



NON STITCH NON GLUE VERSUS SUTURE TECHNIQUE FOR PTERYGIUM EXCISION: A COMPARATIVE STUDY AT A TERTIARY CARE HOSPITAL IN EASTERN INDIA.

Ophthalmology

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ABSTRACT

Aim: The aim of this study is to compare the results of conjunctival autograft attachment in pterygium surgery in non stitch non glue technique versus vicryl suture. **Material & Methods:** A comparative prospective study was carried out in 50 patients (50 eyes) in tertiary hospital for primary nasal pterygium. Patients were randomized to undergo pterygium surgery with either non stitch non glue (NSNG) (25eyes) or suture technique (25eyes) from January 2018 to January 2019. Duration of surgery was noted in each case. Mean follow up was 12 months. Clinical assessments were performed on day 2, 7, 14 post operatively and every 2 months thereafter keeping the records of post operative discomfort, dislodgement of graft and recurrence of pterygium. **Results:** In non stitch non glue technique(NSNG), the mean age of the patient was 41.2(range 28-61) & average operative time was 14.5min (range 10-19 min) and in suture group it was 46.3(range 31-63)(p=.03464) & 30.36min(range 27-41min)(p=.00001) respectively. Post operative complications such as pain, FB sensation & chemosis were significantly less in NSNG group. For Pain (p=.03078) FB sensation (p=.01552), redness (p=.63122) & chemosis (p=.00134) were found. 2 graft dislodgements (8%) in NSNG group & 1 graft dislodgement (4%) in suture group occurred. 2 cases of recurrences (8%) in NSNG group were noted. No recurrence in suture group. 1 case of NSNG group developed pyogenic granuloma. **Conclusion:** NSNG technique in pterygium surgery significantly reduces operating time & complications like pain, FB sensation & chemosis. But graft dislodgement & recurrence is a bit higher than suture group.

KEYWORDS

Non Stitch Non Glue, Pterygium Excision, Conjunctival Autograft.

INTRODUCTION:

A pterygium is a fibrovascular neoformation which arises in the conjunctiva & grows toward the surface of cornea causing FB sensation, recurrent irritation, watering & blurred vision^[1] Pterygium is more frequent in areas with more ultraviolet radiation^[2] in hot, dry, windy, dusty, and smoky environments^{[3],[4]} There is also a hereditary factor^[5] Therapeutic option for pterygium is surgical excision of pterygium. Bare sclera technique which is widely used in India having a very higher rate of recurrence rate. Conjunctival autografting gained popularity for having some benefits.

Materials & methods:

A comparative prospective study was designed to compare the surgery time, the outcomes in terms of pain, FB sensation, graft dislodgement & recurrence. 50 patients from OPD of our tertiary hospital were included in the study after obtaining a well informed consent explaining the purpose & post operative risks.

Inclusion criteria:

- Primary unilateral nasal pterygium causing significant irritation, high astigmatism
- Cosmetic problems to the patients (progressive pterygium)
- Pterygium growth > 1mm from limbus over the cornea

Exclusion criteria:

- Patients with eyelid or ocular surface diseases like blepharitis, sty, dry eye etc.
- Patients with pre-existing glaucoma.
- Patients on anti-coagulants.
- History of previous ocular surgery and trauma.
- Temporal pterygium

Procedure:

Pre operatively, all 50 patients applied topical moxifloxacin (0.5%) 4 times a day for 7 days before surgery. All patients of nasal primary pterygium were selected and divided into two groups. In 25 eyes of 25 patients NSNG technique (Gr A) and rest 25 eyes of 25 patients suture technique with 8-0 vicryl (GrB) were used to secure the grafts. All the surgeries were performed by the same surgeon and under same operating microscope. Surgery time was noted from first incision until the removal of lid speculum. Under peribulbar block the pterygium head was separated from the cornea by blunt dissection with the use of iris spatula and adhesion of pterygium with sclera was incised at limbus and underlying tenon capsule was excised. The wound bed was

scraped to clean cornea and sclera (Fig 1). Only major vessels were cauterised. A free conjunctival graft of same size as the nasal conjunctival defect (measured by caliper) was prepared at the supro-temporal limbal area of the same eye. The graft was moved to nasal side and attached to the bare sclera either with suture or by NSNG technique. Proper placement of the graft maintained with epithelial side up & limbal edge towards the limbus orientation.

In suture group the corners of the graft were anchored to the sclera at the limbus and rest of the part of the graft was attached to the nasal conjunctiva with interrupted sutures (8-0 vicryl).

In NSNG group, proper sized conjunctival grafts were pressed gently to the scleral bed allowing natural autologous coagulation of the recipient bed to act as a bioadhesive. (Fig 2)

After placement of graft, eye drop Moxifloxacin (0.5%) with Loteprednol (0.5%) one drop given in both the groups and then eye pad given. Eye pad kept for 48 hours then removed. After removal of eye pad, eye drop moxifloxacin (0.5%) with loteprednol (0.5%) 4 times daily continued.

