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Ophthalmology

OUTCOME OF PTERYGIUM EXCISION WITH CONJUNCTIVAL AUTOGRAFT

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ABSTRACT **Aim:** To study the outcome of pterygium excision with conjunctival autograft. **Materials And Method-** A total of 60 cases of primary pterygium were included. Detailed history was taken and thorough ocular examination was done including visual aquity, slit lamp examination, intraocular pressure measurement and fundoscopy. Pterygium were graded according to Tan et al classification. The cases were treated by excision of the pterygium followed by conjunctival autograft. **Result:** Post operative visual aquity improved in 92% of the patients. Recurrence was seen in 5% of the cases. **Conclusion:** We found that pterygium excision along with conjunctival autograft is an effective technique to improve visual aquity and induced astigmatism with less recurrence.

KEYWORDS :

INTRODUCTION

Pterygium is a triangular fibrovascular subepithelial ingrowth of degenerative bulbar conjunctival tissue over the limbus onto the cornea. Histologically it shows elastotic degenerative changes in vascularised subepithelial stromal collagen.[1] The lesion appears as thick vascularised conjunctiva growing on to the cornea from the canthus and is loosely adherent in its whole length to the sclera [2]. It typically develops in patients who have been living in hot climates and may represent a response to ultraviolet exposure and to other factors such as chronic ocular surface dryness.[1]

Pterygium has three parts- head, neck, body and an advancing halo like part, the cap. When it is fleshy, vascular and has a rapid growth, it is termed as progressive pterygium. When pterygium is thin, membranous, pale and non progressive, it is termed as regressive.[3] It is often bilateral, usually present on the nasal side. Major complaint of the patient is cosmetic or diminution of vision, which is mostly due to astigmatism and encroachment of the pupillary area of the cornea by the lesion. It induces astigmatism with the effect of corneal flatteningin the axis of pterygium.[2]

Treatment is mostly surgical excision. Conjunctival autografting is an effective method to prevent recurrence and provide desired outcome.[4] The mechanisms are contact inhibition effect on residual abnormal tissue and presence of limbal stem cells which help to restore the limbal barrier.

MATERIALS AND METHOD

The study was an institutional prospective interventional study conducted in the Regional Institute of Ophthalmology, Gauhati Medical College and Hospital for period of May, 2018 to April, 2019. A total of 60 patients with pterygium were selected from OPD after qualifying the inclusion and exclusion criteria.Each case was thoroughly examined after history taking and indicated cases were taken up for surgery following necessary investigations. Following surgery, the cases were followed up for a period of 6 months and all the findings were documented. Patients were enrolled for the study after obtaining informed consent with explaining the purpose of the study design.

Inclusion Criteria-

Patients presenting at OPD,RIO GMCH, diagnosed as having primary pterygium and requiring surgical intervention**.**

Exclusion Criteria-

1) Patients with recurrent pterygium.
2) Patients with co existent conjunctival or corneal diseases
3) Patients with dry eye syndrome and other anterior segment diseases like anterior uveitis and scleritis.

Pre operative investigations such as syringing to determine the nasolacrimal duct patency**,** blood sugar**,** routine examination of blood**,** bleeding time and clotting time were done.

METHOD

60 patients with primary pterygium were selected and graded according Tan et al classification. Grade 1 pterygium are atrophic with visible episcleral vessels underneath, grade 3 are fleshy, episcleral vessels totally obscured and grade 2 are intermediate between grade 1 and 3. Preoperative keratometric values and visual acuity were noted.

Xylocaine sensitivity testing was done, topical xylocaine 4% and subconjunctival injection of xylocaine 2% with 1:2,00,000 adrenaline 0.5 cc was administered. The eye was painted with Betadine solution and draped. Universal eye speculum was applied.

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Neck of the pterygium was grasped with a forceps and the head of thepterygium was dissected off from the cornea with the help of a 15 no. Surgical blade attached to Bard Parker handle. Body of the pterygium was excised. Irrigation with Ringers Lactate was done in the meantime. Subconjunctival fibrous tissue was thoroughly removed to obtain the bare sclera. Bleeding from the episcleral vessels was stopped using mild thermal cautery**.**

Conjunctival Autograft

The size of the bare sclera was measured with a Castroviejo's calliper. The superior bulbar conjunctiva was exposed, dimensions of the intended graft was measured superotemporally based on previous measurements of the recipient bed. The conjunctiva was excised taking care not to include the Tenon's capsule. This autograft is placed on the recipient bed with donor limbal edge adjacent to the limbus. Graft was secured with 10-0 vicryl suture. Antibiotic drops were instilled and sterile pad was applied.

