

Comparative Study on the Postoperative Outcomes of Pterygium Excision Using Autologous Serum and Sutures

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Abstract: Objective: To analyse the postoperative outcomes of pterygium excision using autologous serum and sutures to determine the effectiveness and patient compliance of each method.

Design: This is a retrospective study of postoperative outcomes.

Method: The study population included 50 patients with pterygium who had undergone surgery at Saveetha Medical College and Hospital. The postoperative development data was collected and analysed.

Result: The results of conjunctival autograft using suture was superior to that of autologous graft in terms of duration of surgery and graft retraction. There was not much difference in terms of recurrence rate and graft displacement.

Conclusion: After undergoing surgery the outcome suggests that suture technique is a better approach compared to the autologous serum technique but further confirmation is still needed. Keywords: Pterygium, autologous serum, suture, conjunctival autograft.

1. INTRODUCTION

Pterygium is a wing shaped encroachment of the conjunctiva into cornea. They occur mostly on the nasal side sometimes on both sides but rarely occur only on the temporal side. Pterygium occurs mostly in areas more exposed to the ultraviolet(UV) radiation[1] and also in dry, windy, smoke and hot environments[2]. Recent studies indicate that pterygium is not only degenerative but also a inflammatory as well as a proliferative type of disorder[3]. Pterygium also causes deficiency of corneal stem cells at the temporal and nasal limbus[4].

Lubricants and anti-inflammatory drugs help in reducing patient discomfort but they don't offer a permanent solution. Surgical removal is the preferred mode of treatment. Studies have shown that bare sclera excision could have a high recurrence rate of about 30-70 percent[5]. Many post operative therapies are capable of reducing the chances of post operative recurrence but it could increase the risk of post operative complications like corneal necrosis, oedema, secondary infections and scleral necrosis[6]

The most common method of pterygium excision is by sutures but it has many disadvantages like discomfort, long duration of operation, conjunctivitis, necrosis scarring and many more. An alternative method employed is the autologous serum method for graft fixation. It's a natural method with less risks and less cost, its helps in reducing postoperative complications.

In the study we have analysed and compared the outcome of various method of surgical excision. The patients were analysed on the basis of final outcome and the complications of each technique. On the basis of further studies the trend shifts toward more suture-less grafting for pterygium surgery.

2. METHODOLOGY

The study is a comparative retrospective study conducted at Saveetha Medical College and Hospital, a tertiary care hospital. Medical records of patients who had undergone the surgery in the month of December 2020 were collected and analysed. The study excluded patients with recurrent pterygium and glaucoma patients and included only those who had undergone pterygium excision for encroachment of cornea, irritation and for cosmetic purposes. Informed consent was obtained from all patients. The study includes 50 pairs of eye from 50 patients. The study was conducted following the approval of the Institutional Ethical Committee

The study consists of 50 patients who were divided into 2 groups of 25 patients. One group had undergone conjunctival autograft using suture and the other using autologous serum. The outcomes of both techniques were analysed.

3. SURGICAL TECHNIQUE

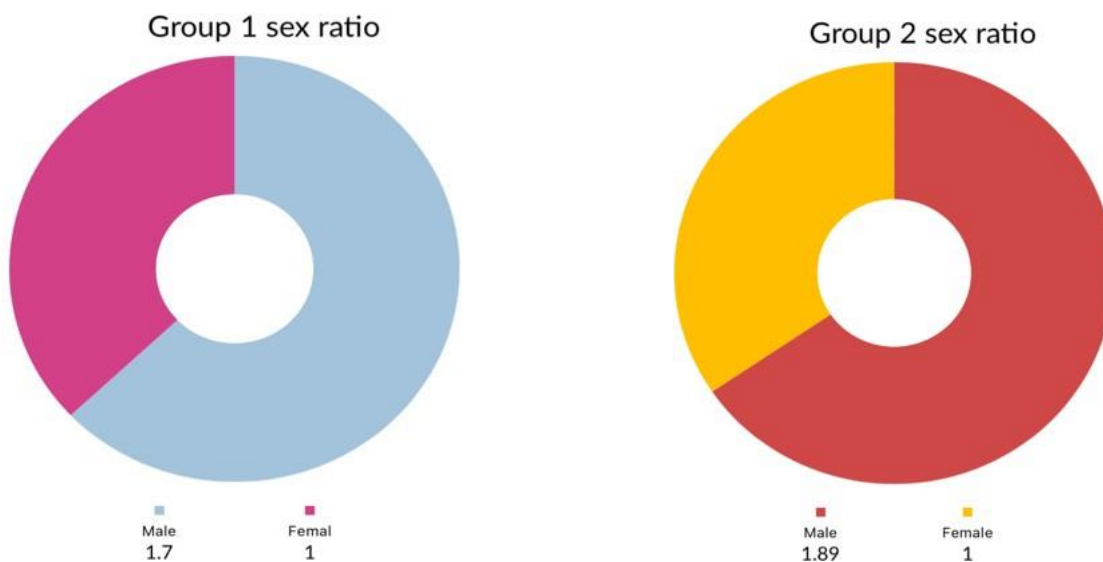
Suture Method: The head of pterygium is separated from cornea by blunt dissection and tenons capsule along with conjunctiva is excised. The surface of the wound is scraped to the bare sclera along with cauterisation of any bleeding vessels. A graft of similar size of the defect is prepared. The graft also included a small size of tenons tissue in it. No attempts were made to include the corneal stroma. The graft was placed over the nasal side and was attached to the sclera with the help of sutures. Follow up examinations were done

