



## Pterygium Excision and Conjunctival Graft from the Pterygium Tissue Itself without Rotation

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### Abstract

**Objective:** A modified technique of using conjunctival graft from the pterygium tissue itself without any rotation for primary pterygium in glaucoma suspects and double headed pterygium with fibrin glue.

**Methods:** Hospital based study in a tertiary centre in Karnataka, from July 2017 to April 2018, involving 38 patients with primary pterygium who underwent pterygium excision with conjunctival graft from pterygium tissue itself without Rotation of the flap using fibrin glue. Group one included glaucoma suspects with pterygium and group two included patients with double headed pterygium. Follow up was done at 24 hours, 1 week, 4 weeks, 8 weeks and 8<sup>th</sup> month for recurrence, graft retraction and graft edema.

**Results:** Out of 38 eyes (group 1 and group 2) average recurrence rate of 5.55%, graft retraction of 28.88% and graft edema of 44.44% was recorded.

**Conclusion:** Conjunctival graft from the pterygium tissue itself without rotation of flap is an effective technique with lower recurrence rate for treating primary pterygium in glaucoma suspects and double headed pterygium.

**Keywords:** Pterygium, recurrence, graft retraction, graft edema.

### Introduction

Pterygium, deriving its etymology from the Greek word “pteros” which means wing, is a non-malignant, fibrovascular, wing-shaped proliferation of the subconjunctiva, which may encroach onto the cornea.

Ultraviolet light-induced damage is the primary cause, however dry, sunny, windy weather as well as exposure to the outside environment are also significantly factorial.<sup>[1]</sup> The underlying histopathology of pterygium indicates a progressive, elastotic degeneration of conjunctival collagen resulting in its characteristic proliferative

appearance.<sup>[5]</sup> It is a worldwide condition with prevalence in the “pterygium belt”, saddled within the equatorial region.

Pterygium can be graded in accordance to corneal involvement as - Grade 1: Crossing the limbus; Grade 2: Midway between the limbus and pupil; Grade 3: Reaching up to the pupillary margin; and Grade 4: Crossing the pupillary margin.

Unfortunately, no medical management exists for this condition, with surgery being the best-known form of treatment. CAG (conjunctival autograft) is considered the gold standard modality for primary pterygium with the graft site primarily being the

superior bulbar conjunctiva.<sup>[4]</sup> However, the graft may not be enough to cover the bare scleral defect in double-headed pterygia, nor is it advisable in glaucoma suspect cases for future trabeculectomy management.<sup>[2]</sup> In such indications, an unconventional approach suggested the use of conjunctival tissue from the pterygium itself to cover the bare scleral defect with 180° rotation of the graft.<sup>[6]</sup>

In this study, we employ a modified technique of using conjunctival graft from the pterygium tissue itself without any rotation with fibrin glue.

### Material and Methods

A hospital-based study conducted in a tertiary care centre in Karnataka during the time period of July 2017 to April 2018. A total of 38 eyes of 38 patients were included in the study. out of the 38 eyes with primary pterygium Group 1 included 20 patients diagnosed as glaucoma suspects who were explained about the need for filtering surgeries in the future and Group 2 included 18 patients with primary double headed pterygium. All surgeries were performed by a single surgeon using the same technique.

#### Inclusion criteria

- Primary pterygium
- Up to Grade 3 pterygium

#### Exclusion criteria

- Recurrent pterygium
- Grade 4 pterygium

### Surgical Procedure

#### Glaucoma Suspects

Following administration of Peribulbar Anaesthesia, the graft is obtained by meticulous separation of conjunctival layer from underlying

pterygium. The fibrovascular tissue is then excised, and haemostasis achieved. Conjunctival graft is placed over bare sclera using fibrin glue. Mean operation time – 16 +/- 1 minute

#### Double headed pterygium

Following administration of Peribulbar Anaesthesia and excision of temporal pterygium, the graft is obtained by meticulous separation of conjunctival layer from the underlying nasal pterygium. The graft is then placed with the epithelial side up. The fibrovascular tissue is excised on nasal side, and the bare scleral defect is then covered by autograft from superior bulbar conjunctiva with fibrin glue. Mean operation time – 20 +/- 3 minutes.

