review :** 03-2022  
**Month of Acceptance :** 03-2022  
**Month of Publishing :** 04-2022

**Corresponding Author:** Dr Govind Kumar, Government Medical College, Doda, Jammu and Kashmir, India.

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.<sup>[10]</sup>

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

### **Aims and Objectives**

The aim of the study was to evaluate the efficacy, safety, and recurrence rates of conjunctival autograft and bare sclera techniques in the treatment of pterygium.

## **MATERIALS AND METHODS**

The present study was conducted in the Government Medical College Doda, Jammu and Kashmir, between the period of 2019 and 2021. A total of 100 eyes diagnosed with pterygium, of which 60 eyes (37 males and 23 females) operated with conjunctival autograft technique and 40 eyes (26 males and 14 females) were operated with bare sclera technique selected for the study. All patients, that is, male and female patients in the age group of 20–65 years were included in this study. Both the genders were enrolled in the study. The patients having hypertension, diabetes mellitus, cataracts, dry eye syndrome, and pseudo pterygium were excluded from the study. All the patients were told to fill up the name, age, and sign in the standard consent form after explaining the surgery and the study.

These were all primary patients with Grade I to Grade II pterygium. Pterygium was graded depending on the extent of corneal involvement: Grade I – crossing the limbus, Grade II – mid-way between limbus and pupil, Grade III – reaching up to pupillary margin, and Grade IV – crossing pupillary margin. Surgeries were performed by one surgeon with the same protocols so as to avoid any surgical bias.

### **Pre-operative Procedures**

Routine investigations such as blood pressure complete blood count, blood sugar test, and detailed slit lamp examination were done before the operation.

### **Operative Procedure**

In case of bare sclera technique, only topical anesthesia (Proparacaine eye drop) was used. Barraquer wire speculum was used to open and hold the lids. Body of pterygium is dissected about 4 mm from limbus, down to bare the sclera and reflected over cornea. The pterygium head is avulsed using Lims forceps and crescent blade. Remnants over cornea were cleaned with crescent blade. Hemostasis was achieved with bud. Pad and Bandage were done for 24 h. Patient was called next day. Antibiotic steroid eye

drops were given for 4 weeks and NSAID on as and when required.

For conjunctival Autograft technique, peribulbar anesthesia is given using Xylocaine 2% with adrenaline. Speculum is used to open the eye. All surgeries were performed under operating microscope. Superior rectus bridle suture is used to stabilize the eyeball and to ensure good exposure of donor area. Body of pterygium is dissected about 4 mm from limbus, down to bare the sclera and reflected over cornea. The pterygium head is avulsed using Lims forceps and crescent blade. Remnants over cornea were cleaned with crescent blade. Hemostasis was allowed to occur spontaneously without the use of cautery as littleoozing is useful as it helps in adherence of graft to the bed.<sup>[11]</sup>

As the donor site is usually superior or supero-temporal, sub conjunctival injection of local anesthetic solution is given to separate the conjunctiva from the tenon. Dissection between conjunctiva and tenon capsule is done so as to get a 1 mm oversize graft without tenon's tissue. The limbal edge of the graft was cut to contain a thin rim of corneal epithelium. The recipient bed is dried with cellulose sponge and graft was quickly flipped over to the sclera. Proper orientation was maintained, with the epithelium side up and the limbal edge toward the limbus.<sup>[11]</sup> Graft was pressed for 3–5 min. Graft stabilization was checked with a spear and speculum was removed. No sub conjunctival injection is given postoperatively because of fear of graft displacement. Pad and bandage were done for 24 h. Patients were called for follow-up after 1 day.

### **Post-operative Procedures**

Bandage is opened after 24 h of surgery. Then antibiotic steroids combination eye drop and lubricating eye drop are prescribed for 4 weeks tapering and NSAID as and when required. Post-operative follow-up is done to see any recurrence or complications are present and are recorded. Data are recorded in tabulated form. The criterion for recurrence was determined as invasion of cornea more than 1 mm in diameter beginning from the limbus by fibrovascular tissue derived from the operation site.<sup>[12-14]</sup>

## **RESULTS**

The present study was done on 100 eyes diagnosed with pterygium, of which 60 eyes (37 males and 23 females) operated with conjunctival autograft technique and 40 eyes (26 males and 14 females) were operated with bare sclera technique selected for the study. All patients were in the age group of 20–65 years. The recurrence rate in conjunctival autograft technique was 1 (1.67%) and

recurrence rate in bare sclera technique was 6 (15%) in this study. In this study, 71 (71%) eyes (patients) are having an outdoor occupation and 29 (29%) eyes (patients) having indoor occupation. Comparing the groups, revealed that recurrence was higher in the bare sclera group 6 cases out of 40 (15%) as compared to the conjunctival autograft group that is 1 case out of 60 (1.67%).

