

**Comparative Study to Evaluate the Outcome of Fibrin Glue versus Suture in Conjunctival Autograft for Primary Pterygium Excision****Randhir Kumar<sup>1</sup>, Asif Shahnawaz<sup>2</sup>, Neha Kumari<sup>3</sup>, Raju<sup>4</sup>, Richa Mishra<sup>5</sup>, Madhuri<sup>6</sup>, Kumar Ravi<sup>7</sup>**<sup>1</sup>Associate Professor, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>2</sup>Associate Professor and Head, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>3</sup>PG-Student, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>4</sup>PG-Student, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>5</sup>PG-Student, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>6</sup>PG-Student, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India<sup>7</sup>PG-Student, Department of Ophthalmology, DMCH, Laheriasarai, Darbhanga, Bihar, India

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Conflict of interest: Nil

**Abstract****Aims and Objective:** To compare the duration of surgery, post operative complication, patient comfort and graft stability between the use of fibrin glue versus sutures for fixating conjunctival autograft after primary pterygium excision.**Material and Method:** The prospective study was conducted in the ophthalmology department of Darbhanga medical college and hospital in Laheriasarai. Fifty patients were studied who had primary pterygium. Pterygium removal and conjunctival autografting were performed on 25 patients using nylon sutures and on 25 patients using fibrin glue.**Sampling Method:** Simple random sampling**Result:** Fibrin glue method requires significantly less time to complete as compared to suture method. Conjunctival autografting with fibrin glue has been shown to reduce postoperative discomfort and inflammation more effectively than suturing. Stability of graft is more in fibrin glue group patients as compared to suture.**Conclusion:** The results indicate that outcome of fibrin glue is significantly better than suture for fixating conjunctival autograft after primary pterygium excision.**Keyword:** pterygium, conjunctival autograft, fibrin glue, nylon suture 10-0

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**Introduction**

One of the most prevalent problems with people's eyes is called primary pterygium. Many people are impacted, particularly those who reside between the tropics of Cancer and Capricorn. Genes play a role, but environmental factors like excessive UV radiation [1] or hot, dry, windy, dusty, and smoky conditions [2] also contribute. [3] Pterygium prevalence estimates range from 0.7% to 31%.

The standard course of treatment is a surgical excision. Excision of the extra tissue mass overlaying the cornea and adjoining sclera was the traditional method of treating pterygium, but this left a considerable portion of the sclera exposed. However, pterygium recurrence was deemed unsatisfactory in as many as 89% of cases. [4] The

destructive approach uses radiation and chemotherapy (mitomycin C (MMC), thiotepa, 5-fluorouracil, beta irradiation) to improve the efficacy of excision, while the reconstructive approach uses a variety of tissue grafts (conjunctival autograft, amniotic membrane transplantation, mucous membrane graft, conjunctival limbal transplantation) to improve surgical outcomes. Conjunctival autograft has been shown to be the most effective method for avoiding recurrence in a number of trials. [5] Suturing and fibrin glue are the two most common surgical procedures used to attach conjunctival auto grafts to the sclera nowadays. Each option features unique benefits and drawbacks. Fibrin glue reduces the need for sutures,

which require a high level of surgical skill and may lead to a longer procedure, improved postoperative comfort, and fewer suture-related problems. Pterygium surgery with fibrin glue and sutures has had mixed results so far.

This study aims to report and compare the results of pterygium procedures in which tissue glue or sutures were used to attach conjunctival auto grafts.

**Material and Method:-**

This prospective research was conducted in the Ophthalmology Department of Darbhanga Medical College and Hospital in Laheriasarai, Bihar. Fifty persons were studied who had primary pterygium. Pterygium removal and conjunctival autografting were performed on 25 patients using 10-0 nylon sutures, and on 25 patients using fibrin glue

**Study Design:** A Prospective Study

**Study Setting:** Department of Ophthalmology, Darbhanga Medical College & Hospital, Laheriasarai, Bihar.

**Source of Data:** This study was conducted on the patients with primary pterygia who attend the outpatient Department of Ophthalmology, Darbhanga Medical College& Hospital, Laheriasarai, Bihar.

**Sample Size:** A total of 50 patients of pterygia were included and randomly divided into two groups of 25 each.

**Sampling Method:** Simple random sampling

**Inclusion Criteria:** patients with primary pterygium consenting for surgery and with any of the following indications for surgery:

- Encroachment upon visual axis
- Inducing visually significant astigmatism of 1d or more
- Causing recurrent inflammation or cosmetically bothersome to the patient

**Exclusion criteria:**

- Recurrent Pterygium
- Atrophic Pterygium
- Patient on anticoagulants
- Patients with pre-existing glaucoma
- Patients with immune system disease
- Eyelid or ocular surface disease
- Known hypersensitivity to any component of fibrin glue

**Results & observations**

**Table 1: Age Distribution**

Age Group	Fibrin Glue Group (n = 25)		10-0 Nylon Suture Group (n=25)	
	Frequency	Percentage	Frequency	Percentage
18-30 years	3	12.0	8	32.0
31-40 years	10	40.0	7	28.0
41-50 years	5	20.0	0	0.0
51-60 years	3	12.0	0	0.0
61-70 years	0	0.0	7	28.0
71-80 years	2	8.0	2	8.0
>80 years	2	8.0	1	4.0
<b>Total</b>	25	100.0	25	100.0
<b>Mean Age</b>	45.76 ±18.05		45.68 ±19.53	
<b>Statistical Inference</b>	<b>p value:</b>			

