Original Research Article

OUTCOME OF PTERYGIUM EXCISION WITH CONJUNCTIVAL AUTOGRAFT IN A TERTIARY HOSPITAL IN SOUTHERN NIGERIA

ABSTRACT

Aim: To report the outcome of pterygium surgery with conjunctival autograft at a tertiary hospital in Southern Nigeria.

Methods: This is a retrospective non comparative study of post operative outcomes in which the medical records of all patients who had pterygium excision with conjunctival autograft from July 2016 to June 2021 at Nigerian Navy Reference Hospital Calabar, Nigeria were reviewed. All the patients were followed up for a minimum of 6 months. Data collected were sex, age, grade of pterygium, indication for pterygium surgery, post operative complications and recurrent pterygium growth.

Result: Forty – three eyes of 38 patients were operated on. There were 23 males and 15 females (M:F = 1.5:1). Age range was 28 to 61 years (mean 40.9 ± 8.4). Age range with the highest surgery was 31 to 40 years. Grade two pterygium accounted for most of the cases (88.4%) followed by grade three (9.3%) and grade one (2.3%). The most common indication for pterygium surgery was cosmetic (55.8%) followed by recurrent inflammation (34.9%) and the least indication was blurring of vision (9.3%).
Of the 43 eyes operated , one had recurrence giving a recurrence rate of 2.3%. One patient each developed granuloma and conjunctival cyst while three patients had subgraft hemorrhage.

Conclusion: Primary pterygium excision with conjunctival autograft has a low recurrence rate consistent with previously published reports.

Key words: pterygium, conjunctiva, autograft, outcome, recurrence

1. INTRODUCTION

Pterygium is a triangular fibrovascular sub epithelial ingrowth of degenerative bulbar conjunctival tissue over the limbus onto the cornea [1]. It occurs worldwide, however, it is reported to be more common in warm, dry climates with prevalence as high as 22% in equatorial areas and less than 2% in latitudes above 40 degrees [2]. Risk factors to the development of pterygium include exposure to ultraviolet light from the sun, older age, male gender, outdoor occupation etc [3].

Pterygium could be symptomatic or asymptomatic and is mainly treated surgically. Conservative treatment option is basically for symptoms and involves the use of artificial tears or lubricant eye ointment to provide relief from foreign body sensation and anti-inflammatory eye drops for inflamed pterygia [4].

The main indications for Pterygium surgery are persistent discomfort, chronic irritation, recurrent inflammation, visual distortion, irregular astigmatism, restricted ocular motility, and cosmesis [5]. Also difficulty in contact lens fitting and performing cornea refractive surgeries are other indications for surgery [6].

There are a number of surgical techniques for pterygium excision. The bare sclera technique is very popular mainly because it saves time but the recurrence rate is high. Other surgical techniques are conjunctival autograft and amniotic membrane grafting. Adjunctive therapies are also used along with surgery to decrease the recurrence although they have their own limitations. Such therapies include use of mitomycin-C over the exposed area and beta irradiation [4].

This retrospective review aims to evaluate the outcome of pterygium excision with conjunctival autograft in our institution.

2. MATERIALS AND METHOD

Medical records of 43 eyes of 38 patients who had pterygium excision with conjunctival autograft over a 5 year period between July 2016 to June 2021 at Nigerian Navy Reference Hospital Calabar were analyzed. Ethical approval was obtained from the institution's Medical Research Ethics Committee. All patients with surgical excision of primary pterygia with conjunctival autograft and minimum of 6 months follow up were included in the study. Patients with diagnosis of pseudo pterygium, associated symblepharon, history of ocular injuries, previous history of pterygium surgery (recurrent) and follow up less than 6 months were excluded.

On slit lamp examination grading of pterygium was done based on extent of corneal involvement: Grade I -crossing limbus, Grade II - midway between limbus and pupil, Grade III - reaching up to pupillary margin, Grade IV - crossing pupillary margin. The main postoperative outcomes were recurrence and post operative complications. Pterygium recurrence was defined as any fibrovascular re-growth across the limbus.

Patient's demographic details, history, indications for surgery, complete ocular examination including grade and type of pterygium, duration of follow-up, recurrence, and reoperation and post operative complications were noted. The data obtained were entered into SPSS (SPSS for Windows, version 26.0; SPSS, Chicago, IL, USA) statistical package and analyzed. Descriptive statistics were used to yield frequencies, percentages, and proportions.

