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SURGICAL OUTCOME OF CLAT BY SUTURE AND SUTURELESS TECHNIQUE IN PTERYGIUM EXCISION

Ophthalmology

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ABSTRACT

Aim: To study the surgical outcome in Conjunctival Limbal Autograft Transplantation (CLAT) by sutured and suture less technique in pterygium excision. **Methodology:** This descriptive longitudinal study was conducted on 80 patients undergoing pterygium surgery by sutured and suture less techniques. Patients were examined on post-operative day 1, one week, one month and three months for discomfort, inflammation, graft security and recurrence. **Results:** The discomfort was significantly more in Sutured technique as compared to Sutureless (p=0.0001). Inflammation was significantly more in Sutured technique as compared to Sutureless (p=0.0001). Graft stability was significantly less in Sutureless as compared to Sutured technique (p=0.0001). Rate of recurrence (2.5%) was low in sutureless group as compared to sutured group (10%). **Conclusion:** sutureless technique has better surgical outcome for inflammation, discomfort and recurrence. Graft stability was better in sutured technique.

KEYWORDS

pterygium, CLAT, surgical outcome

INTRODUCTION :

Pterygium takes its name from the Greek word, pterygos , meaning "wing" and was described by Hippocrates, Galen and others.1,2 It is a degenerative condition of the subconjunctival tissue , which proliferates as a vascularized granulation tissue to invade the cornea, destroying superficial layers of stroma and the Bowman's membrane, the whole being covered by conjunctival epithelium. It is common in dry and sunny climates, with the most probable aetiological factor being ultraviolet light.3 Symptoms of pterygium may include irritation and grittiness, foreign body sensation in the eye and sometimes, the lesions may interfere with vision by obscuring the visual axis or inducing astigmatism with the effect of corneal flattening in the axis of the pterygium.3Indications for surgery include visual impairment, cosmetic disfigurement, motility restriction, recurrent inflammation, interference with contact lens wear and rarely, changes suggestive of neoplasia. Recurrence after surgical excision is the main problem (30-50%). Pterygium excision with conjunctival- limbal autograft (CLAT) is presently the preferred technique and has been demonstrated to be the best method with a low recurrence rate .(3-9%)4. In this study, we further compare the surgical outcomes of both suture and sutureless(no suture, no glue) techniques.

Materials and methods: A total of eyes 80 from 80 patients were enrolled in a descriptive longitudinal study at Pravara Rural Hospital, Loni. This study included Patients undergoing pterygium surgery for primary progressive nasal pterygium by sutures and sutureless techniques, patients of any age and both genders and those willing to give written informed consent for study between October 2018 to January 2020.Patients operated for recurrent and atrophic pterygium, those having ocular surface disorders (eg- Sjogren's syndrome, ocular pemphigus, dry eye) and patients with limbal stem cell deficiency were excluded. Study was initiated after ethical approval and data was collected from all selected patients using a structured proforma meeting the objectives of the study. Post-operative ophthalmic examination using slit lamp biomicroscopy was done. Patients were scheduled for follow up examination on post op day 1 and 7, at 1 month and 3 months to observe for discomfort, inflammation, graft security and recurrence. Outcome parameters were evaluated using the 5 point scale adapted from Lim-Bon-Soong R et al5., and recurrence at 3 months. A 5-point discomfort scale with following descriptions were used: Grade 0: none or no symptoms, Grade 1: very mild or presence of symptoms that is easily tolerated, Grade 2: mild or symptoms causing some discomfort, Grade 3: moderate or symptom partially interferes with usual activities or sleep, Grade 4: severe or symptom completely interferes with usual activities or sleep. Similary, graft inflammation was graded as Grade 0:no dilated corkscrew vessel in the graft, Grade 1: 1 bright red, dilated corkscrew vessel crossing the graft-bed margin, Grade 2: 2 bright red dilated corkscrew vessels crossing the graft-bed margin, Grade 3: 3 bright red dilated corkscrew vessels crossing the graft-bed margin, Grade 4: > 3 bright red dilated corkscrew vessels crossing the graft- bed margin. The graft stability was graded as Grade 0 = all four sides of graft are well attached to the sclera, Grade 1 = displacement of one side of graft from the scleral bed, 2= displacement of two sides of the graft, 3 = displacement of three sides of the graft and 4 = complete displacement of graft from the scleral bed. Here, lower the grade, more the graft stability and higher the score, lesser the stability of the graft. Recurrence was defined as any conjunctival re-growth onto the cornea from the same area of pterygium excision. Data was analyzed by applying appropriate statistical tests.

