

Research Article

New Small Incision Approach to Pterygium Surgery

Dr. Shyam Kumar Gupta (MBBS, MS)¹, Dr. Anil Kumar A², Dr. Bhaskar Agarwal^{3*}¹Dr. R M L Hospital, New Delhi.²Professor, Department of Pediatrics, T S Mishra Medical College, Lucknow³Associate Professor, Department of Prosthodontics, King George's Medical University, Lucknow

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Abstract: *Aim:* Benefits of new surgical technique for pterygium excision and access the postoperative pain and surgical time. *Material and Methods:* This study was conducted at Dr. RML Hospital, New Delhi. Complete history and eye examination was recorded. The diagnosis of pterygium was made on clinical judgment. All the pterygia were examined with the help of slit lamp to check the vascularity, encroachment towards the cornea and congestion. The pterygium was surgically excised and autologous conjunctival graft was taken from the superiotemporal limbus, was utilized to cover the sclera after the pterygium excision. No suture or glue is used to fix the conjunctiva to cover the bare sclera. Follow up period was upto 6 months. Intraoperative and postoperative pain was measured according to the visual analogue scale (VAS). The surgical time was noted from the very first surgical incision till the eye lid speculum was removed. *Results:* In this study 30 patients were enrolled; out of which 15 patients were male and 15 patients were female, thus the male to female ratio was 1:1. Graft was in position in 100% cases on 1st post operative day. No recurrence was found till 6 months follow up period. *Conclusion:* Cut and spread without suture or glue for attaching the conjunctival transplant tissue in pterygium surgery causes significant less postoperative pain and shortens the surgical time.

Keywords: No/without suture, new small incision approach to pterygium surgery.

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INTRODUCTION

Pterygium is a degenerative disease. Usually found in high sunlight exposure areas. It has wing shaped conjunctiva approaching towards the cornea center. most common location is nasal side of the eye ball [1]. Some case may have both nasal and temporal side presentations. Higher prevalence is reported in more UV radiation, hot, dry windy, dusty or smoky climates. Some time it has hereditary factors [2]. The corneal stem cell was in custom over a long period of time. Damage of deeper limbal cell defects produces an abnormal corneal surface. This leads to conjunctival epithelium in growth, vascularization and inflammation. Anti-inflammatory and lubricants can be used to reduce the patients discomfort but they do not cure the disease process. Ablation with erbium: YAG laser and smoothing the corneal surface with excimer laser has been tried by many authors but not found to be beneficial [3, 4].

Surgical removal is the treatment of choice. Recurrence is not uncommon after surgery. To reduce the recurrence rate many agents have been used such as- 5FU, mitomycin C, thiotepa, and beta radiation [5]. All of them have eye threatening complications. Autologous conjunctival grafting is the best method, having low recurrence rate and higher safety. The

recurrence in most cases is seen within 6 months of the surgery, but sometimes may occur later. This small incision surgical technique aim is to minimize the patient's pain/ discomfort by using no glue or suture rather than simple cut and spread to secure the graft.

The post operative pain and operation duration in pterygium surgery have not been reported well. So we attempted to use VAS score to measure the pain and record the surgical duration.

In this study we present a new small incision technique, where the autologous conjunctival graft is simply cut and spread over the bare sclera formed after pterygium excision.

MATERIAL AND METHODS

All the patients were examined in our patients in eye department of Dr. Ram Manohar Lohiya hospital, New Delhi. A complete history and clinical eye examination was recorded. The diagnosis of pterygium was based on clinical judgment. Special inquiry was made for the chief complaints, duration of the pterygium, previous medicines used and any previous surgical removal. For recurrent pterygium the number of previous surgeries was noted. Under slit lamp examination we looked for vascularization,

advancement towards the cornea and congestion. One surgeon performed all the pre-operative investigations, surgical procedure and post-operative evaluation.

Before surgery topical Paracaine (paratracaine) eye drops were given three times. The pain after first drop of paracaine was evaluated by using the Visual Analogue Scale (VAS), and the patient was instructed how to use VAS post-operative weeks. VAS scale is a 10 cm line, one end labeled as “no pain” and other end by “worst pain”. The patient marks the line how severe the pain felt at this point of time. For the purpose of statistical analysis backside of the scale is transformed to numerical values from 0 to 100. The initial VAS value was subtracted from all postoperative VAS values obtained from the same patient. The surgery was performed under operating microscope. Lidocaine 0.2-0.5 ml with adrenaline (Lignocaine 21.3 mg/ml + adrenaline 0.0009 mg/ml, Neon, Mumbai, India) was given as subconjunctival injection beneath the pterygium body, if needed further topical eye drops of paracaine is administered. The pterygium and the sclera were separated by a sharp incision at the corneal limbus and a blunt dissection with the help of iris spatula, the pterygium head was separated from cornea. The thickened and keratinized conjunctival tissue and underlying Tenon’s capsule were excised. To clear the corneal and sclera wound bed scraping was done and bleeding vessels were cauterized. The surrounding subconjunctival Tenon’s capsule was excised minimally.

