

# An overview of management of pterygium in Nigeria

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## Abstract

- **AIM:** To review the management of pterygium in Nigeria.
- **METHODS:** The medical records of patients who had pterygium excisions over a four year period (January 1999-December 2002) were reviewed. These patients were seen at University of Nigeria Teaching Hospital and Ebrans Clinic both in Enugu, Nigeria. The analysis of patients' bio-data, clinical presentation, surgical management and post-operative complications were carried out using EPI-INFO version 6.1. Three surgical techniques were employed: bare sclera procedure only (60 eyes); bare sclera with adjuvant 5-fluorouracil (42 eyes) and bare sclera with mitomycin-C, MMC, (22 eyes).
- **RESULTS:** One hundred and twenty-four eyes of 72 patients had pterygium excisions and were followed up for a least one year post-operatively. There were 41 males (56.9%) and 31 females (43.1%) giving a male to female ratio of 1:0.8. The mean age was 42.8 years while the range was 20-69 years. Recurrence was highest in stage III (55.6%) and lowest in stage I (22.2%). Concerning the 3 surgical techniques, the recurrence rates were 65.0%, 52% and 13.6% respectively.
- **CONCLUSION:** In the management of pterygium in a developing country, early excision with use of intraoperative MMC is advocated. It is safe, affordable, technically easier and less invasive.
- **KEYWORDS:** pterygium; bare sclera; mitomycin-C; recurrence

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## INTRODUCTION

Pterygium is a wedge-shaped fibrovascular elastotic degeneration of the conjunctiva with corneal encroachment. It is seen in the palpebral fissure and is usually nasal. It may, however, be temporal or temporo-nasal. It has an unclear aetiology but its common place is in the peri-equatorial zone. It is more associated with an environment that is windy, dusty, sunny and dry.

Pterygium is commonly asymptomatic but may present with redness (inflammation) or foreign body sensation. Visual impairment is due to resultant corneal disfigurement or an advanced pterygium affecting the visual axis.

The mainstay of treatment is surgical excision. The major post-operative complication is recurrence, which may be more severe than the initial lesion [1]. To prevent this recurrence, the use of several adjuvants to surgical excision such as limbal conjunctival autograft (LCA), beta-irradiation, local application of mitomycin C (MMC) or 5-fluorouracil (5-FU) and amniotic membrane transplantation have been advocated [1-7].

The facilities for beta-irradiation are expensive and are not widely available in a developing country [2]. LCA is technically more difficult and inapplicable in eyes with previous limbal disturbance [3]. This study therefore, reviews the management of pterygium in a developing country highlighting areas of relevance like timing of surgery and preferred surgical techniques.

## MATERIALS AND METHODS

The clinical records of patients who had pterygium excision at University of Nigeria Teaching Hospital and Ebrans Clinic (both in Enugu, Nigeria) over a 4-year period (January 1999- December 2002) were reviewed. Only patients who were followed up for at least one year post operatively were included the study. Data required included age, sex, clinical presentation, surgical management and post-operative complications.

**Surgical Techniques** The patients were assigned to 3 groups: bare sclera procedure only; bare sclera with local application of adjuvant mitomycin-C (0.5g/L for one minute) and bare sclera with local application of 5-fluorouracil (50g/L for 5 minutes).

**Definitions** Pterygium can simply be divided into four stages. Stage I: Incipient stage, when it is just crossing the limbus; Stage II: The pterygium is midway between the limbus and pupillary margin; Stage III: The pterygium is at the papillary margin; Stage IV: The pterygium has crossed the visual axis and could cause blindness/low vision.

**RESULTS**

There were a total of 72 patients in the study. The age and sex distribution (Table 1) showed a male preponderance (41 male and 31 female). The male to female ratio was 1:0.8. The overall mean age was 42.8 years with standard deviation of 12.4 years while the age range was 20-69 years. There was no statistically significant difference in the mean ages of males and females ( $t=0.6$ ,  $P=0.6$ ). The age group of highest prevalence was 40-49 years, with a total of 26 patients (36.0%).

Fifty-two patients (72.2%) had pterygium in both eyes. Seven patients (9.7%) had pterygium in the right eye only and 13 patients (18.1%) in the left eye only. The total was 124 eyes. The distribution showed that the left eye had more pterygium than the right. The former had a total of 65 excisions (52.4%) and latter had 59 excisions (47.6%).