## DISCUSSION

In this study, recurrence rate in conjunctival autograft technique was 1 (1.67%) and recurrence rate in bare sclera technique was 6 (15%). Khan *et al.*<sup>[10]</sup> also reported more recurrence in bare sclera 11 (36.6%) as compared to 3 (8.8%) in conjunctival autograft. In the study conducted by Alpay *et al.*,<sup>[15]</sup> recurrence was more in bare sclera technique 8 (38.09%) than conjunctival autograft 3 (16.6%). Results in our study are also in accordance of the results found by Ahmed *et al.*<sup>[16]</sup> where recurrence in bare sclera was 6 (40%) and conjunctival autograft was 1 (6%).

In this study, 71 (71%) eyes (patients) had an outdoor occupation and 29 (29%) eyes (patients) had an indoor occupation consistent with the study conducted by Beki-Bele *et al.*, wherein he stated that outdoor occupation is an independent risk factor for the development of pterygium.<sup>[17]</sup> Study conducted by Salagar *et al.*<sup>[18]</sup> also showed prevalence of pterygium more in outdoor workers 96 (80%) then indoor workers 24 (20%).

## CONCLUSION

This study stated that conjunctival autograft was a better treatment options compared to bare sclera technique as it has lesser recurrence rate and indicated that the incidence of pterygium is more common in patient having outdoor occupation compare to indoor.

## REFERENCES

1. Wong TY, Foster PJ, Johnson GJ, Seah SK, Tan DT. The prevalence and risk factors for pterygium in an adult Chinese population in Singapore: The Tanjong Pagar survey. *Am J Ophthalmol* 2001;131:176-83.
2. Cajucom-Uy H, Tong L, Wong TY, Tay WT, Saw SM. The prevalence of and risk factors for pterygium in an urban Malay population: The Singapore Malay Eye Study (SiMES). *Br J Ophthalmol* 2010;94:977-81.
3. Gazzard G, Saw S, Farook M, Koh D, Widjaja D, Chia S, *et al.* Pterygium in Indonesia: Prevalence, severity and risk factors. *Br J Ophthalmol* 2002;86:1341-6.
4. Durkin SR, Abhary S, Newland HS, Selva D, Aung T, Casson RJ. The prevalence, severity and risk factors for pterygium in central Myanmar: The Meiktila Eye Study. *Br J Ophthalmol* 2008;92:25-9.
5. Cameron ME. Histology of pterygium: An electron microscopic study. *Br J Ophthalmol* 198;67:604-8.
6. Lu P, Chen XM. Prevalence and risk factors of pterygium. *Int J Ophthalmol* 2009;2:82-5.
7. Balci M, Sahin S, Mutlu FM, Yağci R, Karanci P, Yildiz M. Investigation of oxidative stress in pterygium tissue. *Mol Vis* 2011;17:443-47.
8. Solomon AS. Pterygium. *Br J Ophthalmol* 2006;90:665-6.
9. Malekifar P, Esfandiari H, Behnaz N, Javadi F, Azish S, Javadi MA, *et al.* Risk factors for pterygium in Ilam Province, Iran. *J Ophthalmic Vis Res* 2017;12:270-4.
10. Khan N, Ahmad M, Baseer A, Kundi NK. Compare the recurrence rate of pterygium excision with bare-sclera, free conjunctival auto graft and amniotic membrane grafts. *Pak J Ophthalmol* 2010;26:138-42.
11. Bhatia J, Varghese M, Narayanadas B, Bhatia A. Cut-and-placetechnique of pterygium excision with autograft without using sutures or glue: Our experience. *Oman J Ophthalmol* 2017;10:81-6.
12. Fayez MA. Limbal versus conjunctival autograft transplantation for advanced and recurrent pterygium. *Ophthalmology* 2002;109:1752-5.
13. Donnenfeld ED, Perry HD, Fromer S, Doshi S, Solomon R, Biser S, *et al.* Subconjunctival mitomycin C as adjunctive therapy before pterygium excision. *Ophthalmology* 2003;110:1012-6.
14. Mutlu F. A comparative study of recurrent pterygium surgery limbal conjunctival autograft transplantation versus mitomycin C with conjunctival flap. *Ophthalmology* 1999;106:817-21.
15. Alpay A, Ugurbas SH, Erdogan B. Comparing techniques for pterygium surgery. *Clin Ophthalmol* 2009;3:69-74.
16. Ahmed I, Ahmed M, Ahmed W. Comparison of limbal conjunctival autograft with conventional bare sclera technique in the prevention of recurrence of pterygium. *Pak J Med Health Sci* 2012;6:629.
17. Beki-Bele CO, Adeoye AO, Adegbehingbe BO, Onakpoya OH, Olateju SO, Ajite KO. Prevalence and pattern of eye disorders among commercial motorcycle riders in Ile-Ife, Osun state. *Niger Postgrad Med J* 2014;21:255-61.
18. Salagar KM, Biradar KG. Conjunctival autograft in primary and recurrent pterygium: A study. *J Clin Diag Res* 2013;7:2825-7.

**How to cite this article:** Isha, Kumar G. Pterygium Excision Bare Sclera Technique versus Autologous Conjunctival Autograft: A Prospective Study. *Int J Sci Stud* 2022;10(1):87-89.

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