

# A New Procedure Graft by Rotated Conjunctival Flap with One U Suture for Surgical Pterygium

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**Abstract:** Pterygium is a degenerative ocular surface disorder with fibrovascular dysplasia growth of the subconjunctival tissue onto the cornea that can be caused cosmetic as well as vision when it got advanced. The most popular surgical procedure is currently limbal conjunctival autograft with suture, sutureless or glue. It has its own drawbacks like cost, increased operating time, postoperative discomfort, inflammation, necrosis, giant papillary conjunctivitis, scarring, and granuloma formation. A new procedure by a rotated conjunctival flap with one U suture is introduced details. It is an easy and cheaper technique for the management of pterygium with less recurrence.

**Keywords:** surgical pterygium, rotated conjunctival flap, one U suture, pterygium recurrence.

## 1. Introduction

Pterygium is a degenerative ocular surface disorder with fibrovascular dysplasia growth of the subconjunctival tissue onto the cornea that can be caused by corneal opacity [1]. Pterygium is quite common in tropical and subtropical countries, which are hot and dry sunny. In Vietnam, it is also a common eye disease. According to statistics of the Hanoi Institute of Ophthalmology, the percentage of pterygium accounted for 5.24% of the total population (1996). The pterygium is common in the nasal side and rarely in the temporal side. The disease can progress slowly for years, or it can progress very quickly, invasively. Pterygium was graded depending on the extent of corneal involvement: Grade I= crossing the limbus, Grade II= mid-way between limbus and pupil, Grade III= reaching up to pupillary margin, and Grade IV= crossing pupillary margin. Pterygium causes red eye, slight irritation, cosmetic blemish, and gets advanced it can cause impairment of vision. Surgical techniques have been described as methods for management of pterygium, including bare sclera resection. After cut off pterygium, mitomycin C application was followed. [2]. Recurrent pterygium often occurs. So pterygium excision plus conjunctival autografting or amniotic membrane placement are often used [3]. The most popular surgical procedure is limbal conjunctival autograft with suture, sutureless or glue [4] [5] [6]. It has its own drawbacks like cost, increased operating time, postoperative discomfort, inflammation, necrosis, giant papillary conjunctivitis, scarring and granuloma formation [7][8].

A new procedure graft by a rotated conjunctival flap with one U suture is introduced details. It is an easy technique with low cost for the management of recurrent pterygium

## 2. Methods:

A grafting by an auto-limbal conjunctival flap with one U suture was proposed and described detail as follow.

**Inclusion criteria:** Patients with nasal pterygium or temporal pterygium. recurrence pterygium grade 3 and 4.

Recurrence was defined as conjunctival growth extending greater than 1mm from the limbal cornea.

**Surgical technique**

1. Pterygium and conjunctiva anaesthesia with 2% lignocaine.

2. The body of the pterygium is dissected 4 mm from the limbus, down to the bare sclera and pterygium is resected by avulsion. If the portion of conjunctiva pterygium is thickened, it should be cut off, and haemorrhages will be managed by direct compression with a soaked lidocain cotton applicator.

3. A rectangular sized graft by 4 x14mm is prepared

4. The conjunctiva flap is taken from the superior 12 o'clock position. This flap is resected with scissors, but the head flap 2mm width is fixed on conjunctiva in grafting.

5. This flap is rotated anti- clockwise in case of nasal pterygium or clockwise in case of temporal pterygium. (For left eye)

6. The head of the flap is still on conjunctiva: one side of the limbal flap inserted limbal cornea to maintain the limbus-limbus orientation and the other side is contacted with conjunctiva.

7. The end of flap 4mm width is sutured with one U through under the conjunctiva 8.0 silk.

8. Applying gentle pressure by a brief tamponade with a soaked lidocain cotton applicator on the conjunctiva graft-wound for 3 minutes before the eye was bandaged for 24 hours.

9. For one week later, topical antibiotic-steroid eye drops along with topical lubricants were given.

10. This one suture will be removed 1 week later.

## 3. Discussion:

There are many methods of treating predators of pterygium such as medical treatment, chemical, physical but not bring the desired results. Surgery pterygium only can be effective. Methods of surgery such as cutting pterygium with buried the head, the rate of recurrence are very high. Once relapsed, the pterygium is always faster and more difficult to treat. Various methods to limit the recurrence rate bring about more satisfactory results patient. In 1985, Kynion used a method of autologous transplantation with a recurrence rate of 5.3%; Lucio Burato removed pterygium and Mitomycin application with a recurrence rate of 1.5-6%. In 1999 Donald T- H Tan auto conjunctiva graft, the recurrence rate was 2%. [6]

The sutureless and glueless method described here was developed to address patients' discomfort, especially postoperative pain and surgical time. In addition, postoperative patching, healing time, and restrictions in normal life after surgery were of concern. The cost of surgery is another very important factor to be considered. The cost of fibrin glue is quite high. Using no glue and no suture technique instead of sutures when attaching the conjunctival transplant in pterygium surgery causes significantly less postoperative pain and discomfort and shortens surgery time significantly. It is highly cost effective too. Another problem is its availability. Fibrin glue is not easily available to various eye clinics. Thus, the material cost of the no glue and no suture method became significantly lower than that of the sutures or using fibrin glue. In addition, the time cost is significantly lower than that of with

one suture [7][8].