Pterygium may be nasal, temporal or temporonasal. One hundred and seven cases of pterygium (83.3%) occurred on the nasal aspect of the eyeball, 15 (12.1%) on the temporal aspect and 2 (1.6%) were temporonasal.

Surgery was performed on 9 eyes (7.3%) in stage I, 84 eyes (67.7%) in stage II, 27 eyes (21.8%) in stage III and 4 eyes (3.2%) in stage IV. Most of the surgeries therefore were performed in stage II. Stage of pterygium at surgery affected the post operative recurrence rate. In stage I, of the 9 eyes with pterygium excision, 2 (22.2%) had recurrence. In stage II, of the 84 eyes that had surgery, 45 (53.6%) had recurrence. In stage III, of the 27 eyes, 15 (55.6%) had recurrence and in stage IV, of the 4 eyes, 2 (50.0%) had recurrence. Therefore of the 124 eyes with pterygium excision 64 (51.6%) had recurrence.

The recurrence rate was further related with surgical techniques. Sixty eyes (48.4%) had only bare sclera performing, 42 eyes (33.9%) had bare sclera with application of 5-FU and 22 eyes (17.7%) had bare sclera with Mitomycin-C. Bare sclera only had the highest recurrence of 39 eyes (65.0%) out of 60. This was followed by bare sclera with application of 5-FU, in which out of 42 eyes, there was recurrence in 22 (52.0%). Bare sclera with application of Mitomycin-C had the least recurrence rate. Of 22 eyes, only 3 (13.6%) had recurrence.

**Table 1 Age/Sex distribution of 72 patients with pterygium excision**

Age Group (yr)	Sex		Total	Percent
	Male	Female		
20 – 29	7	7	14	19.5
30 – 39	7	7	14	19.5
40 – 49	17	9	26	36.0
50 – 59	5	5	10	13.8
60 – 69	5	3	8	11.2
Total	41	31	72	100.0

Mean age for males=43.5 years,standard deviation=12.2 years;Mean age for females=41.8 years,standard deviation=2.8 years; verall mean age=42.8 years,standard deviation=12.4 years

**DISCUSSION**

Pterygium is uncommon in children and the elderly. The overall mean age of the patients in this series was 42.8 years. This corresponds with the result of the study done in Western Nigeria [2] where the mean age was 46.1 years. The growth of pterygium is known to be more aggressive when it is thick, fleshy and vascularized. As people get older, there is poor progress of growth because the pterygium gets atrophic, less fleshy and poorly vascularized.

The overall recurrence rate in this study (51.6%) was unacceptably high. This may be because almost half (48.4%) of the eyes had bare sclera procedure only without any adjuvant. This practice should be discouraged especially in blacks who are more prone to fibroblast proliferation. Thirty-nine eyes (65%) out of the 60 in the bare sclera procedure only group had recurrence.

Local application of 5-FU after excision has been advocated as one of the desirable adjuvant therapies that reduce pterygium recurrence [2]. The result of our study, however, revealed that 5-FU was still associated with high recurrence. Twenty-two (52.4%) out of the 42 eyes in this group had recurrence. Some authors [3] have documented initial recurrence rate of 25.9% with 5-FU but their study population was smaller (27 eyes).

The least recurrence rate in the present study was noted in the MMC group. Of the 22 eyes in this category only 3 (13.6%) had recurrence. This compares with results of recurrence rates elsewhere: 15.9% [3], 7.9% [6] and 19.2% [6]. Consecutive smoothing of wound area with excimer laser after intraoperative application of MMC is also thought to further reduce recurrence rate and give good functional results [7]. MMC is cheap relative to strontium-90 for beta-irradiation. It is easy to use and it is safe.

It had been reported that 5-minute intra-operative application of MMC is more effective than 3-minute application [8]. In our study, one minute application was adopted; some other authors [7] adopted 30 seconds. We

propose a future randomized-controlled trial to determine if duration of application of MMC has an effect on recurrence rate in the eyes of blacks.

It was noted that recurrence was highest in stage III (55.6%) and lowest in stage I (22.2%). Early excision is recommended. Adjuvant LCA has been widely acclaimed to be very effective in reducing recurrence rate<sup>[1,3,4,6]</sup>. It is thought to be superior to MMC<sup>[3,6]</sup> as well as amniotic membrane transplantation<sup>[8]</sup>. LCA is however is technically more difficult and when graft is taken from superior limbus, it comprises chances of success of future filtration surgery if the need arises.

In conclusion, early excision of pterygium with local application of MMC favor lower recurrence rate. It is safe, affordable, technically easier and less invasive.

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