



Research Article

Outcome of Sutureless and Glue free Conjunctival Autograft in primary pterygium Surgery

Author

Dr Rishi Gupta

Senior Resident, Sankara Nethralaya, Kolkata, India

Corresponding Author

Dr Rishi Gupta

Email: grishi09@gmail.com

Abstract

Purpose: To evaluate outcome of Sutureless and Glue free Conjunctival Autograft (CAG) in primary pterygium Surgery

Study Design: A retrospective study

Materials and Methods: 42-Consecutive cases underwent pterygium excision with conjunctival autograft without suture and glue from March 2017 to December 2017 was included in the study. Data obtained from medical records of patients suffering from primary pterygium treated by pterygium excision with conjunctival autograft (CAG) without use of sutures and fibrin glue. Surgical outcome in terms of recurrence of pterygium, Graft dislodgment, Graft retraction, graft necrosis and other complications of sutureless glueless conjunctival autograft in pterygium excision.

Results: The mean age of study group was 44.73 +/- 8.6 SD (32-75years). Male and Female ratio of study group was 2.5:1 (30:12). Surgery was performed more in left eye (54.76%) as compared to right eye (45.23%). Post operative recurrence of pterygium was observed in 1 case (2.3%), graft retraction was noted in 4 cases (9.5%) and 2 cases (4.7%) developed granuloma. 1 case had graft dislodgment/loss.

Conclusion: Sutureless and glue free conjunctival autograft in primary pterygium surgery is an easy and cost effective method.

Keywords: Pterygium, Sutureless, Gluefree, Conjunctival autograft.

Introduction

The term 'pterygium' has its origin from the ancient Greek word (pteryx) = wing and (gion) = fin. Therefore, pterygium is described as a triangular 'wing-like' growth consisting of conjunctival epithelium and hypertrophied subconjunctival connective tissue that occurs nasally or temporally in the interpalpebral fissure,

encroaching onto the cornea.¹ In addition to the obvious cosmetic concerns, it can induce corneal astigmatism. The induced corneal astigmatism may cause significant visual impairment and may require surgery.² Although it can be easily excised, it has a high rate of recurrence ranging from 24% to 89%.³ Various adjunctive measures have been described to reduce the recurrence rates

after its excision. Limbal-conjunctival autograft is currently the most popular surgical procedure as it has been suggested that including the limbal stem cells act as a barrier to the conjunctival cells migrating onto the corneal surface. The most common method of autograft fixation is suturing, with drawbacks of prolonged operating time, postoperative discomfort, suture abscesses, buttonholes, and granuloma formation which usually requires a second operation for removal. Replacing sutures with tissue adhesives may shorten the operating time, improve postoperative comfort, and avoid suture related complications. However, the major concern of the commercial fibrin glue is the cost and the potential risk of transmitted infection.⁴

The existing data on success of sutureless and glue free limbal conjunctival autograft for the management of primary pterygium is very encouraging.⁵

Materials and Methods

42-Consecutive cases underwent pterygium excision with conjunctival- autograft without suture and fibrin glue from March 2017 to December 2017 were included in the study. Data obtained from medical records of patients suffering from primary pterygium treated by pterygium excision with conjunctival autograft (CAG) without use of sutures and fibrin glue, allowing natural autologous coagulum of the recipient bed to act as a bioadhesive.

Information that was reviewed included patients age, sex, duration of symptoms, affected eye, grade of pterygium and postoperative treatment. Surgical outcome measured in terms of Recurrence of pterygium, Graft dislodgment, Graft retraction, and other complications of sutureless and gluefree conjunctival autograft in pterygium excision. All surgeries were performed by the single surgeon. Grading was done on the basis length of corneal involvement (Table-1).

Table-1: Grading of Pterygium was done on basis of Length of corneal involvement

Grade 1 – Pterygium invading < 2 mm of cornea
Grade 2 - Pterygium invading 2-4 mm of cornea
Grade 3 - Pterygium invading >4 mm of cornea

Results

The mean age of study group was 44.73 +/- 8.6 SD (32-75years). Male and Female ratio of study group was 2.5:1 (30:12). Surgery was performed more in left eye (54.76%) as compared to right eye (45.23%). Out of 42 eyes 31 eyes (73.8%) had nasal pterygium and 11(26.1%) eyes had temporal pterygium. All cases had symptoms and/or history of pterygium of more than 6 months. There was no history of previous surgery and ocular trauma and chemical injury in past. 21 (50%) cases had grade 2 pterygium followed by grade 3 (35.7%) and grade 1 (15.3%). Intraoperatively all conjunctival autograft taken from superiorly/ superotemporally site of same eye. Postoperatively all cases were treated with ciplox 0.3% eye drop 4times / day for 2weeks, tapering betnesol N eyedrop for 6 weeks and lubricants for 3 months Post operative recurrence of pterygium was observed in 1 case (2.3%), graft retraction was noted in 4 cases (9.5%) and 2 cases (4.7%) developed granuloma. 1 case had graft dislodgment/loss. (Table 2)

Table-2:

	Parameters	No
Sex	Male	30
	Female	12
Age	44.73+/-8.6 years	
Laterality	Right eye	23
	Left eye	19
Site	Nasal	31
	Temporal	11
Grade of pterygium	Grade 1	6
	Grade 2	21
	Grade 3	15
Complications	Recurrence of pterygium	1
	Graft retraction	4
	Graft loss	1
	Granuloma	2
Follow up	Minimal follow up (Months)	8