Results: The mean age of the patients with pterygium was 49.10 ± 13.91 SD (range 18-81 years). The relevant tables regarding post-operative observations are as follows

Table 1. Discomfort grading

Discomfortgrading	Post op day 1 to 1 week		Post op day 1 to 1 month		Post op day 1 to 3 months	
	Suture	Suture Less	Suture	Suture less	Suture	Suture Less
Grade 0	32.5%	55%	82.5%	87.5%	100%	100%
Grade 1	42.5%	42.5%	17.5%	12.5%	0%	0%
Grade 2	25%	37.5%	0%	0%	0%	0%
Grade 3	0%	1.5%	0%	0%	0%	0%
Grade 4	0%	0%	0%	0%	0%	0%

By applying Z test of difference between two proportions there is a significant improvement of discomfort from Post op day1 to 1 week, Post op day1 to 1month and Post op day1 to 3months in both the techniques for Grade 0. (p=0.0001). It is seen that the discomfort is significantly more in Suture less technique as compared to Sutured technique (p=0.001)

Table 2. Inflammation Grading

Inflammation grading	Post op day 1 to 1 week		Post op day 1 to 1 month		Post op day 1 to 3 months	
	Sutured	Suture Less	Sutured	Suture less	Sutured	Suture Less
Grade 0	37.5%	55%	75%	90%	92.5%	95%
Grade 1	37.5%	30%	15%	7.5%	7.5%	5%
Grade 2	20%	12.5%	10%	2.5%	0%	0%
Grade 3	5%	2.5%	0%	0%	0%	0%
Grade 4	0%	0%	0%	0%	0%	0%

By applying Z test of difference between two proportions there is a significant improvement of inflammation from Post op day1 to 1 week, Post op day1 to 1month and Post op day1 to 3months in both the techniques for Grade 0. (p=0.0001). It is seen that the inflammation is significantly more in Suture less technique as compared to Sutured

technique (p=0.0001)

Table 3. Graft stability

Graft stability	Post op day 1 to 1 week		Post op day 1 to 1 month		Post op day 1 to 3 months	
	Sutured	Suture Less	Sutured	Suture Less	Sutured	Suture Less
Grade 0	95%	87.55%	100%	97.5%	100%	97.5%
Grade 1	5%	10%	0%	0%	0%	0%
Grade 2	0%	0%	0%	0%	0%	0%
Grade 3	0%	0%	0%	0%	0%	0%
Grade 4	0%	2.5%	0%	2.5%	0%	2.5%

By applying Z test of difference between two proportions there is a significant improvement of Graft stability from Post op day1 to 1 week, Post op day1 to 1month and Post op day1 to 3months in both the techniques for Grade 0. (p=0.0001). It is seen that the inflammation is significantly less in Suture less technique as compared to Sutured technique (p=0.0001).

Rate of recurrence (2.5%) was low in sutureless group as compared to sutured group (10%).

DISCUSSION:

Conjunctival autografting after pterygium excision is associated with very low rates of recurrence and complications when compared with other techniques. Nevertheless, graft suturing has disadvantage of longer surgery time and also, complications like infection, chronic inflammation, granuloma formation, giant papillary conjunctivitis and significant patient discomfort after surgery. Recent reports favor use of fibrin glue above sutures with improved comfort, decreased surgical time, and reduced recurrence rates, but plasma-derived fibrin glue has potential risk of B19 parvovirus transmission, prion disease transmission and anaphylaxis in susceptible individuals[6,7]. In our study, we have observed the postoperative outcome of sutured and sutureless technique. Discomfort was significantly more in Sutured technique as compared to Sutureless (p=0.0001). In a study by Natung et al[8], sutureless had better symptom parameters than sutured group whereas graft stability was better in sutured group. In our study, inflammation was significantly more in Sutured technique as compared to Sutureless (p=0.0001). As per Sati A et al.[9], sutures do not incite more inflammation than non-suture group since postoperative steroids take care of postoperative inflammation . According to them it is the barrier effect of CAG that plays an important role in preventing recurrences. Therefore, comparing a suture group with sutureles group is justified. Graft stability, although was lesser in Sutureless as compared to Sutured technique (p=0.0001). Malik et al[10] in their study by sutureless gluefree technique, reported that the only complication occurred was medial edge recession of the graft that developed to one patient (3.7%) . Rate of recurrence was low in sutureless (2.5%) as compared to sutured group (10%)in our study. Rathi et al11 reported that out of 50 eyes of 50 patients, one eye (2%) demonstrated recurrence and graft loss occurred in 1 eyes (2%) . Choudhary S12 et al., found no significant difference in recurrence rates between conjunctival fixation with sutures and autologous in situ blood coagulum. Sati A et al9., also found equal recurrence rate in all the sutured, fibrin glue and no suture no glue techniques . There was not a single case of graft loss in our study. Sutureless and glue-free conjunctival autograft is not only an easy technique but also has advantages of no additional cost, no risk of transmission of blood related diseases and no suture related complications

CONCLUSION:

Surgical outcome of no suture, no glue technique is far superior to sutured technique. It has least postoperative discomfort to the patient and excellent cosmetic outcome as there is very low recurrence.

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