Post Operative Management-

Topical instillation of antibiotic steroid eye drops 6 times a day for 2 weeks and then tapered.

Lubricating eyedrops for 4 weeks.

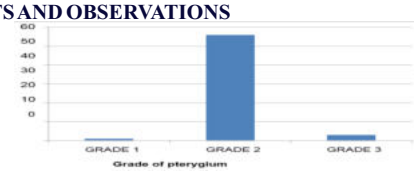
Sutures were removed at 2 weeks postoperatively.

Follow up:

Patients were followed up on 2nd week, 4th week, 6th week and at 6 months. Photographs were taken at each visit.

Postoperative visual acuity and keratometric readings were taken upto 6 months and compared with the preoperative values.

RESULTS AND OBSERVATIONS



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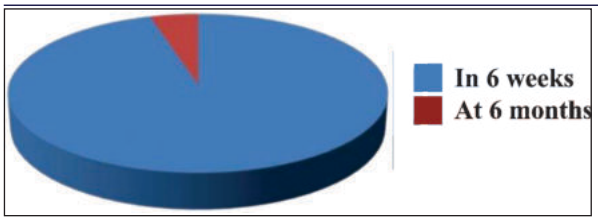
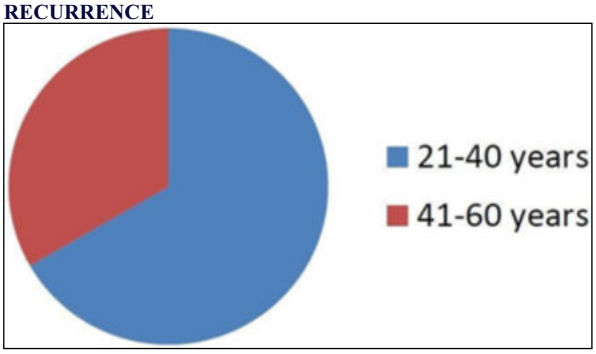
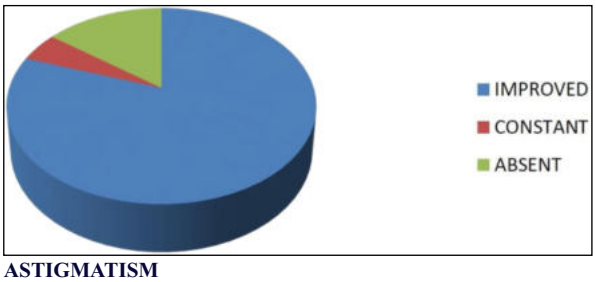


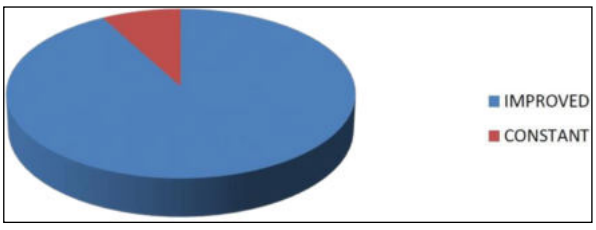
RECURRENCE



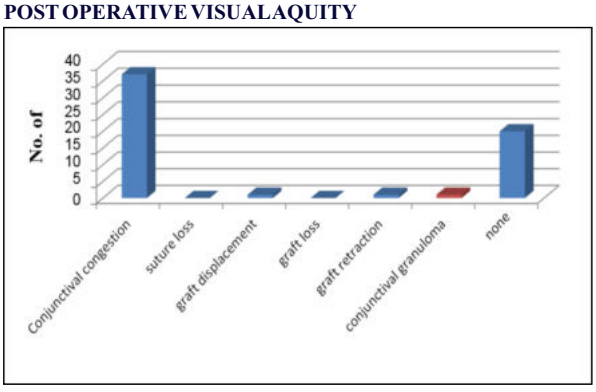
RECURRENCE ACCORDING TO AGE



ASTIGMATISM



POST OPERATIVE VISUAL AQUITY



POST OPERATIVE COMPLICATIONS

DISCUSSION

Grades Of Pterygium-

Grades of pterygium. In the present study, criteria given by Tan et al for grading of pterygium was used. Out of the 60 cases, only 1 patient had Tan's grade 1 pterygium, 56 had grade 2 and 3 of them had grade 3 pterygium.

