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STUDY OF CLINICAL PROFILE AND SURGICAL OUTCOME OF PTERYGIUM IN ADULT PATIENTS AT RURAL TERTIARY CARE HOSPITAL.

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ABSTRACT

ORIGINAL RESEARCH ARTICLE

Introduction: Pterygium is a benign, degenerative condition of the subconjunctival tissue, for which many surgical techniques ranging from McReynaud's operation to conjunctival autograft and amniotic membrane graft, have been discussed in the literature. Grafts prevent a recurrence, acting as a barrier, and have proven to be the gold standard. Here we have studied the clinical profile and surgical outcome of pterygium surgery by various techniques at a Rural tertiary care hospital (RTCH). **Aims/ Objectives:** Our primary aim was to study demographical factors and clinical profile of pterygia along with the surgical outcome and postoperative complications of pterygium surgery by various techniques, at RTCH. **Materials and Methods**: In this, hospital-based observational descriptive longitudinal study, we studied 75 patients, with primary progressive pterygium, who underwent pterygium surgery from September 2019- March 2021 and recorded their pre-operative, intraoperative, and postoperative data with a follow-up period of 3 months. **Results:** 74.6% of the population were females, with a bimodal peak incidence in 31-40 years and 61-70 years (22.6%). Most common presentation in both eyes (46.6%) with 97.3% cases presenting with nasal pterygium. 66.6% of patients presented with a grade 2 pterygium. 50 patients had a pre-operative "with the rule astigmatism". Pre-operative keratometry readings could not be assessed for 5 patients due to excessive distortion of the corneal surface. 37 patients underwent graft fixation with no suture no glue while 38 patients underwent graft fixation with sutures. The most common complication was graft edema which was seen in 53 patients, while recurrence was seen in 2 patients.
Conclusion: The occurrence of pterygium is very common in rural areas, which in most cases, is neglected due to lack of awareness. Surgical excision with conjunctival autograft continues to be the gold standard of treatment for the same.

INTRODUCTION

The word pterygium is derived from the Greek word, "pterygoid" meaning 'wing' or 'feather'. It is a benign, degenerative condition of the subconjunctival tissue. [1]

Dry, dusty environment and UV radiation are the proven causes of pterygium and is seen more commonly in the rural area. It is more common on the nasal side but can also present as a double-headed pterygium. Exposure to ultraviolet radiation leading to mutations in the p 53 tumor suppressor gene, facilitates the abnormal proliferation of the limbal epithelium. [2]

It presents with irritation, grittiness, and foreign body sensation. Extensive pterygia cause visual disturbances by obscuring the visual axis and by corneal flattening thereby inducing astigmatism [2]

Other presentations include cosmetic disfigurement, recurrent inflammation, motility restriction, and chances of neoplasia. [3]

There has been a change in the modalities of treatment over the years ranging from medical treatment with beta irradiation and thiotepa drops but the gold standard is surgical excision. Many surgical techniques evolved like- Pterygium excision with the bare sclera, conjunctival autograft (CAG) (sutured or sutureless- with glue or autologous serum), amniotic membrane graft, and use of lamellar keratoplasty (keyhole keratoplasty). [3,4]

Here we have studied the clinical profile and surgical outcome of primary progressive pterygium at a Rural Tertiary Care Hospital. (RTCH)

AIMS / OBJECTIVES

To study demographical factors and clinical profile of pterygia, the change in pre and post-pterygium surgery astigmatism, and postoperative complications of Pterygium surgery at RTCH.

MATERIALS AND METHODS

In this, hospital-based observational descriptive longitudinal study, after approval from the ethics committee and written informed consent from all patients, we studied 75 adult patients, who underwent pterygium surgery from September 2019- March 2021 at RTCH

We studied adult patients above 30 years of age, who underwent surgery for primary progressive pterygium surgery at RTCH and we excluded patients with recurrent pterygium, ocular surface disorders, and patients who underwent 1 step cataract + pterygium surgery.

We studied:

Preoperative variables which included age, gender, occupation, laterality, grade and location of pterygium and preoperative astigmatism (keratometric values obtained with an auto refractometer)

Intraoperative variables included the technique of keratectomy and the method of graft fixation.

Postoperative variables on day 1, 7, 30 and 90 which included graft stability, retraction, edema, graft loss, condition of sutures and post-operative astigmatism.

Surgical Technique: All surgeries were done by trained surgeons. We used local – peribulbar anesthesia with 1% lignocaine with adrenaline. A superior rectus bridle stitch was taken. The neck and body of the pterygium were dissected from the underlying sclera and the pterygium was cut at its neck. Head of the pterygium was avulsed using toothed forceps in **59 case**s (78.67%) and avulsion followed by dissection with 15 number blade in **16 cases** (21.34%) (for removal of pterygial remnants). No cautery was used for the achievement of hemostasis in any case.

