

Pterygium Excision with Conjunctival Autograft Without Suture without Glue

*Sandip Sarkar¹

Fellow, Chandrababha Eye Hospital, Jorhat, Assam.
Corresponding author: Sandip Sarkar1

Abstract

Purpose: Evaluation of the safety, efficacy and outcome of pterygium excision with conjunctival autograft without suture without glue in the management of primary pterygium.

Settings : Dept of Ophthalmology, Agartala Govt. Medical College, Agartala, Tripura.

Methods : The study included 50 eyes of 45 patients with primary pterygium. Simple excision under local anaesthesia was performed followed by closure of the bare sclera by suture less and glue free conjunctival autograft in 50 eyes of 45 patients.

Results: There were 28 male patients and 22 female patients. Majority was field worker. Mean (SD) age was 39.64 (15.45). 22(44%) was right eye, 26 (52%) was left eye. mean follow up period was 6 month. The pterygium recurrence rate was 6% ,Graft dehiscence occurred in 4 eyes out of 50 ,Graft retraction occurred in 3(6%) out of 50 eyes .Pyogenic granuloma occurred in 1 (2%) eyes out of 50 patients. No other serious complications were noted. At 1 month postoperatively, gain in uncorrected visual acuity occurred in 4 eyes.

Conclusion: Pterygium excision with conjunctival autograft without suture, without glue is a very simple, easy, economical, less time consuming procedure.

Keywords: pterygium, conjunctival autograft, sutureless, gluefree

Date of Submission: 15-11-2017

Date of acceptance: 25-11-2017

I. Introduction

Pterygium is a condition where sub conjunctival tissue which proliferates as granulation tissue to invade the cornea, destroying the superficial layer of stroma and Bowman's membrane. It is commonly seen in tropical and subtropical areas between the latitudes 30 degree north and south of the equator which includes India. ^{1,2}It is caused by increased light exposure, dust, dryness, heat and wind. It can be easily excised, but it has a very high rate of recurrence ranging from 24% to 89% ³. Recently it has been observed that with pterygium excision with conjunctival autograft and the use of antimetabolites such as mitomycin c and 5-Fluorouracil the incidence of recurrence has been reduced upto 12%. ^{4,5,6}

Among all the various techniques limbal conjunctival autograft is the best method because of low recurrence and high safety. ^{7,8,9} The most common method of autograft fixation is suturing, which has drawbacks of prolonged operating time, postoperative discomfort, suture abscess, button holes, and granuloma formation which usually requires a second procedure for removal ¹⁰.

Graft fixation with commercial fibrin glue is another technique with potential risk of transmitted infection and high cost. Autologous fibrin glue has been used as an alternative method. ^{11,12} A recent cross sectional study also describes successful outcome with sutureless and gluefree conjunctival autograft. The aim of the study is to observe outcome of sutureless conjunctival autograft for primary pterygium surgery.

II. Materials And Method

This is a prospective, Randomized control study conducted at Department of Ophthalmology, Agartala Govt Medical college with 50 eyes of 45 patients who underwent pterygium excision with conjunctival autograft without glue and suture between July 2016 to June 2017. The study was approved by the Institutional ethical committee and it followed the tenets of the declaration of Helsinki. Informed consent was taken from all the patient before enrolling them into study. All the surgeries were performed by a single experienced surgeon.

2.1 Inclusion Criteria

- Diminution of vision either because of astigmatism or encroachment on papillary area
- Progressive pterygium
- Marked cosmetic deformity
- Patients of either sex
- Patient in age group of 18-80

2.2 Exclusion Criteria

- Recurrent /atrophic pterygium
- Patient on anticoagulants
- Patients with ocular surface disease
- History of previous ocular surgery
- Pterygium with cystic degeneration
- Pseudopterygium.

