

Comparison of Autologous Blood versus Conventional Conjunctival Autograft Surgery for Pterygium

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Abstract: Pterygium is a growth of pink, fleshy tissue on the conjunctiva that covers the white part of your eye over the cornea. It typically starts on the cornea near the nose. Surgical removal of pterygium is recommended when the ability to see is affected. Pterygium is a frequent occurring progressive ocular surface disorder. The recurrence rate after pterygium varies according to type of surgery. This study is to compare the surgical outcome between autologous blood and conventional conjunctival autograft surgery for pterygium. And also compare the post-operative symptoms and signs between autologous blood and conventional conjunctival autograft surgery for pterygium.

Keyword: Pterygium, Autologous Blood, Autograft Surgery, Pain, Itching, Watery, F.B.Sensation, Inflammation, Graft Displacement, Subgraft Haem'G

1. Introduction

The word pterygium derived from a Greek word "Pterygos" which means "wing". Pterygium is a degenerative condition of subconjunctival tissue characterised by a triangular portion of the bulbar conjunctiva encroaching onto the cornea.^[1]

It is slightly vascular and seen in the interpalpebral fissure in the horizontal meridian; most often from the nasal side. It invades the cornea destroying the superficial layers of the stroma and Bowman's membrane.^[2]

A unique feature of pterygium epithelial cell is its positive immune-histochemical staining for different types of metalloproteinase that are absent in normal conjunctival, limbal or corneal cells.^[3]

The surgery is indicated for

- (1) Cosmetic Reason
- (2) Involvement of visual axis
- (3) Induced Astigmatism.

To prevent recurrence, adjunctive therapies are considered which reduces recurrence rate significantly. These include application of Mitomycin C, radiotherapy, conjunctival or limbal conjunctival autograft (CAG), and amniotic membrane graft.^[4]

Traditionally, Pterygium surgery with CAG used sutures to secure the autograft in place.

The use of fibrin glue for this purpose was popularised by V Koranyi et al in 2004^[5,6] Replacing the sutures with adhesives decreased the operating time, improved post-operative comfort. But the major problem with fibrin glue is the cost and potential risk of transmitted infection (Human immunodeficiency virus, Parvo virus B19, Hepatitis).^[7]

2. Materials and Methods

Type of study

After obtaining approval and clearance from institutional ethical committee a prospective hospital based study was carried out, in the department of ophthalmology, SRMS Institute of Medical Sciences, Bareilly, U.P. from 1st October 2016 to 31st March 2017.

The inclusion and exclusion criteria were proposed as follows:

The inclusion criteria

- Patients who were diagnosed with primary pterygium and met the indication for surgical treatment
- Patients aged between 20 to 60 years
- Patients having pterygium covering more than 2mm of cornea.

The exclusion criteria

- Patient having age less than 20 years and more than 60 years
- Pterygium less than 2mm of cornea
- Patients who had glaucoma in the study eye
- Patients who had an intraocular pressure >21mm Hg
- Patients who had a history of allergy to steroid eye drops
- Recurrent pterygium
- Pseudo pterygium
- Pregnant women
- Ocular surface disorder, infection and any trauma

Sample Size

30 patients attending Ophthalmology OPD with primary pterygium in the study period and accepted in the inclusion criteria will comprise the study population.

The patients were randomised into two groups of 15 patients in each group by a simple randomisation technique.

3. Method

An informed consent was obtained from all patients. After detailed ocular and systemic history, a thorough ocular examination including visual acuity, refraction and slit-lamp examination was done.

Hematological examination such as Hemoglobin (Hb), Bleeding Time (BT) and clotting time (CT) were performed in each patient. All cases were operated using surgical microscope under aseptic conditions and managed on outpatient basis.

Patients were divided in two groups and undergone pterygium excision followed by conjunctival autografting either by patient's own blood (group A) or by suture (group B).

Various parameters like operating time (starting from placement of lid speculum to its removal at the end of surgery) as well as postoperative symptoms, signs were noted for both the groups.

Follow up was done on postoperative day 1, 8, 30, 90 and 180. During each postoperative visit, slit-lamp

