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Vuyyuru Raja Sekhar
 Asst professor of
 Ophthalmology Govt General
 Hospital, Guntur AP. India.

A V Pitchi Reddy
 Asst professor of
 Ophthalmology Govt General
 Hospital, Guntur AP. India.

Y Srinivas
 Asst professor of
 Ophthalmology Govt General
 Hospital, Guntur AP. India.

Correspondence:
Vuyyuru Raja Sekhar
 Asst professor of
 Ophthalmology Govt General
 Hospital, Guntur AP. India.

A clinical study of PECA a novel surgical procedure

Vuyyuru Raja Sekhar, AV Pitchi Reddy, Y Srinivas

Abstract

Purpose: Pterygium excision with conjunctival auto graft with no glue, no sutures surgery performed at a govt hospital ophthalmology dept in south India, to know the benefits of this new method.

Method: Prospective analysis of 15 patients with primary and secondary pterygium operated between March 2014 to July 2014, recurrence and complications analyzed.

Results: A total of 17 eyes of 15 patients with primary pterygium 15 eyes (88.3%) and recurrence 2 eyes (11.7%).all the patients underwent conjunctival auto graft without glue or sutures, are secured to pterygium excisional area with auto blood fibrin clot. the mean duration of follow up in between 12-14weeks (minimum 3 months) with good primary outcome with no recurrence was noted in all cases.

Conclusion: Conjunctival auto graft without glue or sutures appears to be an effective modality for primary and recurrent pterygium with no extra cost and full benefits to the patient.

Keywords: Pterygium surgery, conjunctival auto graft, no glue, no suture, auto blood fibrin clot, recurrence.

1. Introduction

A pterygium is a winged shaped growth of fibro vascular conjunctiva onto the cornea. Its incidence varies across geographical locations. Here in India we are sitting in the pterygium belt with prevalence in the range of 0.3 to 29%.

Several hypotheses have been ascribed to its etiology [1]. Currently it is believed that the pterygium is a growth disorder characterized by conjunctivalization of the cornea due to localized ultraviolet produced damage to limbal stem cells [2].

The indications for surgery include reduced vision due to encroachment of visual axis and irregular astigmatism, chronic irritation, recurrent inflammation and restriction of ocular motility and cosmesis.

Numerous surgical techniques including bare sclera excision, with and without the use of adjuncts like beta irradiation, thiotepa eye drops, intra or postoperative Mitomycin C or anti neoplastic agents, amniotic membrane transplantation, conjunctival auto graft with or without limbal stem cells have been described [3].

Pterygium surgery is fairly common in our country, which is located within the tropics. Hence we decided to undertake this novel surgical procedure without fibrin glue or suture to study the effectiveness.

2. Method

All the cases had informed written consent and hospital ethical committee approval to study.

Number of eyes	17
Primary pterygium	15
Recurrent pterygium	02
male	05
female	10
Mean age	32+/- 2 yrs
Mean surgical time	15+/-0.9 min
Follow up	12-14 weeks min 12 weeks

3. Surgical technique

All cases were done under peribulbar anesthesia and all sterile procedures followed. Reverse stripping of the pterygium head with min cautery was applied to bed and then gradually blood is allowed to ooze and form clot in bed, calipers used to measure size of conjunctival auto graft 1mm over size is created from upper temporal conjunctiva, without tenon’s capsule and limbal tissue was not included in the auto graft, is slid into place over the bare sclera in the correct anatomical orientation and conjunctival edges are opposed with non tooth forceps. Donor area allowed to epithelize. At the end of surgery carefully eye speculum was removed without distorting graft. Eye is patched for 12-14 hours. Routine post op instructions like tapered 1% prednisolone acetate eye drops 4-6 times daily. Moxifloxacin eye drops for 7 days. Lubricating eye drops for 6-8 weeks are used. Patients follow up for 1st day, 1 week, 4 weeks and 12 weeks.

4. Results

Primary outcome		
	Graft dislodgement	nil
	Recurrence	nil
Secondary outcome		
	Post op	Pain minimum
	Cosmesis	Good
Minor complications		
	Sub conjunctival hemorrhage	2 cases (11.7%)
	Graft recession	1 case (5.8%)
	Graft edema	1 case (5.8%)



Pre op

3 months post op

5. Discussion

Pterygium surgery should ideally have a low or no recurrence, minimal complications and be cosmetically acceptable. The evolution of several surgical techniques over the years with recurrence rates varying from 2 to 88% indicates that we are yet to find the ideal procedure.

It still remains ophthalmic enigma, surgical procedures are evolved from bare sclera technique in 1960’s which is easy to do but fall out due to very high recurrence rate in the range of 26.8 to 88% [4]. Use of intra operative mitomycin C has a recurrence of 0-43% with devastating ocular complications like sclera melt etc.

During 80’s conjunctival auto graft was described by Kenyon *et al.* and currently is the standard case for pterygium surgery with low recurrence, with rates in the range of 0-9% [5]. Good cosmosis results, no serious intraoperative complications, thin graft either with or without limbal tissue was sutured to the graft area. This results in longer surgical time and suture related complications remained.

During the present decade fibrin glue application to fix the graft was developed [6] with elimination of suture related

complications and faster surgery but other draw backs occur like increased cost, availability, anaphylactic reactions, viral disease transmission and bio degradable within 3 hours remained.

Use of patients own autologous blood [7] was based on clotting mechanism of blood coagulation, but should be used before fibrinolysis occurs as blood clots naturally, was developed with all the drawbacks eliminated.

Auto blood no longer problem because we can puncture vessels to ooze if quantity of clot is inadequate, with this technique no mismatch, uncomplicated, easy availability, faster rehabilitation to patient and last but not the least very cost effective in government hospital setup like ours. We agree that the limitation of this study arte smaller sample size, and follow-up time. Prospective studies of larger sample size, follow up period along with graft size are needed.

6. Conclusions

Autologous fibrin in blood is a useful alternative method for graft fixation in pterygium surgery, we found the new procedure of auto grafting free of any untoward complications.

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