Original Research Paper

Volume : 5 | Issue : 9 | September 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

# Fibrin Glue Verses Conjunctival Suturing in Pterygium Surgery: A Comparative Study

Medical Science

**KEYWORDS :** Glue ,Pterygium, Randomised study

**Dr. Himanshu Kumar** Senior Resident, RIO, IGIMS, Patna,India.

**Dr. M. S. Ali** Assistant Professor, RIO, IGIMS, Patna,India.

**Dr. Deepak Mishra*** Assistant Professor, IMS, BHU, Varanasi, UP, India. *Corresponding Author

## ABSTRACT

***Aim*** *To analyze the safety and efficacy of fibrin glue and compare it with conventional conjunctival suturing technique in pterygium surgery performed with limbal autograft.*

***Material & Method*** *After Ethical committee approval, a prospective randomised study was done in 50 eyes of 50 pterygium patients who underwent pterigium surgery during April 2015 to April 2016. Autologous conjunctival graft taken from the superior limbus was used to cover the sclera after pterygium excision. Fibrin glue (Reliseal) was used in 25 patients (Group 1) to attach the conjunctiva over the bare sclera and in 25 eyes 8-0 Vicryl suture was used (Group 2). Postoperative patient discomfort (pain, stinging, watering) and biomicroscopic findings (hyperemia, edema) were graded. Patients were followed up at least for six months.*

***Results*** *In group 1, 1 patient developed subconjunctival haemorrhage. In group 2, 7 cases developed granulomatous tissue reaction, hence suture removal was done. Patients were symptomatically better in group 1. One case of group 1 and 2 cases of group 2 developed recurrence of pterigium. Group 1 had a shorter average surgery time ($P<0.05$) and cost than group 2 ($P<0.05$).*

***Conclusion*** *Using fibrin glue for graft fixation in pterygium surgery causes significantly less postoperative pain and shortens surgery time significantly.*

**Aim**

To find out the efficacy of fibrin glue in attaching the conjunctival auto graft to the sclera and to compare the postoperative complications of fibrin glue Vs suturing technique.

**Material & Method**

Ethical committee approval was obtained .Clinical data were noted of 50 eyes of 50 pterygium patients who underwent pterigium surgery during April 2015 to April 2016.

*Study area*: - This study was done at Indira Gandhi Institute of Medical Sciences, Patna. Here pterigium surgery is done under strict aseptic precautions by surgeons and any complication occurred is managed by senior surgeons.

**Study population:** - The data were collected from the cases (adult patients) who underwent pterigium surgery with conjunctival autograft with 8-0 vicryl or with fibrin glue. There was no gender restriction. The patients were from the urban population.

*Sample size & Sample technique:* - The sample had 50 eyes of 50 patients who underwent uneventful pteriguim excision with conjunctival autograft with fibrin glue (group 1, n=25) or 8-0 vicryl suture (Group -2, n=25). The sample was taken by random selection from those who got operated in the period of April 2015 to April 2016.

All patients underwent a comprehensive ophthalmologic examination including visual acuity, refraction, slit lamp biomicroscopy, measurement of intraocular pressure, extraocular muscle movements and dilated funduscopy. Anterior segment photography was performed for documentation of pterygium size and morphology.

**Data collection technique & tools:** After entering the demographic data, patients were followed up slit lamp bimicroscopy and graft was localized in each visit and any complication was noted.

*Data analysis:* Data was stored in the Microsoft Excel sheet for evaluation. Statistical analysis was done using SPSS software version 11.5 (Statistical Package for Social Sciences). Comparison between the fibrin glue technique (Group 1) and 8-0 vicryl suture technique (Group 1) was done one of the applicable tests: Student's Paired t-test and Chi-square test.

**Results**

For both groups pterigium was located nasally. Patient age in both groups ranged from 28 to 52 years (mean, 42 ± 12 years). There were 34 males and 16 females enrolled in this study. Pterygium were present in the right eye in 42 patients and in the left eye in 8 patients. There was no statistically difference in age between groups ($P > 0.05$). The two groups were clinically similar regarding the size of the pterygium.

The recurrence rate was 8% (2 eyes) in group 1 and all occurred after 6 months. The recurrence rate was 12% (3 eyes) in group 2 and all ocurred after 6 months. Graft dehiscence occurred in 4% (1 eye) in group 1 and there were no cases of graft dehiscence in group 2. This graft dehiscence developed due to rubbing of eye by the patient on the third post-operative day. It was treated by again applying fibrin glue in operation theatre.

No case shown graft retraction, Conjunctival edema occurred in 2 eyes (8%) in group 1 and in 6 eyes (24%) in group 2. Most cases of conjunctival edema resolved gradually within the first post-operative week. Conjunctival granuloma occurred only in group 2 in 7 eyes (28%), suture remoal was done. There are no anesthetic complications, graft necrosis, symblepharon, scleral necrosis or thinning, excessive bleeding, globe perforation or injury to medial rectus in all of patient groups.

On visits day 3, 1 week, 2 weeks and 3 weeks postoperatively,a statistically significant difference between groups in the postoperative mean score for signs and symptoms was noted that was lower for group 1 for each factor graded ($P < 0.05$). The mean overall patients' satisfaction score was significantly higher for the group 1 ($P < 0.002$) at 3 weeks postoperatively visit.