2.1. Surgical Technique

All surgeries were done under peribulbar anaesthesia. Pterygium head and neck was dissected from cornea with No. 15 Bard-Parker blade. Body of the pterygium was then separated from underlying sclera and excised with Westcott scissors. Remnant of conjunctival tissue on the cornea was scraped off using Bard Parker blade in order to make the surface smooth. Adrenaline soaked cotton bud tamponade was used to control bleeding and where this fails minimal cautery was applied. Size of bare sclera was measured using Castroviejo calipers

For harvesting conjunctival autograft, the eyeball was rotated down and in. Donor conjunctival graft was taken from supero – temporal conjunctival area. About 1 mm oversized graft was obtained,

avoiding button holes and Tenon's capsule. Graft was placed over bare sclera, maintaining limbus to limbus polarity. Seven interrupted sutures with 9/0 nylon was used to anchor the graft tissue to recipient site as follows: Four sutures were first placed at all four corners of the graft tissue followed by three more sutures placed mid-way in-between the four corners of the graft except at the limbus. Eye was patched for 24 hours. Postoperatively dexamethasone 0.1% eye drops 4 times daily, ciprofloxacin 0.3% eye drops 4 times daily and beoptic N eye ointment 3 times daily. All medications were used for 6weeks followed by tapering dose for subsequent 2 weeks. Patients were instructed to avoid rubbing their eyes to avoid possible displacement of the graft from recipient bed.

Postoperatively all patients were asked to return for follow up at 1 day, 1 week , 1 month, 3 months then every 6 monthly for assessment of status of the graft, complications and recurrence. The sutures were removed at one month post operative visit.

3. RESULTS

The demographic and clinical characteristics of the patients are summarized on table 1. A total of 43 eyes of 38 patients had pterygium surgery during the study period. There were 23 males and 15 females with male to female ratio 1.5:1. The mean age was 40.9 ± 8.4 years while the age range was 28 to 61 years. Minimum follow up was 6 months, maximum 4 years 2 months. The age group with the highest operation was 31 to 40 years with a total of 20 (52.6%) patients [Figure 1]. Most 27(62.8%) of the surgery was done on the right eye while 16(32.2%) were done on the left eye. Almost all 42(97.7%) the pterygium occurred nasally while only one case (2.3%) was temporal.

The commonest grade of pterygium operated was grade II 38 (88.4%), followed by grade III 4(9.3%) and one case of grade I. There was no case of grade IV. The most common indication for pterygium surgery was cosmetic 24(55.8%) followed by recurrent inflammation 15 (34.9%) and blurring of vision 4 (9.3%) . Recurrence was seen in only one case hence the recurrence rate was 2.3%. The recurrence occurred within first 3 months post surgery with associated granuloma. Resultant Epithelia defect on the cornea following pterygium excision healed within one week in all patients.

Post operative complications noted include one case each of cystic formation, granuloma formation and recurrence and 3 cases of subgraft hemorrhage. The subgraft hemorrhage resolved over time while the cystic formation resolved following needling. The reoccurred case associated with granuloma had reoperation with excision of the granuloma. No donor site complication was seen. In the first postoperative week, some patients had mild ocular pain, foreign body sensation, lacrimation, and photophobia. The foreign body sensation complained by majority of the patients within the first month post surgery was tolerable.

Table 1: Demographic and clinical characteristics of the 38 patients that had pterygium surgery with conjunctival autograft.

Findings	**Number (%)**

Gender	
Male	23 (60.5)
Female	15 (39.5)
Site of pterygium	
Nasal	42 (97.7)
Temporal	1 (2.3)
Grade of pterygium	
Grade 1	1 (2.3)
Grade 2	38 (88.4)
Grade 3	4 (9.3)
Grade 4	0
Indication for surgery	
Cosmesis	24 (55.8)
Recurrent inflammation	15 (34.9)
Blurring of vision	4 (9.3)
Post operative complications	
Granuloma	1 (2.3)
Conjunctival cyst	1 (2.3)
Subgraft hemorrhage	3 (7.0)
Recurrence	1 (2.3)

Figure 1: Age range distribution of 38 patients that had pterygium excision with conjunctival autograft

4. DISCUSSION

Male preponderance (60.5%) for pterygium found in this study is in keeping with the reports by Pandey et al [7] (58.75%) and some other studies [8,9]. On the contrary some studies found female preponderance [10,11]. For instance in the study by Shah et al 74.6% of their study population were females [11]. These reported differences in gender preponderance from various studies could be due to occupational, health behavioral and awareness differences between men and women in different geographical areas.

