

# Pterygium Excision with Primary Closure in Sokoto, North West Nigeria

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## ABSTRACT

**Background:** The essence of pterygium surgery is to excise the pterygium and inhibit recurrence. Multiple surgical techniques have evolved over the years to excise the pterygium and inhibit its recurrence.

**Objective:** To determine the outcome of pterygium excision with primary closure in terms of recurrence.

**Methods:** A retrospective review of medical records of all patients who had pterygium excision with primary repair during the study period at Usmanu Danfodiyo University Teaching Hospital and Specialist Hospital, Sokoto was undertaken. Data on demographic variables, extent of pterygium and pterygium recurrence after 6 months and post-operative complications were extracted and analyzed.

**Results:** There were a total of 32 eyes in 32 patients studied with age range between 26 to 68 years {mean age of 47.2 (SD +12.32)}. There were 15 males and 17 females (M:F = 1:1). Majority of the patients had stage 3 pterygium (65.3%) followed by stage 2 (27.2%) and stage 4 pterygium (7.5%) was the least in frequency  $P=0.02$ , CI (2.50-2.95). There were twenty-nine patients (90.6%) with primary pterygia while three (9.4%) had recurrent pterygia. 56.2% of the patients had occupations with possible significant exposure to actinic damage. Recurrence occurred in 12.5% of the patients after 6 months' follow-up.

**Conclusion:** Pterygium excision with primary closure appears to be safe and effective. Future comparative case series and randomized controlled studies are recommended

**Key Words:** Pterygium, Excision, Recurrence

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## Introduction

Pterygium is a non-malignant, triangular sheet of fibrovascular conjunctival growth encroaching across the limbus onto the cornea<sup>1</sup>. There has been various hypothesis explaining the aetiology of pterygium<sup>2</sup>. It is said to be more prevalent in adults compared with children<sup>3</sup>. Pterygium is a relatively frequent condition with a varying prevalence depending on the geographical location of the study population-with prevalence ranging from 1-15%<sup>4</sup>. Medical and surgical treatment options are available in the management of pterygium. Common indications for surgery include cosmesis, irregular astigmatism, visual distortion, persistent discomfort and recurrent inflammation<sup>5</sup>. The essence of pterygium surgery is to excise the pterygium and inhibit recurrence<sup>6</sup>. Multiple surgical techniques with adjuvant therapies have evolved over the years to excise the pterygium and inhibit its recurrence. These include application of metabolites, radiotherapy, primary closure, amniotic membrane graft and, conjunctival or limbal autograft. There is, however, no established technique is without significant side effects<sup>7,8</sup>. Varying recurrence rates

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have been reported for pterygium excision with primary closure ranging from as low as 2% to 69%<sup>9</sup>.

This study aims to determine the outcome of pterygium excision with primary closure in terms of recurrence.

**Materials and Methods**

This was a retrospective review of medical records of all patients who had pterygium excision with primary repair between December 2015 and November 2016 at Usmanu Danfodiyo University Teaching Hospital and Specialist Hospital, Sokoto. Data on demographic variables, extent of pterygium and pterygium recurrence after 6 months and post-operative complications were analyzed. Ethical approval was obtained from Ethics and Health Research Committee of Usmanu Danfodiyo University Teaching Hospital, Sokoto.

**The Surgical Procedure:** All surgeries were performed by one Surgeon. All patients were anaesthetized using peribulbar block with 2% lignocaine hydrochloride and 0.001% adrenaline tartrate. First, the pterygium head was taken off the cornea using a No.15 Bard-Parker blade or blade fragment. This is then followed by resection of the pterygium from the underlying sclera and dissection of any fibrous adhesion between the pterygium and muscle. Next the pterygium is excised. After this, a Tenon-free flap was mobilized from the inferior bulbar conjunctiva

and rotated to cover the bare sclera with interrupted 8/0 vicryl sutures. Patients were followed up post-operatively first day, two weeks, six weeks and then 6 months after.