Careful dissection was done between the conjunctiva and Tenon's layer to create a superotemporal autograft as thin as possible, in all cases. An effort was made to include limbal stem cells while cutting the limbal edge of the graft. The graft was flipped onto the sclera while maintaining proper orientation of the

graft, with the epithelial side up and the limbal edge towards the limbus. The pressure was given over the graft for 2-3 mins with a lens spatula. In cases of smaller grafts, absorbable sutures were taken (vicryl 8-0) for additional stability of the conjunctival graft. The wire speculum was removed carefully without disturbing the graft. A pressure patch bandage was given for the first 24 hours.

Postoperatively, antibiotic eye drops were instilled 4 times a day, cycloplegic drops were instilled twice a day and the eye was patched for 2 days following which antibiotic and steroid combination eye drops were instilled 4 times a day along with tear substitutes 6 times a day.

RESULTS

Total study cases were 75, 74.6% of the total study population were females. Most common age group: 31-40 years and 61-70 years (22.6%). There were 46.6% of patients with bilateral pterygium. The right eye was affected in 28% of patients. 97.3% of cases presented with nasal pterygium. Grade 2 pterygium was seen in 66.6% of patients. 73.33% of patients had a pre-operative "with the rule astigmatism". Pre-operative keratometry readings could not be assessed for 5 patients due to excessive distortion of the corneal surface.

37 patients underwent graft fixation with no suture no glue while 38 patients underwent graft fixation with sutures.

The most common complication was graft edema which was seen in 53 patients (70.66%). Other complications were graft hemorrhage in 10.38% (8 patients), graft retraction in 6.49% cases, corneal Dellen in 2.59% cases, and post-operative granuloma formation in 1 case.

45.45% cases showed a reduction in "with the rule" astigmatism, while 29.87% showed an increase in "with the rule" astigmatism.

DISCUSSION: Pterygium is a degenerative condition, which proliferates as vascularized granulation tissue invades the cornea, destroying the superficial layers of the stroma and Bowman's membrane while being covered with conjunctival epithelium[(1)]

It tends to affect middle-aged adults, especially in rural areas. It is a cosmetic blemish that also causes visual disturbances and a myriad of other ocular problems, for which surgery is the mainstay of treatment.

Male preponderance has been described by Hashemi H et al [(6)] and many others. However, in this study, 74.6% of patients presenting with a pterygium, were females, which could be due to more ultraviolet exposure in rural areas for their domestic and outdoor work. Similar results were shown by Anthony Vipin das et al[(5)]. These differences in the reported results could be due to behavioral, occupational, and awareness differences between men and women in different areas.

In this study, the most commonly affected age group was 31-40 years (22.6%), as also seen in a study by Angli Manhas et al[(8).] Also, 22.6% of patients were in the age group of 61-70 years indicating that prolonged cumulative sun exposure with an increase in age may be related to the occurrence of pterygium.

In our study, 46.6% of patients presented with bilateral involvement (suggestive of prolonged UV exposure) followed by unilateral involvement in the right eye in 28% of patients. On the other hand, a study by Das AV et al found unilateral involvement as the most common presentation. [(5)]

As described in the literature, we too found that nasal pterygium (97.3%) was more common as there is the sparseness of the subconjunctival tissue in the temporal region and lesser UV radiation exposure, while the nasal region shows pooling of tears along with irritation of tissue.

In our study, 66.6% of patients presented with grade 2 pterygia. Similar

findings were seen in a study by Sushobhan Dasgupta et al [10] Late presentation may be due to lack of awareness and negligence to cosmesis as the patients belonged to rural areas.

It is a known fact that pterygia cause flattening of the cornea in the horizontal meridian and presents with, "with the rule" astigmatism. We too found, preoperative "with the rule" astigmatism (WTR) in 73.33% cases (55 patients) similar to R Avisar et al[11]. Majority of the patients presented with more than 2 dioptres of astigmatism.