**Conclusion**

Fibrin glue is an effective and safe method for attaching conjunctival autograft during pterygium surgery. It makes

the surgical procedure easy, shortens the operating time and results into lesser post operative discomfort.

**Discussion**

During the past decade, the debate over the best approach to pterygium surgery has centered on whether surgeons should use sutures or fibrin glue to affix the conjunctival graft. Both approaches have their pros and cons in terms of such factors as surgical time, postoperative complications, cosmesis and recurrence.

However, the glue itself is more expensive than sutures, and it can be difficult to obtain in some countries. And because fibrin glue is a blood-derived product, it carries the potential risk for transmission of viral and prion diseases.

The use of fibrin glue was associated with markedly reduced surgical time. Harvey et al also showed similar statistically significant reduction in mean operative time.18 Post operative pain was less in fibrin glue than those with suture group. Also in our study pain lasted for less duration than those with suture group. Foreign body sensation present in most of the patients on 1st post operative day may be due to superficial keratectomy done during surgery. However, on subsequent days patient in fibrin group were more comfortable than those in suture group. These observations are comparable to other studies evaluating these parameters.19

Use of fibrin glue was shown to be associated with absence of haemorrhage under the graft. This can be due to activation of clotting factors with the use of glue.

Surprisingly, graft retraction was seen in more patients in fibrin glue group than suture group. The surgeon concluded that this can be due to movement of the graft due to lid movement causing displacement of the graft. Inadequate application of glue can be a causative factor. Recurrence noted was less in fibrin glue group than in suture group but not statistically significant. This is well correlated with other studies comparing sutures versus fibrin glue for conjunctival autograft.8,18–20

**References:**

1. Sihota R., Tondon R., editors. Parson's Diseases of Eye. 19th ed. Butterworth- Heinemann; 2003. Diseases of conjunctiva; pp. 193–194.
2. Detels R., Dhir S.P. Pterygium: a geographical survey. Arch Ophthalmol. 1967;78:485.
3. Nemesure B., Wu S.Y., Hennis A., Leske M.C. Nine year incidence and risk factors for pterygium in Barbados eye studies. Ophtalmology. 2008;115:2153–2158.
4. Allen B.D.S., Short P., Crawford G.J. Pinguecula and pterygia. Surv Ophthalmol. 1988;32:41–49.
5. Spaeth E.B. Rotational island graft for pterygium. Am J Ophthalmol. 1926;9:649–655.
6. Sanchez-Thorian J.C., Rocha G., Yelin J.B. Meta-analysis on the recurrence rates after bare sclera resection with and without mitomycin C use and conjunctival autograft placement in surgery for primary pterygium. Br J Ophthalmol. 1998;82:661–665.
7. Ordman L.J., Gillman T. Studies in the healing of cutaneous wound. Arch Surg. 1996;93:857–928.
8. Cohen R.A., McDonald M.B. Fixation of conjunctival autografts with an organic tissue adhesive [letter] Arch Ophthalmol. 1993;111:1167–1168.
9. Duke Elder Sir Stewart. vol VIII. Henry Kimpton; London: 1965. (System of Ophthalmology). 574.
10. Kenyon K.R., Wagoner M.D., Hettinger M.E. Conjunctival autograft transplantation for advanced and recurrent pterygium. Ophthalmology. 1985;92:1461–1470.
11. Coroneo M.T., Girolamo N.D., Wakefield D. The pathogenesis of pterygium. Curr Opin Ophthalmol. 1999;10:282–288.
12. Tan D.T., Chee S.P., Dear K.B., Lim A.S. Effect of pterygium morphology on pterygium recurrence in a controlled trial comparing conjunctival autografting with bare sclera excision. Arch Ophthalmol. 1997;115:1235–1240.
13. Lewallen S. A randomized trial of conjunctival autografting for pterygium in the tropics. Ophthalmology. 1989;96:1612–1614.
14. Chan S.M., Boisjoly H. Advances in the use of adhesives in ophthalmology. Curr Opin Ophthalmol. 2004;15:305–310.
15. Tidrick R.T., Warder E.D. Fibrin fixation of skin transplant. Surgery. 1944;15:90–95.
16. Katzin H.M. Aqueous fibrin fixation of corneal transplants in the rabbit. Arch Ophthalmol. 1945;35:415–420.
17. Gammon R.R., Avery N., Mintz P.D. Fibrin sealant: an evaluation of methods of production and the role of blood bank. J Long Term Eff Med Implants. 1998;8:103–116.
18. Harvey S.U., Reyes J.M., Flore J.D., Lim-Bon-Siong R. Comparison of fibrin glue and sutures for attaching conjunctival autografts after pterygium excision. Ophthalmology. 2005;112:667–671.
19. Sarnicola V., Vannozzi L., Motolese P.A. Recurrence rate using fibrin glue-assisted ipsilateral conjunctival autograft in pterygium surgery: 2-year follow-up. Cornea. 2010 Nov;29(11):1211–1214.
20. Korangy G., Seregard S., Kopp E.D. The cut and paste method for primary surgery: long- term follow- up. Acta Opthalmol Scand. 2005;83:298–301.