Post-operatively, patients were placed on Ofloxacin-Dexamethasone with tapering doses, and Carboxy-methylcellulose eye drops (0.5%) for 3 weeks.

### Results

Out of the 38 patients in the study, there were 21 males and 17 females. Patients belonged to the age group of 30-70 years. Group I consisting of glaucoma suspects with primary pterygium had a recurrent rate of 30% (6/20), and graft oedema at 50% (10/20) of the patients. Group II consisting of double headed pterygium had a recurrence rate of 5.55% (1/18), graft retraction rate of 27.77% (5/18), and graft oedema in 44.44% (8/18) of the patients. Patient were followed up at 24hours, 1,4,8 weeks till 8 months post-operatively.

GROUP	PATIENT PROFILE	RECURRENCE RATE (%)	RETRACTION RATE (%)	OEDEMA RATE (%)
I	Glaucoma suspects	0 (0/20)	30 (6/20)	50 (10/20)
II	Double headed pterygium	5.55 (1/18)	27.77 (5/18)	44.44 (8/18)
Overall (%)		5.55	28.88	47.22

## Discussion

Pterygium is one of the most common ophthalmic diseases prevalent primarily in the tropics and subtropics. Various surgical modalities have been proposed and advocated, however no formal or defined procedure exists for all pterygia.

Simple excision followed by application of agents like beta-irradiation, thiotepa eye drops, antimetabolic drugs like MMC (mitomycin), or even the use of AMT (amniotic membrane) have significant complications or disadvantages. The use of MMC intra- or post-operatively has a cumulative toxicity that has been noted to cause scleral melting and corneal perforations.<sup>[7]</sup> AMT is a good alternative graft, however its low availability with high price tag make its use limited. AMT has also shown a higher recurrence rate than CAG in previous studies.<sup>[8]</sup>

Now for the conventional primary pterygium, CAG is the gold standard procedure, but this doesn't work in glaucoma suspects or double-headed pterygium due to the inadequacies of the superior bulbar conjunctival graft. Apart from repairing the defect, the procedure should also aim to adequately cover the bare scleral defect so as to prevent/reduce recurrence. The problem was subverted by using conjunctival tissue from the pterygium itself to cover the bare scleral defect with 180° rotation of the graft. This technique improved overall outcome and reduced recurrence rates.<sup>[6]</sup> A recent study though suggested that rotation of the conjunctival sheet had no significance on the outcome with the recurrence rates just as comparable.<sup>[2]</sup>

Our technique was similar, where the underlying pterygium tissue was removed and the original epithelium was placed over the bare sclera without any rotation. In comparison to CAG, obtaining the graft from the pterygium tissue itself was more challenging, in view of procuring an appropriately sized graft and with regards to its fragility. The graft was noted to either be of the same size or slightly smaller than the defect. As the graft cannot be oversized, graft retraction could occur leading to loss of graft and recurrence. This,

however can be reduced by excluding the subepithelial tissue as much as possible.<sup>[10]</sup> It was noted in 28.88% of patients in this study.

Fibrin glue was used as a sealing agent instead of sutures to reduce postoperative pain, foreign body sensation, and watering complaints. This correlates with the other studies suggesting all symptoms are significantly less with the use of glue.<sup>[11]</sup>

The most common outcome of this study was the occurrence of graft edema with a recorded rate of 44.4 %. Graft edema is noted to be the most frequent complication post CAG.<sup>[9]</sup> It usually resolves spontaneously without any intervention after 8-10 days post-operatively.

## Conclusion

This study involved a novel approach of using conjunctival tissue from the underlying pterygium itself as the graft modality. It is a considerably better alternative than a graft from the superior bulbar conjunctiva especially in patients with double headed pterygia or glaucoma suspects. The traditional autograft is either minimal to cover both bare scleral defects, or may need to be preserved for filtering procedures (as in the case of glaucoma). Hence, this study confirms that this approach of obtaining the graft and adhering it with fibrin glue and without rotation results in lesser recurrence rates and complications.

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