The finding in this study of predominantly nasal pterygium accounting for 97.7% of the cases is similar with reports from previous studies by Shah et al (97.3%), Onnebune et al (89%) and many others[11,12]. This predominance of pterygium on the nasal side of the eye is thought to be secondary to tangentially incident ultra violet rays (UVR) focused onto the nasal limbus, which induces the tissue changes that predispose to pterygium formation. A theory that explains the nasal preference and supports the UVR relationship of pterygium formation is that UVR beams reflect off the skin of the nose and the facial regions onto the nasal side of the eye [13].

Cosmetic blemish which was the commonest indication for pterygium surgery in this study followed by recurrent inflammation and blurring of vision is similar to findings in the study by Choudhary et al [14]. On the contrary visual impairment was the most common indication in the study by Fernandes et al [15] followed by progressive growth of pterygium while cosmetic blemish was least.

The definitive treatment for pterygium is surgical excision but the risk of recurrence is a major concern. The bare sclera technique of pterygium surgery has the highest rate of recurrence but relatively short operating time. Reported recurrence rate is high ranging from 24% to 89% [16]. Among other available options for pterygium surgery, the conjunctival autograft technique has become popular and is considered the gold standard for treatment of primary pterygium because of its lower recurrence rate [17]. The relatively lower recurrences with this technique could be due to transplantation of normal conjunctiva that forms a barrier to the proliferation and advancement of residual abnormal tissue (both conjunctival and episcleral tissues) towards the limbus and the non inclusion of episcleral tissue in the graft [18].

There are different techniques by which the conjunctival graft can be attached to the bare sclera. The autograft tissue can be affixed to the bare sclera bed using fibrin glue, sutures or more recently autologous blood. In this study, we used sutures to anchor the conjunctival graft tissue to the bare sclera. The reported recurrence rate after conjunctival autograft surgery for pterygium range from 0 to 39% [4]. The recurrence rate of 2.3% found in this study is within the reported range (0 to 39%) for conjunctival autograft technique for pterygium surgery. This rate is similar to 1.9% reported by Young et al [16] and 2.5% reported by Shet et al [9] but higher than the no recurrence reported by Rekha et al [19]. Singh et al [8] reported higher recurrence rate of 12.5% following use of suture to anchor the conjunctival autograft tissue over the bare sclera as was done in this study but reported similar recurrence rate of 2.5% with use of autologous blood as bioadhesive to attach the graft tissue to recipient site.

Complications from pterygium excision and conjunctival autografting in this study were infrequent . The granuloma formation seen in one patient (2.3%) and conjunctival cyst on another is similar to the report by Allan et al [20]. On the contrary higher incident rates for granuloma formation were reported by Shet et al [9] 7.5% and Singh et al [8] 12.5%. Subgraft hemorrhage seen in 7% of the patients postoperatively is somewhat similar to 10.4% reported by Shah et al [11]l but much lower than 17.5% reported by Singh et al [8]. The post operative granuloma and conjunctival cyst complications found in this study were easily rectified with further minor surgeries while the subgraft hemorrhage resolved over time following conservative management.

Variations in the recurrence rate and complications of pterygium excision with conjunctival autografting reported by different studies could be attributed to several factors. These factors include variations in surgical techniques used, expertise of the surgeon, the proportion of recurrent cases operated on, differences in postoperative medication, the age and location of the population studied, the length of follow up, and the definition of recurrence employed [4,20]. Although later recurrences may occur, prospective observations indicate that the majority will be apparent within the first 3 months. A minimum follow up period of 6 months should thus avoid a significant underestimation of the recurrence rate [20].

5. CONCLUSION

Primary pterygium excision with conjunctival autograft technique provides good surgical outcomes with low recurrence rate and post operative complications.

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