A free conjunctival graft of the same size as the nasal conjunctival defect was prepared at the

superiortemporal limbus of the same eye. Care was taken to remove as little as possible of Tenon’s tissue on the graft tissue. The limbal edge of the graft was cut to have a thin rim of corneal epithelium. The graft was positioned to the bare sclera site, no glue or sutures used. The surgeon carefully spread the graft keeping in mind the orientation and upside epithelium and limbal edge towards the limbus. No patching or bandage was used. Eye drop Fluromthelone with Tobramycin (FML-T, Alcon pvt.ltd.) Used six times a day. The eye drops tapered over out 6 weeks.

The patients have to fill the questionnaire of VAS on the operation day 1st hour, 6 hours and on 1st post-operative day. To avoid the possible difference in pain thresholds, VAS figures were adjusted individually accordingly to the reference value obtained for each patient post-operatively.

RESULTS

The study included 30 patients, out of which 15 were men and 15 were women. Male female ration was 1:1. The mean age was 23 years. After adjusting for the pain sensitivity the median VAS value were 3 on 1st hour, 2 on 6 hours and 1 on 1st post operative day. Median surgical time was 10 minutes. There was no transplantation tissue loss or dislocation. No postoperative case shown necrosis or excessive post operative bleeding. No recurrence was reported within 6 months of follow-ups. The transplant site healed and no cosmetic residuals reported. The donor site healed perfectly well.

Table-1

S.No.	Age (yrs)	Sex	Eye	Site of pterygium	Adjusted VAS			Surgical Time (Mins)
					1 hr	6 hrs	1 day	
1	22	F	R	Nasal	3	2	1	10
2	24	F	R	Nasal	3	2	1	10
3	18	M	R	Temporal	3	2	2	10
4	23	M	R	Nasal	2	1	0	12
5	32	M	L	Nasal	2	1	1	10
6	21	M	R	Nasal	3	2	1	10
7	36	F	R	Nasal	4	3	2	11
8	19	F	R	Nasal	3	2	1	9
9	22	F	R	Nasal	3	2	1	10
10	25	F	L	Nasal	2	2	1	10
11	41	M	L	Nasal	2	2	1	10
12	29	M	R	Nasal	3	2	1	10
13	36	M	R	Nasal	3	2	1	10
14	19	M	L	Nasal	2	2	1	10
15	43	M	L	Temporal	2	2	1	10
16	34	M	L	Nasal	2	2	1	10
17	37	F	L	Nasal	3	2	2	9
18	23	F	R	Nasal	2	1	1	11
19	31	M	R	Nasal	3	2	1	10
20	43	F	R	Nasal	4	2	1	9

21	40	F	R	Nasal	2	1	1	8
22	21	M	R	Nasal	2	1	1	10
23	32	F	L	Nasal	2	1	1	11
24	31	F	R	Nasal	2	1	1	10
25	30	F	L	Nasal	2	2	1	11
26	19	M	L	Nasal	3	1	1	9
27	20	F	R	Nasal	2	1	1	10
28	39	M	L	Nasal	2	2	1	10
29	47	M	R	Nasal	2	1	0	11
30	43	F	L	Nasal	2	1	1	10

F: Female, M: male, R: Right Eye, L: Left Eye,



Fig-1: Preoperative Pterygium



Fig-2: Post-operative Pterygium



Fig-3: Post-operative Pterygium after 6 weeks

DISCUSSION

In past several attempts have made to get better pterygium surgery results. The commonly used techniques are bare sclera procedure, amniotic membrane grafting and lamellar keratoplasty [6]. The desired result of the pterygium excision is to prevent its recurrence. Autologous conjunctival grafting not only avoids the risk of scleral necrosis but also cost effective.

This new surgical technique reduces the surgical time and post operative discomfort. As compare to other pervious techniques, postoperative patching, healing time and restrictions in day today life

are least concerned. As different patient’s sensitivity for the same stimulus, different pain reporting experiences, we adjusted the VAS values by subtracting the value after the same stimulus is given.

Postoperative suture removal and buried knots was a great problem for some patients [7]. This caused more time and additional pain/ discomfort. This method needs smaller tissue for excision and thus smaller grafts, which heals faster with lesser pain and inflammation. Wastage of conjunctival tissue is minimal as blunt separation of pterygium head.

The cost of this small incision, cut and spread surgery is very low as compared to suture or glue method. Many a time’s sutures cause significant foreign body sensation, watering and pain [8]. That may be either due to sutures themselves or may be the inflammatory process around the sutures.

Immediate adhesion of the whole graft causes inhibition of fibroblast tissue to proliferate towards the cornea, leading to very low recurrence rate [9]. No recurrence was reported in this study.

CONCLUSION

Small incision, cut and spread for pterygium graft fixation is a safe, faster technique without any side effects. The pain/discomfort is less as compared to other methods.

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