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# To Compare Outcome of Conjunctival Limbal Autografting and Conjunctival Pterygium Dissection with Surface Conjunctival Auto Grafting In the Management of Primary Pterygium

Dr. Reshma sheikh ,Dr. Varshitha BM ,Dr.Nitin G

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## I. INTRODUCTION :

- Pterygium (also known as surfer's eye) is an ocular surface disease, characterized by wing-shaped growth of conjunctival tissue over the adjacent cornea. [1]
- The stromal overgrowth of fibroblast and blood vessels is accompanied by an inflammatory cell infiltrate and an abnormal extracellular matrix accumulation.[2]
- Several hypotheses have been proposed with the etiology, but its pathology still remains unexplained.
- Some individuals of certain occupational groups are susceptible to this disease It is more common in drivers, welders, and carpenters. It is more common in the countries with relatively high exposure to UV radiation, the hot and dusty climates.[3,4]
- The head advances onto the cornea in many cases affecting vision, causing discomfort, and cosmetically intolerable.
- Surgical excision is the main treatment method of pterygium. The various surgical techniques are bare sclera technique, conjunctival autografting, primary conjunctival closure, intraoperative mitomycin C application, and amniotic membrane grafting. Recurrence is the most common postoperative complication.
- Recurrence rates with these procedures vary from 89% with simple surgical excision and 5% with pterygium excision with conjunctival auto grafting.[5]
- CLAU is proven to have less recurrence rate hence this procedure has become gold standard in pterygium excision.

**AIM :**

- To compare the surgical outcomes of pterygium excision by conjunctival pterygium dissection and surface conjunctival auto grafting with conjunctival limbal autografting in terms of graft inflammation, graft adherence and recurrence.

## II. MATERIALS AND METHODS

This was a prospective study to compare 60 cases of nasal pterygium at the Department of Ophthalmology, during a period of March 2021 to March 2022.

Patients with primary progressive nasal pterygium from grade 1 to 4 were included and patients with Conjunctival masses mimicking pterygium such as ocular surface squamous neoplasia (OSSN), pseudo pterygium and recurrent pterygium were excluded from our study.

Pterygium grading according to the extent on cornea Stage 1. Corneal invasion less than 1 mm ,2. Corneal invasion 1–2 mm ,3. Corneal invasion 2–3 mm ,4. Corneal invasion more than 3 mm .

Patients were explained about the procedure and an informed written consent was obtained from the patients. After a thorough history examination was done, which included visual acuity (BCVA), slit lamp examination of pterygium along with grading and remaining anterior segment, posterior segment, measurement of intraocular tension. Base line investigations such as complete hemogram, random blood sugar, HIV, HBsAg, ECG were done and a fitness for surgery was obtained.

PTERYGIUM DISSECTION WITH SURFACE CONJUNCTIVAL AUTO GRAFTING : All surgeries were performed with specific technique. In pterygium dissection and surface conjunctival auto grafting procedure,peribulbar anesthesia was given. The eye was painted, draped and eye speculum inserted. The head of the pterygium was held with a collibri and peeled of the cornea with gentle anti clockwise pull.The head of Pterygium is then separated from the cornea with cresent blade. With westcott scissors, subconjunctival fibrovascular tissue was gently dissected from the surface conjunctiva.Then the dissection was extended medially just up to caruncle and towards upper and lower fornices in a triangular fashion.Dissected fibrovascular tissue was excised.

The pterygium remnants on the cornea was scraped off using a crescent blade. The

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detached head of the pterygium from the corneal surface and the limbus was excised saving the conjunctiva of the body of the pterygium. Blood was allowed to pool on the sclera surface and the surface conjunctiva is put back on the sclera. Using two iris repositors pressure is applied over the surface conjunctiva for about 2 – 3 mins, graft was smoothened on to the sclera surface for 2-3 mins. Speculum was removed carefully taking care not to disturb the graft and eye was patched for 24hrs.

Following the procedure, patients were advised to administer antibiotic and prednisolone eye drop 6 times daily in the first week tapered gradually over 4-6 weeks. Lubricating eye drops (Hydroxypropyl methylcellulose) 4 times daily and Lubricating eye ointment two times a day for 1month.