All the patients who fulfilled the inclusion and exclusion criteria were subjected for detailed medical history and complete ocular examination that includes Visual acuity by Snellen's chart, near vision by Jaeger's chart, best corrected visual acuity by streak retinoscopy and automated refractometry, Slit lamp biomicroscopy, Keratometry by manual and automated refractometry, fundus examination by direct and indirect ophthalmoscopy, Slit lamp bio-microscopy with +78D and +90D, Intra ocular pressure by Applanation tonometry were done. Preoperative investigation like complete haemogram, Random blood sugar, Bleeding time, Clotting time were performed. All the patients were informed about the advantages, disadvantages risk factors, and side effects of the procedure.

Pterygium excision was done under peribulbar anaesthesia. It consisted of 2% Lignocaine, Bupivacaine, Hyaluronidase and Adrenaline (1:100000). Pterygium Excision started with detachment of the pterygium head using a crescent knife and dissection of the body from the overlying conjunctiva. Subconjunctival pterygium tissue and the thickened segment of conjunctiva and Tenon's capsule was excised leaving bare sclera. Then the size of bare sclera was measured with calipers. A 1 mm larger graft from the superior conjunctiva using McPherson forceps and Vannas' scissors was harvested. Care should be taken so that graft is almost Tenon capsule free. Graft was gently slid on to the sclera bed, observing limbus to limbus orientation. Graft was smoothed on to the scleral surface for 7-8 minutes with iris repositor. Speculum was removed carefully taking care not to disturb the graft and eye was patched for 24 hours. Post-operatively, topical antibiotic drops were given 4 times a day for 2 weeks, and topical steroid drops were given 6 times a day to be tapered over 4 weeks. Patients were instructed not to rub the eye or splash water directly in to eye for 1 week. Post-operative follow-ups were done on 1st post op day, 1 week, 2 weeks, 4 weeks, 1 month, and 6 months subsequently. The data collected entered in Microsoft Excel and analyzed using statistical package of social science (SPSS) version 15. Descriptive statistics like mean, median, standard deviation, frequency and percentage were used. The association between two variables tested using chi-square test, Fisher's exact test. P value set as 0.05% to consider statistical significance.

III. Results

Our study enrolled 50 subjects who underwent pterygium excision with conjunctival autograft fixation without sutures using only autologous blood. Majority was male patients 28 (56%) and 22 (44%) were female patients. The age ranges of the subjects were 18 - 75 years with mean (SD) age 39.64 (± 15.45) years. Most of the study subjects were in the age group of 20 to 40 years (51%) and least in less than 20 years (4%). Most of them are daily labourer or field workers (64%). Mean surgical time was 12.16 ($SD \pm 3.06$) minutes. Intraoperatively, only 3 patients have excessive bleeding than usual, but none of them required sutures. It was controlled by cauterisation. Post-operatively, patient complaints of pain, foreign body sensation, itching, hyperaemia were noted and scored on day 1, day 7, day 30 and day 60. Pain, Fb sensation, itching and hyperaemia on day 1 was respectively 16%, 20%, 14%, and 30%. But in subsequent follow up it reduced dramatically. Early graft retraction occurred 6% patients, Conjunctival granuloma occurred in 2% cases, corneal scar in 4% cases, graft dehiscence in 8% cases. In one patient graft dehiscence developed with eye trauma on the third postoperative day. In another patient it occurred following vigorous rubbing of the eye on the fourth postoperative day. In two patients it occurred due to inclusion of Tenon's capsule leading to lack of adhesion, graft edema and thickening, which was seen on the fifth post-operative day in one patient and the seventh post-operative day in the other patient. All four patients were treated by suturing the same graft with 8-0 nylon.

Early graft retraction with exposure of scleral bed occurred in 3 eyes (6%) within the first postoperative week due to conjunctival edema and chemosis. All cases were resolved with conservative management except one patient who was managed with (8-0 nylon) sutures. Both the graft dehiscence occurred in 2nd post-operative day. Reposition of both the grafts were done by iris spatula and bandage was given for 48 hours. After 48 hours both the patients recovered. The rate of recurrence in our study after 6 month follow up is only 6%.