Discussion

The most important concern of pterygium surgery is to prevent recurrence of pterygium. Various adjunctive measures have been described to reduce the recurrence rates after its excision. Conjunctival autograft is currently the most popular surgical procedure as it has been suggested that including the conjunctival autograft act as a barrier to the conjunctival cells migrating onto the corneal surface. The common method of autograft fixation is suturing, with drawbacks of prolonged operating time, postoperative discomfort, Replacing sutures with tissue adhesives may shorten the operating time, improve postoperative comfort, and avoid suture related complications. However, the major concern of the commercial fibrin glue is the cost and the potential risk of transmitted infection. The present study includes 42 patients to study the surgical outcome of sutureless and gluefree conjunctival autograft for primary pterygium excision. In present study, mean age of the study population was 44.73+/-8.6 years. % (32-75). Out of 42 patients 30 were males and 12 were females. . These results were consistent with the studies of Malik et al⁴ Sharma et al⁶ Dasgupta et al⁷ Rangu et al,⁸ Rathi et al⁹ and Bhargava et al¹⁰ who reported the maximum incidence of pterygium in the age group ranging between 30-50 years. Though the study conducted by de Wit et al⁵ found the mean age of presentation to be much higher i.e. 73.7+/-7.7 years.

Our study revealed male preponderance of the disease with male:female ratio of 2.1:1 which was more and less comparable with the sex ratio in the studies conducted by Malik et al⁴ Rangu et al⁸ and Bhargava et al¹⁰ while studies by Sharma et al⁶ and de Wit et al⁵ reported a higher incidence of the disease in females.

Out of the 42 patients, 21 (50 %) had Grade 2 Pterygium, 15 (35.7%) had Grade 3 pterygium. and 6 (42.9%) had Grade 2 pterygium and 6 (14.2%) had Grade 1 pterygium. Majority of the patients presenting to the OPD are from a rural background who are either engaged in farming or

are labourers, exposing them to the external environment of harsh UV rays, dust, wind and smoke. In this study, 11 patients had a temporal pterygium while the remaining cases were of nasal pterygium.

The overall complication rate was 19% in our study. Subjective complaints like discomfort, lacrimation and mild pain were observed in post operative periods which almost resolved within a week. On the first post-operative week, 4 cases showed graft retraction (9.5%) which were treated with tapering dose of topical steroid eye drops and were closely followed. Conjunctival reepithelialization occurred within 2-3 weeks of surgery. 2 case of granuloma formation (4.7%) and 1 case of Graft loss (2.3%) were noted. Graft loss was treated with re-grafting from another site. Recurrence of pterygium (2.3%) was seen in one case. A good cosmetic outcome was achieved in all cases. Recurrence rates among various studies on sutureless and gluefree conjunctival autograft shown in table-3.

Table-3: Comparing the Recurrence Rates among various studies on sutureless and gluefree conjunctival autograft

Study	Eyes	Follow up	Recurrence
Rangu et al ⁸	20	6	0
Singh et al ¹¹	10	12	0(10)
De Wit et al ⁵	15	9	0
Malik et al ⁴	40	12	1(2.5)
Dasgupta et al ⁷	60	6	1(1.67)
Bhargava et al ¹⁰	52	12	1(1.92)
Rathi et al ⁹	50	6	1(2)
Present study	42	8	1(2.3)

Bhargava et al¹⁰ had post-operative complications like graft displacement in 4 cases (7.69%) on 1st post-operative day and mild graft edema was noted in 4 (7.69%) cases in first week. There was hematoma below graft in 3 (5.76%) cases and in 1 case it persisted for 1 month. Recurrence was seen in 1 (1.92%) case in the 12-month follow-up period. Dasgupta et al⁷ found graft dehiscence in 1 (1.67%) case and recurrence in 1 (1.67%) case. Whereas, studies conducted in the United Kingdom by de Wit et al⁵ and Shaw et al¹²

amazingly show no complication or recurrence at all. Rangu et al⁸ reported no recurrence in their study of 20 eyes though graft edema and graft retraction was seen in 2 (10%) cases each. Similar findings were reported by Nanda et al¹³ with no recurrence in the 50 eyes treated with suture less glue less conjunctival autograft. Singh PK et al¹¹ compared placing of conjunctival autograft with fibrin glue and with autologous blood. He found that the rates of recurrence were the same 10% in both the groups. However, complications like graft displacement and graft retraction were more common in patients grafting with autologous blood (10%) than in those grafting with the glue, though the difference was not statistically significant ($p=0.3185$). In a similar study by Sharma et al⁶ graft retraction occurred in 3 eyes (3.75%) and recurrence was seen in 1 eye (1.25%) after 3 months of follow up. In Malik et al⁴ study, graft dehiscence was seen in 5%, graft retraction in 7.5% and recurrence in 2.5% cases. Rathi et al⁹ reported graft loss in (1) 2%, chemosis in 2(4%) and recurrence in 1 (2%) cases. De Wit et al⁵ postulated that the opposition of the lids to the bulbar conjunctiva provides a natural biological dressing and confers a unique wound healing environment. Apart from a physical barrier, the lids provide compression, a smooth frictionless surface, and a vascular bed with immune capability in close proximity to the injury site. Specifically, the risk of graft retraction as described by Tan¹⁴ appears to be no greater without suturing or fibrin glue as long as meticulous dissection of the sub-epithelial graft tissue is respected. Therefore, it can be said that as there is an even tension across the whole of the graft interface and no direct tension on the free graft edges, there is reduced stimulus for subconjunctival scar tissue to form. Conjunctival autografting without sutures and glue is today recognized as the procedure of choice for pterygium surgery, in terms of its efficacy and safety. An excellent cosmetic result is possible with this technique.

Conclusion

To conclude autologous fibrin in blood is a useful alternative method for graft fixation in pterygium surgery, having excellent outcome, being less time consuming, avoids suture related problems and cost of fibrin glue.

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