**Table 2: Comparison of Mean operative Time**

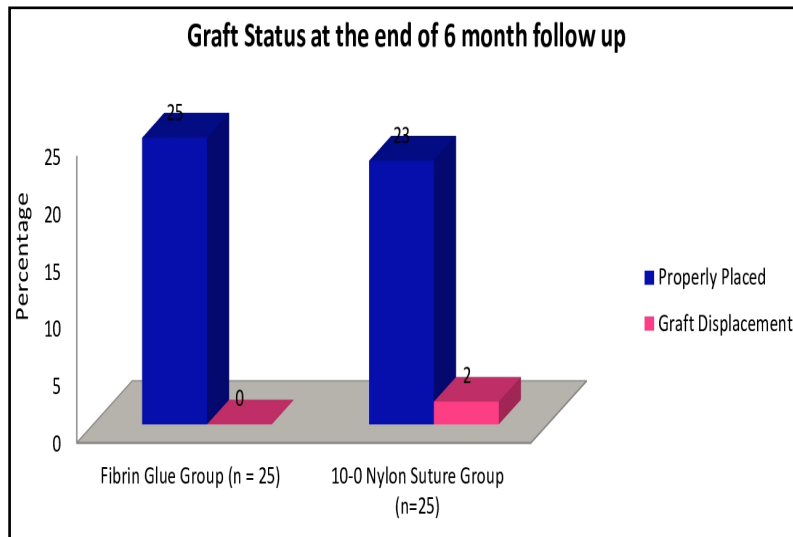
Operative Time	Fibrin Glue Group (n = 25)		10-0 Nylon Suture Group (n=25)	
	Mean	±SD	Mean	±SD
<b>Operative Time (minutes)</b>	15.88	±2.85	26.68	±2.65
<b>Statistical Inference</b>	<b>p value: 0.022</b>			

**Table 3: Postoperative Presenting Features at 6 month follow up**

Patient Outcome	Fibrin Glue Group (n = 25)		10-0 Nylon Suture Group (n=25)		p value
	Frequency	Percentage	Frequency	Percentage	
<b>Pain</b>	0	0.0	0	0.0	-
<b>Foreign Body Sensation</b>	0	0.0	0	0.0	-
<b>Lacrimation</b>	0	0.0	0	0.0	-
<b>Discomfort</b>	0	0.0	1	4.0	0.312

**Table 4: Graft Status at the end of 6 month follow up**

Graft Status	Fibrin Glue Group (n = 25)		10-0 Nylon Suture Group (n=25)	
	Frequency	Percentage	Frequency	Percentage
<b>Properly Placed</b>	25	100.0	23	92.0
<b>Graft Displacement</b>	0	0.0	2	8.0
<b>Total</b>	25	100.0	25	100.0
<b>Statistical Inference</b>	Chi Square:2.083 p Value:0.149			



**Figure 1: Graft status at the end of 6 month follow up**

**Discussion :**

The genus name "Pterygium" originates from the Greek word "pterygos," which literally translates to "wing. Subconjunctival tissues affected by pterygium develop as vascularized granulation tissue that invades the cornea, killing the stroma & Bowman's membrane beneath it, and replacing them with conjunctival epithelium. [6]

Pterygium is often treated with surgical removal. Pterygium removal with a conjunctival autograft (CAG) appears to be one of the safest and most promising methods currently available. [7-14] . Suturing has been the norm for as long as anyone can remember, it is not without its negatives, including prolonged hospital stays, increased discomfort and inflammation after surgery, and the development of buttonholes, necrosis, massive papillary conjunctivitis, scarring, and granulomas. [15] However, fibrin glue can be used in place of sutures to speed healing, lessen postoperative pain, and prevent suture-related complications. Fibrin glue has been shown in recent research to be superior to sutures.] Many authors have now attested to fibrin glue's safety and efficacy, while accounts of how often the original condition reappears vary widely.

This study compared fibrin glue to sutures as a method of fixing the conjunctival autograft following primary pterygium excision and showed that Patients in the fibrin glue group showed no presenting characteristics three months after

surgery, while patients in the nylon suture group showed two cases of lacrimation and two cases of discomfort. Also fibrin glue resulted in a decreased risk of pterygium recurrence and better graft stability after six months of follow-up. In contrast to the two patients who had graft displacement in the nylon suture group (p = 0.149), all grafts in the fibrin glue group were successful. The mean operational time for the nylon suture group was substantially greater (p = 0.021) than that of the fibrin glue group (15.88 2.85 minutes).

**Conclusion**

After completing the research, we found that:

Pterygium is a prevalent eye disease that affects between 0.3% and 29% of the global population. Although topical analgesics and moisturisers may provide temporary relief, pterygia may only be surgically removed.

- This study compared the use of fibrin glue, an alternative to sutures, to secure a conjunctival autograft after primary pterygium excision, in terms of surgical time, patient comfort, and graft stability. Six months following treatment, we compared the rates at which pterygia returned for each method.
- From what we could see, autologous fibrin glue is an alternative method of graft connection that requires significantly less time to complete. Conjunctival autografting with fibrin glue has

been shown to reduce postoperative discomfort and inflammation more effectively than suturing. Sutured grafts are not more stable than those secured with staples. Many international studies have demonstrated that it may be preferable to stitches for some patients, including those in India.

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