IV. Figures And Tables:

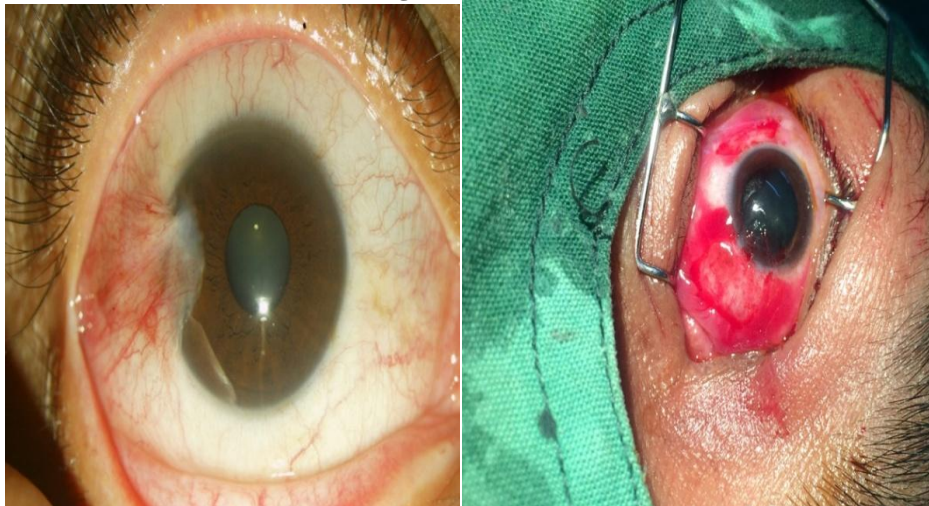


Fig1: Preopview of a case of temporal pterygium. **Fig2:** Intraop view of pterygium excision.



Fig3: post pterygium excision conjunctival granuloma .

Table:post-operative complication in autologous conjunctival graft fixation without sutures (n=50)

Early Graft Retraction	3(6%)
Conjunctival Granuloma	1 (2%)
Corneal Scar	2 (4%)
Scleral Necrosis	0 (0%)
Scleral Thinning	0 (0%)
Graft Dehiscence (failure)	4 (8%)
Graft Necrosis	0 (0%)
Symblepheron	0 (0%)
Recurrence	3 (6%)

IV. Discussion

Recurrence after pterygium excision remains the main concern till date. A recent detailed review on the treatment of pterygium revealed that, among all the available options conjunctival limbal autograft remains the safest technique and offers the lowest rate of recurrence in the management of primary pterygium.^{12,13} There are different modality of techniques by which the conjunctival graft can be attached with the bare sclera. These grafts can be affixed to the bare sclera bed using sutures. These sutures are believed to be responsible for mild inflammatory reaction which causes pain, grittiness and watering postoperatively. The inflammatory response to these sutures is also believed to be one of the causes of recurrence.^{14,15} The time consumption for the placement of sutures during surgery is of another issue. The patient also needs another visit for removal of suture.¹⁶ Another

alternative is to use biological tissue glue, like fibrin glue, for securing the graft. Advantages of using it are easy fixation of the graft, shorter operation time and reduction in complications and postoperative discomfort. Moreover, the chance of transmission of infections is also there.¹⁷ Recurrence rate of 5.3% with glue versus 13.5% with sutures has already been published.¹⁸ In our study, after 6 month of close follow up only 3 patients developed recurrent pterygium.