According to Tan et al, grade 1 pterygium are atrophic where episcleral vessels under the body of the pterygium are not obscured and clearly visible. Grade 3 pterygium are fleshy and the episcleral vessels are completely obscured. Grade 2 are intermediate between grade 1 and grade 3.

Out of the 3 recurrences, 2 were found in grade 3 pterygium.

In 1997, Tan et al concluded that morphology and fleshiness of pterygium are significant risk factors for its recurrence.

Recurrence:

Recurrence is a major complication of pterygium surgery. An effective modality of reducing the recurrence rate is the use of conjunctival autograft which acts by contact inhibition effect on the residual abnormal tissue. Thelimbal stem cells also help to restore the limbal barrier.

In this study, recurrence rate was 5%. Among this, maximum recurrence of 2 cases (67%) occurred within 6 weeks while one (33%) occurred at 6 months.

90% of the recurrences occur between the first and the third month. However some cases have been reported in more than 1 year of initial treatment.

In our study, out of the 3 recurrences, 2 were seen to occur within 6 weeks while one recurrence was noted at 6 months.

Seid et al conducted a study on 32 patients where they reported 2 recurrences within 3 months postoperatively.[5]

In our study, maximum recurrence (2 cases) occurred in the younger age group, which was upto 40 years.
Fatih Mehmet Mutlu et al reported recuurence following pterygium excision and conjunctival autograft to be more in the younger age group (26.4±8 years).[6]

Astigmatism and visual acuity-

All the 60 cases were having with the rule astigmatism, that is verticalcorneal curvature more than horizontal curvature.

Astigmatism can occur due to 2 mechanisms- traction generated by pterygium by mechanically pulling and distorting the cornea, or by pooling of tears in advance of the pterygium.

Mean keratometric astigmatism pre operatively was 1±0.50 (with the rule). Mean keratometric astigmatism post operatively was 0.75±0.50. In our study, visual acuity improved in 92% of the patients (55 cases) while it remained constant in 8% (5 cases). Out of those whose visual acuity remained constant post operatively, 4 patients had senile cataractous changes.

Pavisic et al in 1952 stated that pterygium induced astigmatism upto 1.5 D, which was due to flattening of the horizontal meridian. [7]

In a study by Ashaye A O in 1990 in Nigeria, it was found that astigmatism in pterygium was with the rule in most patients and pterygium excision causes decrease in astigmatism. [8]

In 2003, Sejal Maheshwari documented that preoperative astigmatism in pterygium decreased from 4.60 ± 2D to 2.20 ±2.04 D after pterygium excision in the study. [9]

In 2014, Misra et al concluded that pterygium excision with conjunctival autograft provides significant improvement in visual acuity and astigmatism. [10] From the above discussion we can conclude that pterygium leads to with the rule astigmatism and after its removal visual aquity is improved.

Post Operative Complications:

In the immediate post operative period, conjunctival congestion was seen in 62% of the patients.

It was treated with topical steroid, antibiotic drops and artificial tears.10-0 vicryl sutures which were used to secure the conjunctival autograft were removed at 2 weeks post operatively. Till then patients had minimal foreign body sensation.

There was one case of graft displacement without suture loss (2%) on the immediate post operative day, with was followed up as such.

We also encountered a case of post operative conjunctival granuloma (2%) who presented at 2 weeks. It subsided with topical steroids.

There was one case (2%) of graft retraction presenting at 2 weeks, which was followed up without intervention.

33% of the patients were left with no post operative complications.

Fernandes et al in 2005 noted some of the minor complications after pterygium excision with conjunctival autograft, such as graft edema, conjunctival granuloma and Tenon's cyst, which were treated with topical antibiotics and steroid.

CONCLUSION

Pterygium surgery has evolved from initially destructive to reconstructive procedures, since destructive procedures were and are accompanied by high recurrence rates and suboptimal outcomes. The development of the conjunctival autograft technique, with its aim of minimizing inflammation and scarring and rehabilitate the ocular surface to a more normal state, has been central to the success of this surgery. Treating early will also reduce the risk of astigmatism.

The application of CAGs result in rapid recovery, minimal scarring and less recurrence. However its use is limited in conditions of prospects of future glaucoma filtering surgery, large pterygium and in eyes with scarred cornea.

Hence it can be concluded that this technique reduces induced astigmatism and improves visual acuity, with a less recurrence rate.

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