IMAGE 1

Pterygium dissection

IMAGE 2

Two iris repositors pressure is applied over the surface conjunctiva

IMAGE 3

After reposition of surface conjunctiva

CLAU : Peribulbar anesthesia was given. The eye was painted, draped and eye speculum inserted. The head of Pterygium is then separated from the cornea with cresent blade. Two radial incisions in conjunctiva and the Tenon's capsule was made at the upper and the lower limits of the belly of the pterygium from limbus, about 4 -5 mm towards the canthus. The belly of the pterygium was excised.The fibrovascular tissue underneath the cut end of the conjunctiva was dissected as far as possible on the canthus side and excised. The donor tissue was harvested from the same eye. The area of superior conjunctiva , appropriate (1-2 mm larger) to the size of bare sclera was measured with calipers and marked with Gentian violet. The conjunctiva was elevated with the subconjunctival injection of saline. Westcott scissors was used to make two parallel radial incisions along the marked lines and to undermine the conjunctiva along the lateral borders. When the posterior and lateral ends of the graft were free, blunt dissection was continued anteriorly till the limbus. Crescent blade was used to carry out further blunt dissection towards cornea .The conjunctival piece was then excised using a vannas scissors. The graft was transferred to the bare sclera epithelial side up without losing the limbal orientation. The four corners of the graft were then secured using 10-0 polyamide sutures. The donor site was left open for spontaneous healing. Bandage was applied for 24hrs . Postoperative care included antibiotic-steroid eye drops four times a day and lubricating eye drops four times a day from the next day after surgery. The same was continued for two weeks. At the end of two weeks sutures were removed under topical anaesthesia at slit lamp. All patients were reviewed at one week, two weeks, one month and three months after surgery.

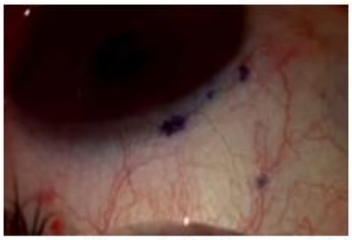
IMAGE 4

pterygium excision

IMAGE 5

size of bare sclera was measured with calipers

IMAGE 6



superior conjunctiva marked with Gentian violet

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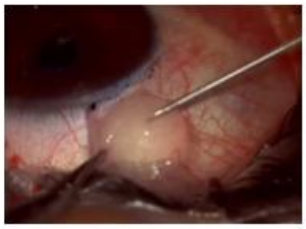
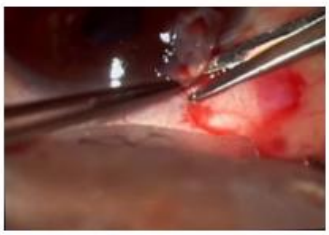
IMAGE 7



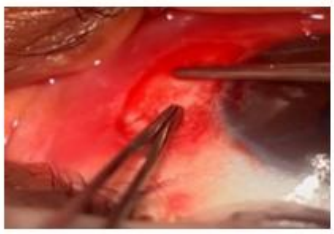
conjunctiva was elevated with the subconjunctival injection of saline

IMAGE 8



conjunctival piece was then excised with vannas scissors

IMAGE 9



after graft transferred to bare sclera

## III. RESULTS

Out of 60 patients, 32 patients undergone pterygium dissection and surface conjunctival auto grafting , 28 patients undergone conjunctival limbal autografting . Out of 60 patients no significant difference in sex distribution - 33 were females, 27 were males, as shown in fig 1.