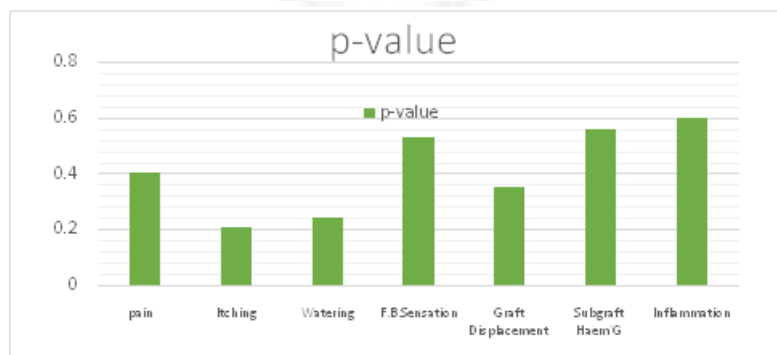
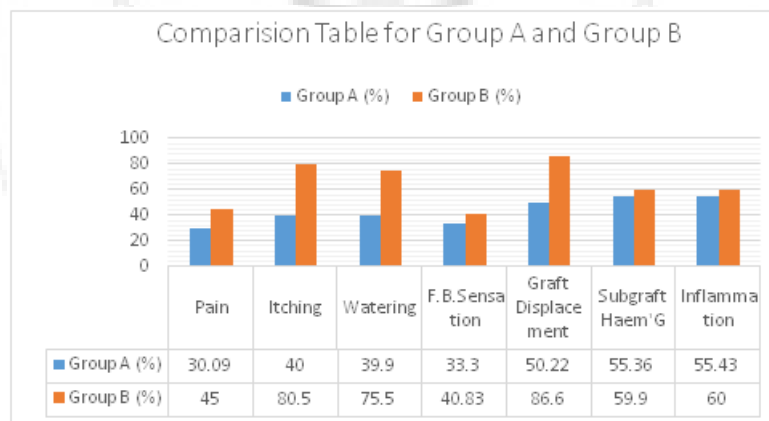
examination, the acceptance of the graft and any suture related complications were checked.

4. Result and Discussion

- Out of 30 students in our study 20 were males and 10 were females.
- Our study shows that males were more affected by pterygium as compared to females.
- We found more number of patients in old age group.
- Out of 30 patients, 22 patients had 3 to 4 mm involvement of cornea.
- The mean age of the patient in group A was 43.6 and in group B was 46.86.
- The duration of surgery in group A was 21.33 min and in group B was 35.5 min which is significantly high compared to group A.
- We compared all the symptoms (e. g. Pain, Itching, Watering, F.B.Sensation, Graft displacement, Subgraft Haem'G, Inflammation) of patients of Group A and Group B.
- **p value <0.5 is considered significant.**

On Postoperative Day 1

On postoperative day 1, among all the postoperative signs and symptoms, the p-value for watering, itching and graft displacement is significantly high and for pain is also significant as compared to Group B.



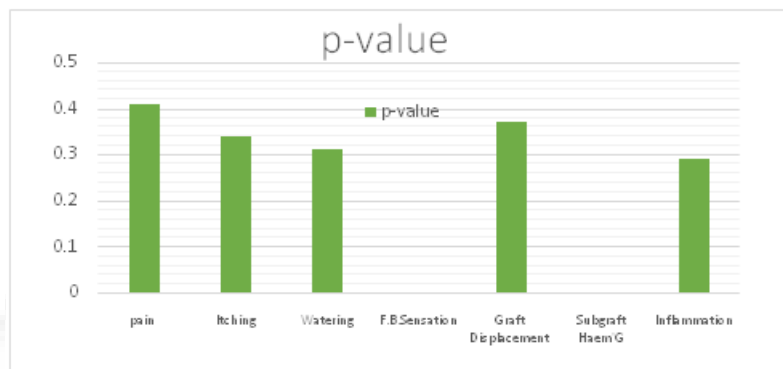
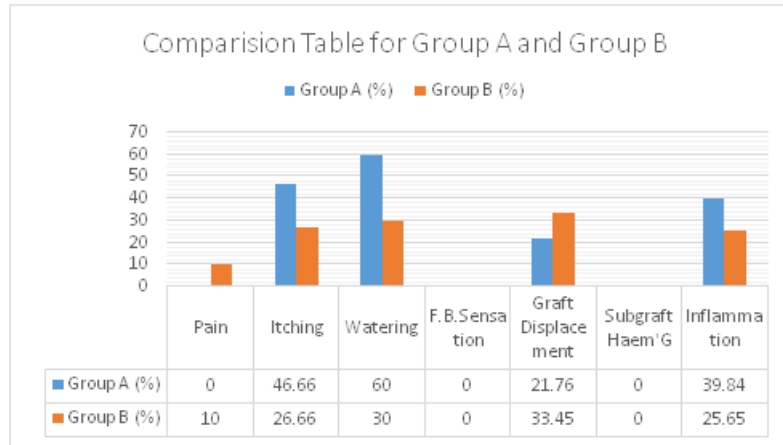
On Postoperative Day 8

On postoperative day 8, among all the postoperative signs and symptoms, the p-value for watering, itching and inflammation is significantly high as compared to Group B.

In group A, pain was absent on post operative day 8 and the difference between the two groups was statistically significant.