In our study, the average surgical time was 12.16 (SD ± 3.06) minutes. It was comparable to mean operative time seen in study conducted by Elwan, in which sutureless and glue-free conjunctival limbal autografting took 24 (±5.64) minutes.¹⁹ The study was also comparable with other studies in terms of operating time for sutureless and glue-free conjunctival limbal autograft.^{20,21} Postoperative symptoms like Pain, Fb sensation, itching and hyperemia were seen in 16%, 20%, 14% and 30% respectively. The symptoms were more aggressive on day 1 and then gradually reduced and finally it subsided on subsequent visits. The results were similar to study conducted by Elwan where he concluded that postoperative signs and symptoms like pain, foreign body sensation, photophobia, hyperemia and chemosis were significantly lower in the first postoperative month as well as significantly higher overall patient satisfaction. Postoperative symptoms were also reported more with sutures and less with sutureless autograft by various authors.^{22,23}

Complications like graft edema was seen in 2 (8%) patients, both the cases it resolved spontaneously with conservative management. Conjunctival granuloma reported in 1 (2%). A similar study by Elwan showed conjunctival oedema in 8 patients (16%) and 6 patients (6%), recurrence in 3 patients (6%) and 8 patients (8%) and granuloma formation in 0 (0%) and 3 patients (3%) for sutureless and glue-free. The patients were followed for a period of 6 month. All cases of recurrence occurred after 3 months. Malik et al., reported recurrence in 1 eye (2.5%) and no granuloma formation at 6 months in case of sutureless and glue-free autograft.²⁴ Foroutan et al., observed a recurrence rate of 13.33% in three years follow up with autologous fibrin. Wit et al, reported no recurrence in 15 eyes within a mean follow up period of 9.2 months. The reason being, apposition of the lids to the bulbar conjunctiva provides a natural biological dressing which allows a unique wound healing environment. Also, the use of sutureless and glue-free grafting technique results in an even tension across the whole of the graft interface, and no direct tension on the free graft edges resulting in reduced stimulus for the formation of subconjunctival scar. For a successful graft take up, a thin graft with meticulous dissection from the Tenon's capsule is required.²⁵ Our study showed significantly lower post-operative signs and symptoms including pain, FB sensation, photophobia, hyperemia and chemosis at all visits in the first post-operative month as well as significantly higher overall patient satisfaction.

V. Conclusion

Suture-less and glue free limbal conjunctival autograft is safe, effective, economical, and its surgical outcomes following primary pterygium surgery with lower post-operative suture related complications, less patient discomfort and greater patient satisfaction.

References

- [1]. Schulz KF, Altman DG, Moher D for the CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomized trials. *BMJ* 2010; 340
- [2]. Rosenthal JW. Chronology for pterygium therapy. *Am J Ophthalmology* 1953; 36: 1601
- [3]. Gupta VP. Conjunctival transplantation for pterygium. *DJO* 1997; 5: 5-12
- [4]. Singh G, Wilson NR, Foster CS. Mitomycin eye drops as treatment for pterygium. *Ophthalmology* 1988; 95: 813-21
- [5]. Kleisw, Pico G. Thio-TEPA therapy to prevent post operative pterygium occurrence and neovascularisation. *Am J Ophthalmol* 1973; 76: 371-3
- [6]. Tarr KH, Constable IJ. Late complications of pterygium treatment. *Br J Ophthalmol* 1980; 64: 496-505
- [7]. Kenyon KR, Wagoner MD, Hettiger ME. Conjunctival autograft transplantation for advanced and recurrent pterygium. *Ophthalmology* 1985; 92: 1461-70.
- [8]. Chen PP, Ariyasu RG, Kaza V, et al. A randomized trial comparing mitomycin C and conjunctival autograft after excision of primary pterygium. *Am J Ophthalmol* 1995; 120: 151-60.
- [9]. Prabhasawat P, Barton K, Burkett G, et al. Comparison of conjunctival autografts, amniotic membrane grafts, and primary closure for pterygium excision. *Ophthalmology* 1997; 104: 974-85. [pubmed]
- [10]. Starck T, Kenyon KR, Serrano F (1991). Conjunctival autograft for primary and recurrent pterygia: surgical technique and problem management. *Cornea* 10: 196-202.
- [11]. Cohen RA, McDonald MB (1993). Fixation of conjunctival autografts with an organic tissue adhesive. *Arch Ophthalmology* 111: 1167-8.
- [12]. Foroutan A, Beigzadeh F, Ghaempanah MJ, Eshghi P, Amirizadeh N, Sianati H, Foroutan P (2011). Efficacy of autologous fibrin glue for primary pterygium surgery with conjunctival autograft. *Iranian Journal of ophthalmology* 23: 39-47.
- [13]. Srinivasan, M, Dollin, P, McAllum, Y, Berger, D, S, Rootman, A, R, Slomovic. Fibrin glue versus sutures for attaching the conjunctival autograft in pterygium surgery: a prospective observer masked clinical trial. *Br J Ophthalmol* 2009; 93: 215-218
- [14]. Srinivas K Rao, T Lekha, Bickol N Mukesh, G Sitalakshmi, Prema Padmanabhan. Conjunctival-Limbal autografts for primary and recurrent Pterygia: Technique and results. *IJO* 1998; 46(4): 203-209.
- [15]. Chen PP, Ariyasu RG, Kaza V, et al. A randomized trial comparing mitomycin C and conjunctival autograft after excision of primary pterygium. *Am J Ophthalmol* 1995; 120: 151-60. 15. Ti SE, Chee SP, Dear KB, Tan DT. Analysis of variation in success rates in conjunctival autografting for primary and recurrent pterygium. *Br J Ophthalmol* 2000; 84: 385-9.