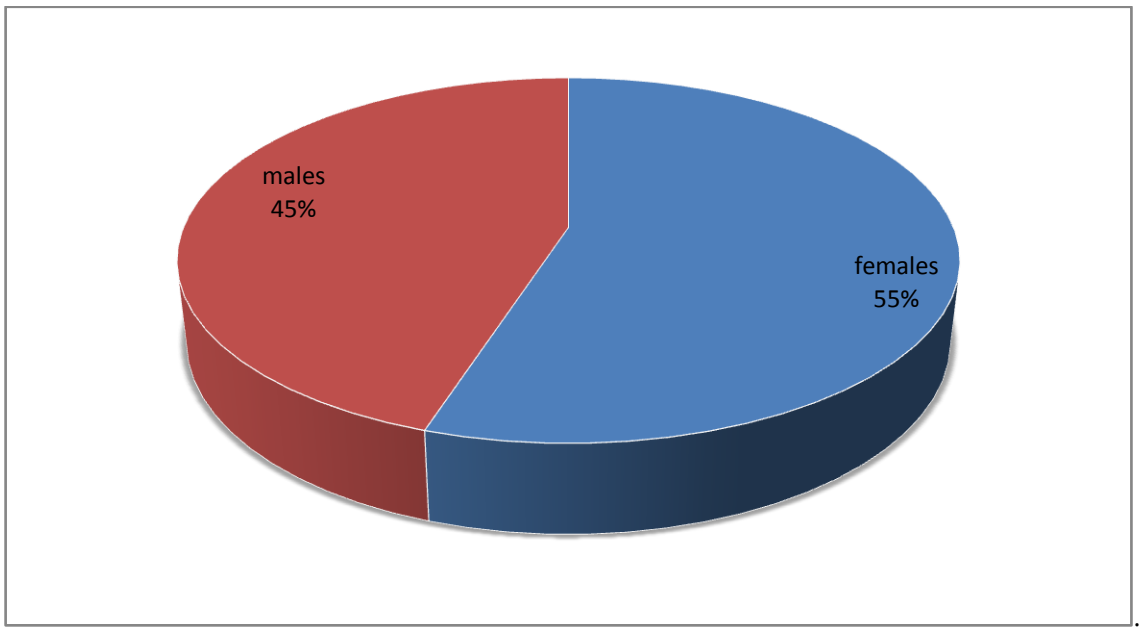



**Fig 1**

Maximum number of the patients belonged to 40 to 60 years of age group that is 42 patients (70%), 11 patients were between 20- 40 years age group (18.3%) and 7 patients were above 60 years of age group(11.6%).

Extent of corneal involvement- Among 60 patients , 8 cases(13.3%) had less than 2mm corneal involvement, 19 cases (31.6%) had 2mm to 3mm corneal involvement, 26 cases (43.3%) had 3mm to 4mm corneal involvement ,7 cases (11.6%) has more than 4mm corneal involvement, as shown in fig 2.

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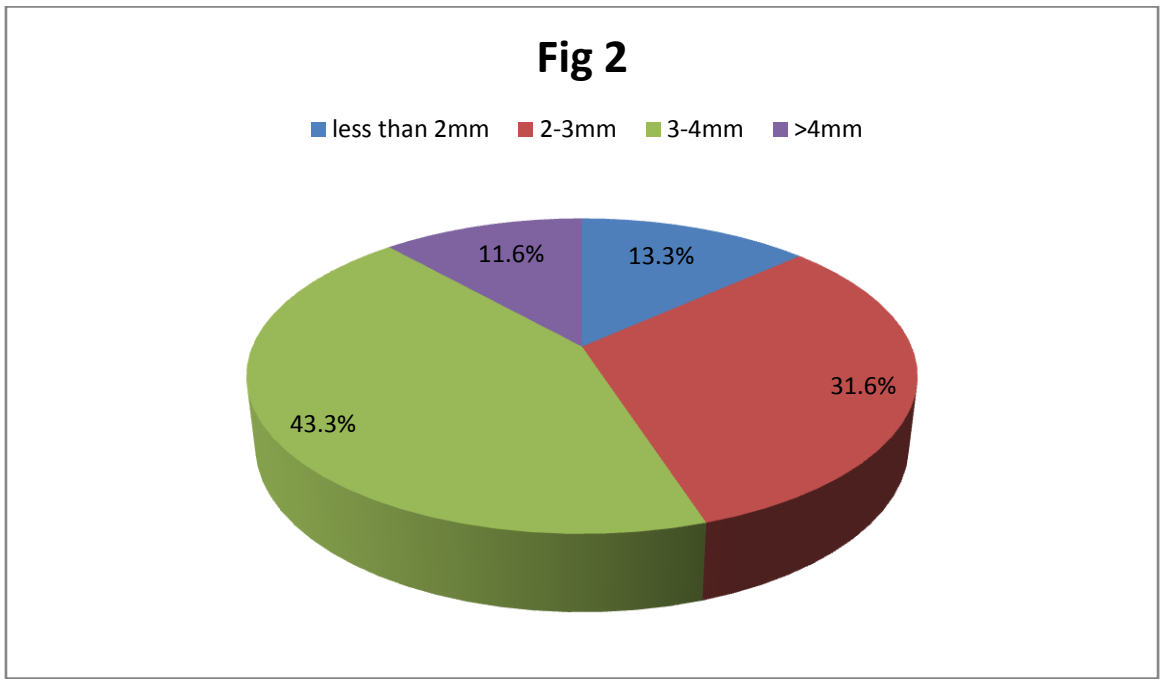