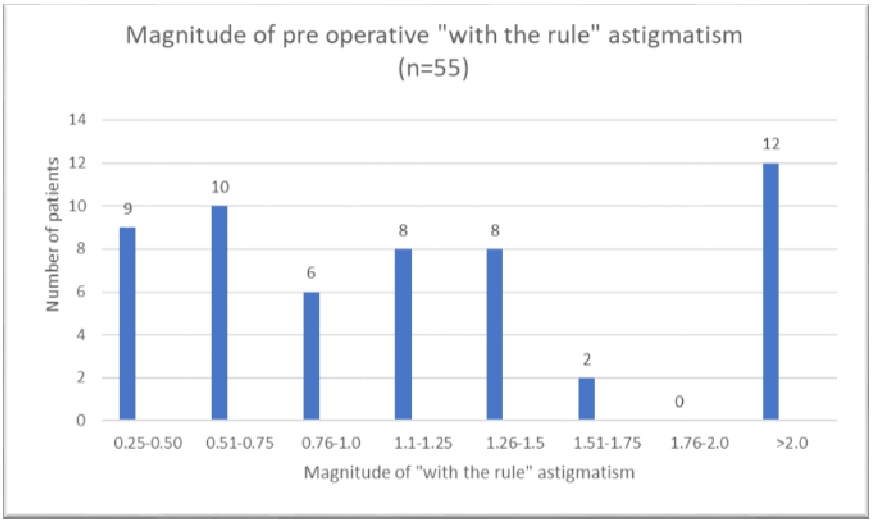

Figure 1:magnitude of astigmatism in 55 patients presenting with preoperative "with the rule" astigmatism

48.05% (37 patients) underwent pterygium excision followed by graft fixation with no sutures, no glue while 49.35% (38 patients) underwent graft fixation with sutures

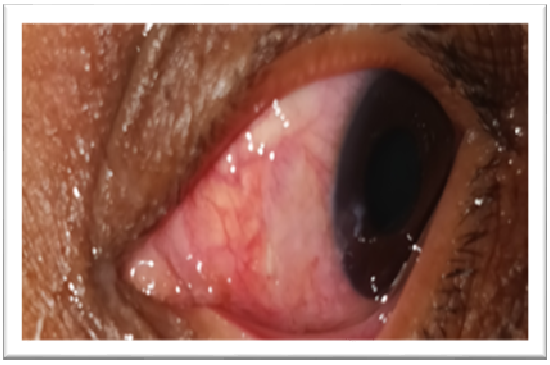

Figure 2:conjunctival autograft with no sutures, no glue

Fig 3: conjunctival autograft with sutures

We found a trend of reduction in "with the rule" astigmatism in 45.45% cases due to a reduction in the pull of the lesion while 29.87% showed an increase in "with the rule" astigmatism which was due to healing of deep keratectomy with extensive fibrosis. The most common postoperative complication was graft edema seen in 68.83% (53 patients). Surgically induced inflammation, delayed administration of steroids (to allow healing of

the keratectomy) and variable tissue response to surgical trauma may be responsible for this. Similar results were found in a study by Kavita Salagar et al[12].

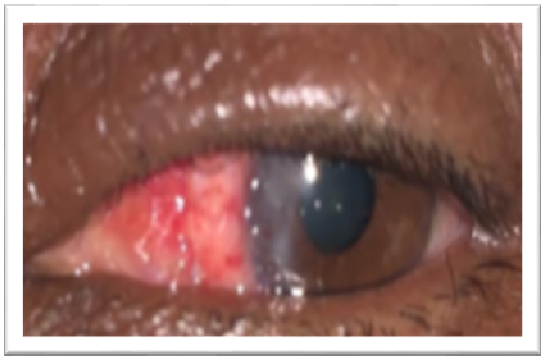

Figure 4:post-operative image showing graft edema

Other complications included graft hemorrhage in 10.38% (8 patients), graft retraction in 6.49% cases, corneal dellen in 2.59% cases, post-operative granuloma formation in 1 case, and recurrence in 2 cases (both of whom underwent graft fixation with sutures.

Figure 5: graft haemorrhage

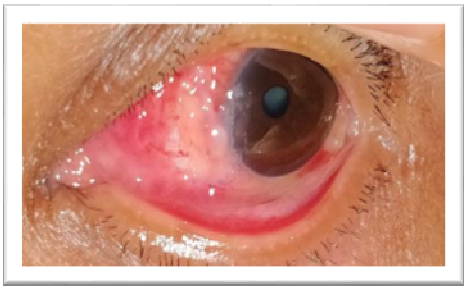

Figure 6: graft retraction

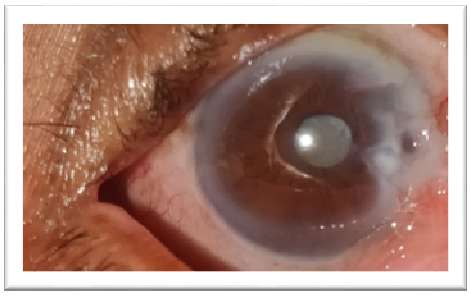

Figure 7: Corneal dellen

Figure 8: post-operative granuloma

CONCLUSION

Nasal pterygium tends to affect middle-aged females, more commonly in rural areas and its late presentation even up to grade 2 pterygium is possible in rural areas.

Pterygium excision with conjunctival autograft provides good surgical outcomes with low recurrence and an overall reduction in preoperative astigmatism.

LIMITATIONS: Small sample size
short follow up period

CONFLICT OF INTEREST: NIL

The width of the pterygium on the cornea and its total area

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