- [16]. Sridhar MS, Bansal AK, Rao GN. Surgically induced necrotizing scleritis after pterygium excision and conjunctival autograft. *Cornea* 2002;21:305-7.
- [17]. Ti SE, Chee SP, Dear KB, Tan DT. Analysis of variation in success rates in [16] conjunctival autografting for primary and recurrent pterygium. *Br J Ophthalmol*. 2000;84:385-89.
- [18]. Koranyi G, Seregard S, Kopp ED. Cut and paste: a no suture, small incision approach to pterygium surgery. *Br J Ophthalmol* 2004;88: 911-14.
- [19]. Elwan SAM. Comparison between sutureless and glue-free versus sutured limbal conjunctival autograft in primary pterygium surgery. *Saudi Journal of Ophthalmology*. 2014;28:292-98.
- [20]. Kulthe SB, Bhosale AP, Patil PU, Pandve HT. Is the surgical technique of asutureless and glue-free conjunctivolimbal autograft after pterygium excision complications free? *Medical Journal of Dr. D.Y. Patil University*. 2015;8:308-12.
- [21]. Rangu RV, Wanjari A, Akhade N. Study of sutureless and glue-free conjunctival autograft. *International Journal of Recent Trends in Science And Technology*. 2014;10:480-82.
- [22]. Nishant K, Prasad V, Shah Nawaz A, Akbar MA. Comparison of 'cut and paste (using fibrin glue)' Vs 'cut and suture (using 8-0 vicryl sutures)' techniques of pterygium surgery. *Int J Cur Res Rev*. 2014;6:64-76.
- [23]. Karalezli A, Kucukerdomez C, Akova YA, Altan-Yaycioglu R, Borazan M. Fibrin glue versus sutures for conjunctival autografting in pterygium surgery: A prospective comparative study. *Br J Ophthalmology*. 2008;92:1206-10.
- [24]. Malik KP, Goel R, Gutpa A, Gupta SK, Kamal S, Mallik VK, et al. Efficacy of sutureless and glue-free limbal conjunctival autograft for primary pterygium surgery. *Nepal J Ophthalmol*. 2012;4:230-35.
- [25]. Wit D, Athanasiadis I, Sharma A, Moore J. Sutureless and glue-free conjunctival autograft in pterygium surgery: A case series. *Eye*. 2010;24:1474-77.

*Sandip Sarkar. "Pterygium Excision with Conjunctival Autograft Without Suture without Glue."
IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.11 (2017): 82-86