We have shown that the use of one U sutures, no glue technique significantly less pain than using many sutures. The advantages of this new procedure graft by a rotated conjunctival flap with one U suture for surgical pterygium are a simple technique, safe surgery, with local anesthesia subconjunctiva. The performing is easy and does not need any advanced instruments, and low cost compares to other procedures with glue, sutures. The surgical time is short because of only one U suture compare to interrupted sutures. This method entails shorter surgical time as possible. The post-operation complication: displacement of the graft is rarely because it is a flap: one is fixed with head flap, and other is the end of the flap with one U suture.

The drawbacks are the same other procedures currently. The total recurrence rate is the same with other procedures. The complication in operation such as hemorrhage is easily managed.

We have tried with one suture 8-0 Vicryl sutures buried knots under the conjunctiva. Patients did experience moderate pain sensation with watering and itching with sutures, but this helped graft fixing as well as sooner healing. The aim of pterygium surgery is to resect the pterygium and prevent its recurrences.

Some considerations on this technique are focused. Firstly, be careful head flap with 2mm width is fixed on the conjunctiva. Secondly, the end of the flap with 4mm width is buried under conjunctiva 1mm with one U suture through it. Thirdly, using wet cotton for hemorrhage as well as pressing on graft before bandage the eye is necessary.

Table:

Comparison: Author's technique 1 U suture with 3 others procedures [7][8]

	1 U suture	Interrupted sutures	Sutureless	Glue
Cost surgery	+	+++	-	+++
Time surgery	+	++	-	+
Complication in operation	+	+	++	+
Complication post-operation	+	+	++	+

#### 4. Conclusion:

This new technique in pterygium surgery by rotated autograft by a rotated conjunctival flap with one U suture. This new technique significantly shortens the duration of surgery, lost graft or displaced graft will be avoided. It is low cost, safe and effective in reducing early postoperative complications and patients' discomfort. Patients with all pterygium can be applied especially in the tropical area of developing countries where the prevalence of pterygium is relatively high.

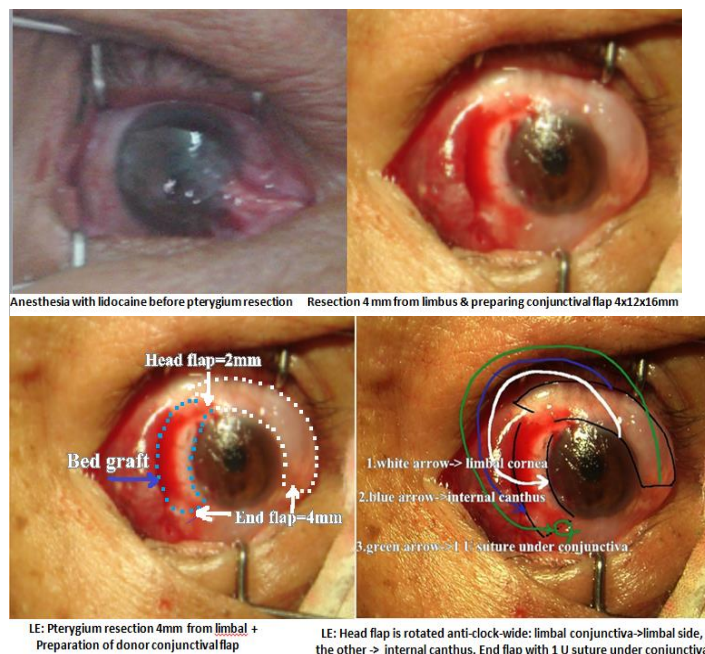
Financial support and sponsorship: No.

Conflicts of interest: There are no conflicts of interest.

#### References

- i. Hill JC, Maske R. Pathogenesis of pterygium. *Eye*. 1989; 3: 218–26. [PubMed]
- ii. Mahar PS, Nwokora GE. Role of mitomycin C in pterygium surgery. *Br J Ophthalmol*. 1993; 77: 433–35. [PMC free article] [PubMed]
- iii. Kenyon KR, Wagoner MD, Hettinger ME. Conjunctival autograft transplantation for advanced and recurrent pterygium. *Ophthalmology*. 1985; 92: 1461–70. [PubMed].

- iv. Malik KP, Goel R, Gupta A, Gupta SK, Kamal S, Mallik VK, et al. Efficacy of sutureless and glue-free limbal conjunctival autograft for primary pterygium surgery. *Nepal J Ophthalmol*. 2012; 4: 230–35. [PubMed]
- v. Starck T, Kenyon KR, Serrano F. Conjunctival autograft for primary and recurrent pterygia: Surgical technique and problem management. *Cornea*. 1991; 10: 196–202. [PubMed]
- vi. Donal T H Tan ocular surface transplatation teachniques for pteryrium surgery 2000; 2: 125-40.
- vii. Ashok S, Hans R, Aditi G, and Amit V. R. Sutureless and Glue-free Versus Sutures for Limbal Conjunctival Autografting in Primary Pterygium Surgery: A Prospective Comparative Study *J Clin Diagn Res*. 2015 Nov; 9(11): NC06–NC09. It is published online 2015 Nov 1. Doi: 10.7860/JCDR/2015/15689.6789.
- viii. Jagdish B, Mathew V, Bindu N, and Arti B. Cut-and-place technique of pterygium excision with autograft without using sutures or glue: Our experience. *Oman J Ophthalmol*. 2017 May-Aug; 10(2): 81–86. Doi: 10.4103/ojo.OJO\_208\_2015.



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