**Study definition:** For this study, pterygium recurrence is defined as formation of a wing of fibrovascular tissue at the position of a previously excised pterygium with apex crossing the limbus and extending onto the cornea. Also for this study, stages of pterygium are described as;

Stage1: Apex of pterygium on the limbus

Stage 2: Apex is between the limbus and pupillary margin

Stage 3: Apex is on the pupillary margin

Stage 4: Apex is on the visual axis

**Data analysis:** Data were analyzed using SPSS (SPSS for Windows, version 11.0; SPSS, Chicago, IL, USA) statistical package for descriptive statistics of simple percentages and proportions and 95% Confidence Intervals (CI). Chi-square was used to test the significance of the differences between the variables where applicable. Statistical significance was set at P <0.05.

**Results**

There were a total of 32 eyes in 32 patients studied with age range range between 26 to 68 years {mean age of 47.2 (SD +12.32)}. There were 15 males and 17 females (M:F = 1:1). The age and sex distribution is shown in table 1.

**Table 1 : Age and Sex distribution of the patients**

Age group (yrs)	Male (n)	Female (n)	Total	
			n	(%)
21-40	4	6	10	31.3
41-60	9	9	18	56.3
61-80	2	2	4	13.3
Total	15	17	32	100

Majority of the patients had stage 3 pterygium (65.3%) followed by stage 2 (27.2%) and stage 4 pterygium (7.5%) was the least in frequency P=0.02, CI (2.50-2.95).



The characteristics of the pterygia revealed that twenty-nine patients (90.6%) had primary pterygia while three (9.4%) had recurrent pterygia showing a statistically significant difference at  $P=0.001$ , CI (1.00-1.32).

The occupational distribution showed 56.2% of the patients having occupations with possible significant exposure to actinic damage. Of these, artisans accounted for the highest number (46.9%) as shown in table 2.

**Table 2 : Patients Occupational Distribution**

Occupation	Frequency	
	n	%
Artisans	15	46.9
Civil Servant	2	6.3
Farmer	3	9.3
Housewife	12	37.5
Total	32	100

Pterygium recurred in four eyes (12.5%) within the follow-up period of 6 months. The recurrent cases were seen in 2 of both recurrent and primary pterygia. Two patients had retraction of the sutured conjunctival flap exposing the bare sclera. Otherwise, there were no complications noted.

### Discussion

Today, a variety of surgical options are available for the management of pterygium and pterygium surgery aims ideally to have low or no recurrence rate, be cosmetically acceptable and should have few complications. The conventional bare sclera appears to be out of favour on account of its high recurrence rate<sup>10,11</sup>.

To reduce this high recurrence rates, primary closure as adjuvant surgery could be used. There has been reported lower recurrence rates with the primary closure technique<sup>9,10,12</sup>.

The mean age of the patients in this study was 47.2 (SD +12.32) and this is similar to what was found in other studies<sup>4,13,14</sup>. This could possibly be due to the fact that these are the active years of the patients when they are involved in outdoor activities with possible exposure to actinic degenerative changes on the conjunctiva. Majority of these patients (56.2%) had occupations that involved considerable exposure to outdoor endeavours and artisans constituted 46.9% of these. This is similar to what was found by Okoye et al<sup>15</sup> and Fernandes et al<sup>10</sup>. This study also found that 37.5 of the patients were housewives. This could probably be due to the recording in the case notes of all married women as housewives irrespective of their economic engagements.

The recurrence rate of pterygium in this study was 12.5%. This is lower but almost similar to what was reported by Fernandes et al<sup>10</sup> but lower than the 69%<sup>12</sup> and 45%<sup>16</sup> found in other studies. It is worthy of note that the Riodan-Eva<sup>12</sup> study followed up their patients for 36 months and was a retrospective comparative case series while the Prabhasawat<sup>16</sup> study had a considerable number of patients with recurrent pterygia. The present study finding of 12.5% is however higher than the 2% found by Anduze<sup>9</sup>. Anduze's study was conducted over a one-year follow-up period and had 800 patients enrolled but they all had primary pterygium only.

This study recorded retraction of the conjunctival flap as the only complication noted among the patients. No other significant vision-threatening complications were noted. The combination of low recurrence rate and minimal complications with the pterygium excision and primary closure found in this study and supported by other studies makes it a safe and effective surgical technique. However, future comparative case series and randomized controlled studies are necessary as this study had a small sample size, was retrospective and also had short follow-up period.



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