Whereas Graft displacement is significantly high in Group B as compared to Group A. There was no case of

F.B.Sensation and Subgraft Haem'G on Day 8.



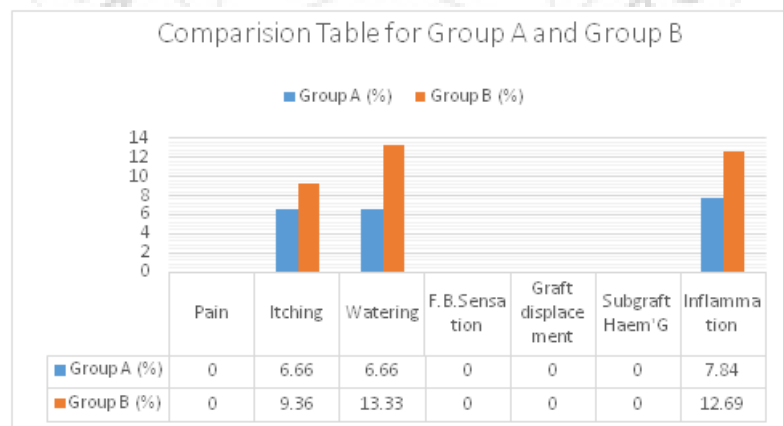
On Postoperative Day 30

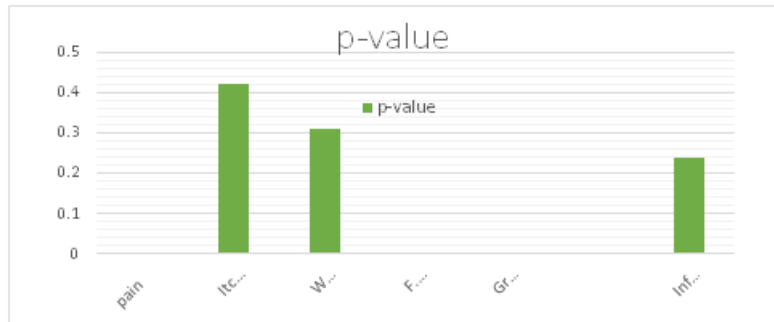
On Postoperative Day 30, among all the postoperative signs and symptoms only watering, itching and inflammation were still present.

The recurrence of pterygium is studied at day 90 and day 180 postoperatively.

No recurrence was observed at day 90 in both groups.

On day 180, Group B showed a recurrence whereas no recurrence was seen in Group A.





5. Conclusion

In our study, mean operative time for group A was significantly less as compared to patients of group B.

Pain subsides completely on postoperative day 8 in patient's own blood group while in group B, it subsides completely on day 30.

On day 30 watering, itching and irritation were still presents in both groups. But in group B, these were statistically high as compared to own blood group.

There was a recurrence in group B.

Conjunctival autografting by patient's own blood is better than suture as:

- Less operative time
- Less postoperative ocular signs and symptoms
- Better patient comfort
- Economical
- No recurrence
- Absence of potential adverse reaction caused due to use of foreign material.

References

- [1] **Sangole A.M., Kose D.A.** A comparative study between surgical outcome of patients own blood vs. 10-0 nylon for conjunctival autografting in pterygium excision. *J. Evid. Based Med. Healthc.* 2016; 34(3):2349-2570.
- [2] **Duke-Elder S, Leigh AG.** Disease of the outer eye. In: system of ophthalmology. Duke-Elder S (ed). London: Henry KimptonPubl 1985;573-585.
- [3] **Krachmer J.** 2nd ed. 2005.1481
- [4] **Kenyon K, Wagoner M, Hettinger M.** Conjunctival Autograft Transplantation for Advanced and Recurrent Pterygium. *Ophthalmology.* 1985;92(11):1461-1470.
- [5] **Koranyi G, Seregard S, Kopp E.** The cut-and-paste method for primary pterygium surgery: long-term follow-up. *Acta Ophthalmologica Scandinavica.* 2005;83(3):298-301.
- [6] **Koranyi G.** Cut and paste: a no suture, small incision approach to pterygium surgery. *British Journal of Ophthalmology.* 2004;88(7):911-914.
- [7] **Malik K, Goel R, Gupta A, Gupta S, Kamal S, Malik V et al.** Efficacy of sutureless and glue free limbal conjunctival autograft for primary pterygium

surgery. *Nepalese Journal of Ophthalmology.* 2012;4(2).

- [8] **Chaudhary S, Dutta J, Mukhopadhyay S, et al.** Comparison of autologous in situ blood coagulum versus sutures for conjunctival autografting after pterygium excision. *Int Ophthalmol* 2014;34(1):41-48