All patients were assessed under slit lamp and followed up on day 2, 7, 14 and 2 months thereafter and each follow up patients were asked to fulfill a questionnaire on day 2 and subsequent follow up till 12 months. Grading the symptoms on a scale (For pain; no pain gr 0, pain on movement gr 1, pain at rest 2. For foreign body sensation; no foreign body sensation (FBS) gr 0, FBS at outdoor room gr 1, FBS in indoor gr 2 etc) were done. For redness; no redness gr 0, redness present gr 1, similarly no chemosis gr 0, chemosis present gr 1 were noted. Graft positions noted properly & recurrences were evaluated in every follow up. Any fibrovascular growth passing more than 1mm from limbus was considered as recurrence.

RESULTS:

After proper follow up and assessment of all the 50 patients we have got the following observation:

Table:1 Comparison of age and OT time in both groups.

	NSNG group	Suture group	t value	p value
Age	mean 41.2 (range-28-61 years)	mean 46.3 (range-31-63 years)	1.85815	.03464
OT time	mean 14.5 (range-10-19 min)	Mean 30.36 (range-27-41 min)	17.3046	.00001

The operation time was significantly less in NSNG group than suture group.

Table :2 After comparing post-op complains in both the groups.

Complains	z score	p value
Pain	2.16342	.03078
FB Sensation	2.41565	0.1552
Chemosis	0.20343	.00134
Redness	0.47537	.63122

Pain,FB sensation and chemosis were significantly low in GrA. Redness was not statistically significant.

There were 2 cases of dislodgement of graft(8%) on 7th post op day in GrA. 1 graft dislodgement(4%) in Gr B in 2nd post op day.

After 12 months of follow up the number of recurrences were 2 in Gr A (8%) whereas there was no recurrence of pterygium in Gr B. One episode of pyogenic granuloma noted in Gr A.(Fig 3)

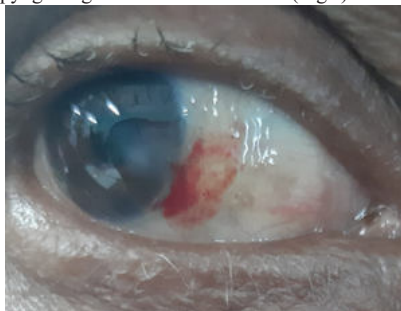


Fig 1:Pterygium excision followed by proper scraping of cornea & sclera.



Fig 2:After proper sized conjunctival autograft placement in NSNG group.



Fig 3: Formation of pyogenic granuloma on 14th post op day in NSNG

DISCUSSION:

Various surgical technique have been attempted to minimize the pterygium recurrence as well as to lower the post operative complications. Still there is ongoing debate regarding the most reliable procedure for pterygium surgery.

Excision of pterygium with conjunctival autografting is considered to be the procedure of choice in terms of efficacy and long-term stability^{[6],[7]}. Autologous conjunctival grafting with suturing is an effective method in preventing recurrence after pterygium surgery. But suture may cause pain, foreign body sensation, watering and other discomfort to the patient. Use of fibrin glue to fix the autologous graft is a novel alternative to suture technique. This technique is also associated with increased risk of post operative inflammation and recurrence. The cost of glue technique is also higher than NSNG technique. The NSNG technique is developed to minimize those

complication like pain, foreign body sensation and recurrence. Adjunctive therapies such as Mitomycin C,β-irradiation, and excimer laser have also been used to decrease the recurrence rate of pterygium in spite of potentially sight-threatening side effects^{[8],[9],[10]}

In our study one case of pyogenic granuloma was noted but the exact mechanism has not been completely elucidated, but association with abnormal vascular endothelial cell growth, cytokine abnormalities, and fibroblast activation have been postulated^{[11],[12]}

Ashok et al^[13] showed that the sutureless and glue free conjunctival autograft technique is simple, easy, safe, effective and less time consuming than the suture limbal autograft technique. In their study surgical time for NSNG technique was 15 minutes (range 10-19 minutes) and in suture technique it was 47 minutes (range 31-63 minutes). Jagdish Bhatia et al^[14] stated that average surgical time in NSNG technique was 35 minutes and in suture technique it was 45-50 minutes. Postoperative recurrence in Ashok et al study in NSNG technique was 12% which higher than Bhatia et al study where it was 6.8%. Malik et al^[15] study reported recurrence 2.5% in NSNG technique. Postoperative recurrence in suture technique was nil in their study (may be due to small sample size only 25 cases). Although recurrence is slightly higher in NSNG technique but post-operative discomfort is very less in NSNG technique.

CONCLUSION:

NSNG technique for conjunctival autograft attachment in pterygium surgery taken much shorter operating time & less post-operative complications than suture technique but there is slightly high chance of graft dislodgement and recurrence rate in NSNG technique.

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