Autologous serum method: A thin graft which is slightly larger than the scleral defect area was taken, thin film of capillary blood was oozed over the sclera following which the graft is placed over it for a period of 5-7 minutes while applying gentle pressure for it to adhere.

Postoperatively the patients were stated of steroidal antibiotics along with artificial tear substitutes. The subjects were compared and analysed on the basis of complications and surgical outcomes.

4. RESULTS

A total of 50 patients had undergone pterygium surgical excision at the ophthalmology department of Saveetha Medical College and Hospital. The mean age of the subjects was 43.72 in group 1 and the mean age was 49.51 in group 2. The male to female ratio was almost similar with respect to the two groups.



The chances of recurrence were higher in group 2 at about 8% while group 1 had a recurrence rate of around 4%. The percentage of subjects who experienced edema was higher among the group 2 with about 92% and it was less among the group 1 at around 72%

Groups	Recurrence, n (%)		Parameter	Edema, n (%)	
	Yes	No		Yes	No
Group 1	1(4%)	24(96%)	Group 1	18(72%)	7(28%)
Group 2	2(8%)	23(92%)	Group 2	23(92%)	2(8%)

The percentage of subjects who experienced subconjunctival haemorrhage was around 28% among the first group and around 88% among the second group. The percentage of subjects who experienced graft retraction was around 8% among the first group while it was around 36% in the second group

Groups	Subconjunctival hemorrhage, n (%)		Groups	Retraction, n (%)	
	Yes	No		Yes	No
Group 1	7(28%)	18(72%)	Group 1	2(8%)	23(92%)
Group 2	22(88%)	3(12%)	Group 2	9(36%)	16(64%)

The percentage of subjects who experienced granuloma formation was around 4% among the first group and there were nil cases in the second group, about 4% of subjects suffered from graft loss among the first group while about 12% suffered graft loss among the second group.

Groups	Granuloma, n (%)		Groups	Graft loss, n (%)	
	Yes	No		Yes	No
Group 1	1(4%)	24(96%)	Group 1	1(4%)	24(96%)
Group 2	0	25(100%)	Group 2	3(12%)	22(88%)

5. DISCUSSION

Several attempts have been made to optimise pterygium surgery. Different methods have been developed from operating without a light microscope to more complex techniques using amniotic membrane transplants [7]. Many adjunctive therapies have been developed to prevent side effects and reduce recurrence. Sutured transplants help in reducing the risk of corneal or scleral melting but there is an increase in surgical time as well as the postoperative discomfort associated with it.

The sutures were specifically chosen in such a way that it disintegrates rapidly without a lot of discomfort. A rim of corneal epithelium was also used to improve the stability as well as the orientation of the graft.

Many studies have concluded the recurrence rate of pterygium surgery ranges from 2-39% using suture technique [8]. According to this study the recurrence rate in suture technique was around 4% which is in accordance with the above mentioned study. This suture technique also comes with associated risks which include symblepharon, graft tear and delamination [9][10]. Another method in our study was the autologous serum method where the recurrence rate was close to 8%. The recurrence in autologous serum method could be higher due to the weak adhesion bond between the graft and the sclera. In the suture method recurrence mostly occurs due to graft loss. In group 1 about 72% and in group 2 about 92% of subjects experienced conjunctival edema. While granuloma formation was around 4% among the first group and none of the patients experienced granuloma formation in the second group. In this study about 8% of subjects from group one experienced graft retraction while about 36% of subjects experienced it from the second group.

Sliding of the graft from its original position is known as graft retraction. Graft loss was one of the major reasons for recurrence among the subjects of group 2. The group which had undergone the autologous serum technique had reported a higher incidence of subconjunctival haemorrhage at 88% while the group 1 which received the suture technique had a percentage of 28%.

High incidence of side effects experienced by the second group could be due to the weak adhesion of autologous serum as compared to the suture technique. All subjects who had graft loss also experienced recurrence.

6. CONCLUSION

This study has given an insight into two common technique preferred for graft fixation of conjunctival autograft. With the majority of side effects being experienced less among the members of group 1 who had undergone the suture technique as compared to the other group 2 which had undergone the autologous serum technique for graft fixation. Hope the results of this study could be further added to the increasing volume of data on the surgical outcomes following pterygium surgery.

CONFLICTS OF INTEREST: None

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