Among 28 patients of conjunctival limbal autografting graft adherence was seen in 26 patients (92.8%), recurrence is nil and post operative inflammation was seen in 5 (17.85%) . While graft adherence was seen in 31 (96.8%) , recurrence in 4(6.6%) and post inflammation seen in 7(22.58%) was seen among 32 patients of conjunctival pterygium dissection and surface conjunctival auto grafting.(table 1)

Table 1 : Showing comparison between two types of pterygium surgery

| Sl no | Post of findings | CLAU | Pterygium dissection and surface conjunctival auto grafting | P-value(chi-square) |
|---|---|---|---|---|
| 1 | Adherence of graft | 26(92.8%) | 31(96.8%) | 0.304 |
| 2 | Recurrence | nil | 4(6.6%) | 0.077 |
| 3 | Postoperative inflammation | 5(17.85%) | 7(22.58%) | 1 |

Two methods of pterygium excision compared between groups in this study was not statistically significant overall (chi-square test, $P = 0.203$)

## IV. DISCUSSION:

In our study pterygium is most common in age group of 40 to 60 years that is 42 patients (70%) and majority of patients were females-33(55%), while 27(45%) patients were males this results are comparable with the study conducted by Chen CL et al[6] in their study, incidence was higher in the age group of more than 40 years and the risk increases as the age increases along with female preponderance of 64%.

Soo Hyun Kwon et al[7] in their study describes the recurrence pattern of pterygium after excision with conjunctival autografting as of 12.1% with 3 different morphologic patterns as regrowth over the epithelial defect, transformation of the conjunctival graft into the pterygial tissue, regrowth from remaining pterygial tissue.

Koranyi et al.[8], Fernandes et al.[9], Ma et al[10]. and Al Fayezet al[11]. reported 13.5%, 12.2%, 5.4%, 8.3% recurrence rates respectively with conjunctival pterygium dissection and surface conjunctival auto grafting , which was similar to our study where recurrence was higher in conjunctival pterygium dissection and surface conjunctival auto grafting . It was also reported that these rates can be much higher, such as 31.3%, 33.3% in case of recurrent pterygium.

Kenyon et al.[12], Srinivas K Rao et al., study revealed that CLAU remains the safest technique and offers the lowest rate of recurrence in the management of primary pterygium. It was similar to our study.

Aidenloo and colleagues[13] in an observational study conducted on 310 patients, reported that younger age, larger tissue, and recurrent pterygia were associated with a higher rate of recurrence, which was similar to our study. In our study the recurrence rate following conjunctival pterygium dissection and surface conjunctival auto grafting is 4(6.6%). Out of these 4 patients who had recurrence 3 had garde 4 pterygium and 1 had grade 3 pterygium, and 3 patients were in age group 20-40 and 1 in age group 40-60, and nil in >60 years.

## V. CONCLUSION :

To conclude, pterygium excision with CLAU transplantation surgery was found close to conjunctival pterygium dissection and surface conjunctival auto grafting in primary pterygium excision. But in our recurrence rate was less in CLAU compared to conjunctival pterygium dissection and surface conjunctival auto grafting. More sample size, more follow up visits and further more detailed study is required to confirm the above result.

Conjunctival pterygium dissection and surface conjunctival auto grafting is beneficial in saving superior conjunctiva in patients diagnosed with glaucoma for trabeculectomy surgery in future.

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