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Early steroid responders post pterygium surgery: case series of adult patients in a tertiary hospital in Nigeria

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Introduction: Intraocular pressure (IOP) elevation can occur with the use of ocular and systemic steroids, particularly among steroid responders. Topical steroids are used to reduce post-operative inflammation following pterygium surgery. About 30-40% of adults are steroid responders¹, and such a response may occur as early as three weeks postoperatively. The mechanism of IOP elevation results from increased aqueous outflow resistance due to morphological changes in the trabecular meshwork.² An elevated IOP of a high magnitude and duration may damage the optic nerve and result in visual field loss. Our report aims to increase awareness among ophthalmologists regarding the occurrence of early intraocular

pressure elevation in patients on topical steroid therapy following pterygium surgery.

Materials and Methods: This was a single-centre study that evaluated three patients who underwent unilateral pterygium excision and conjunctival autograft at the University of Calabar Teaching Hospital, Calabar, during a one-month period (April-May 2024). Data collected from patient charts included age, gender, date of surgery, number of follow-up visits, IOP measurements in both eyes and past ocular history. Postoperatively, all patients received topical antibiotics (ciprofloxacin eyedrops 3 times a day) and steroid drops (dexamethasone eye drops 4 times a day). Postoperative follow-up visits were at day 1, one week, three months, and six months after surgery. Ocular examination and IOP measurements (using the Goldmann applanation tonometer) were performed at each visit.

Results: A total of 6 eyes of 3 patients were studied. Their ages were 51 years, 44 years and 60 years respectively; two of them were females. The patients' demographic and clinical data are presented in Table 1. Table 2 shows the IOP measurements before and after pterygium surgery. All six eyes had normal IOP (10- 11 mmHg) preoperatively. The 3 operated eyes all had elevated IOP during the post-operative period, with the peak IOP ranging from 20 -30 mmHg.

Discussion: Steroid responders are individuals who experience an IOP rise in the setting of glucocorticoid use. The timeline over which the IOP rise may occur depends on the potency of the steroid, dose and route of administration.³ In our study, the IOP measurements were similar between both eyes in three patients pre-operatively. However, an increase in the IOP of greater than 6 mmHg was noticed on the first postoperative day in all three patients, necessitating the addition of a topical IOP-lowering medication to their medication regimen. This finding corroborates the study done by Toseafa et al ⁴ in Ghana, who reported steroid-induced hypertension as a common complication of pterygium excision. Similarly, Wu et al ⁵ reported the probability of experiencing elevated IOP after pterygium excision among Africans to be 10.91% at 1 week, 16.6% at 1

Table 1: Sociodemographic and ocular history of pterygium surgery patients

PARTICIPANTS	Patient 1	Patient 2	Patient 3
Age(years)	51	44	60
Gender	Female	Female	Male
Race	Africa	Africa	Africa
Family history of Glaucoma	No	No	Yes(First degree relative)
History of POAG*	No	No	Yes
Use of eye medication before surgery	No	No	Yes (Daily Gutt latanoprost both eyes nocte)
Grade of pterygium	III	III	III

*POAG- Primary open-angle glaucoma

Table 2: Intraocular pressure profile of patients who had unilateral pterygium excision with conjunctival autograft.

EYE	Patient 1		Patient 2		Patient 3	
	RIGHT EYE (operated eye)	LEFT EYE	RIGHT EYE	LEFT EYE (operated eye)	RIGHT EYE (operated eye)	LEFT EYE
Preoperative IOP# (mmHG)	11	10	10	11	10	10
1st day postoperative IOP#	17	12	11	19	20*	10
1 week post-op IOP#	22	12	11	16	20	10
2 weeks post-op IOP#	20	12	11	21*	15	10
1-month post-op IOP #	30*	12	11	15	15	10
3 months post-op IOP#	15	15	10	10	8	10
6 months post-op IOP	11	10	9	11	10	10

#IOP - Intraocular pressure

*Highest IOP measured post-operatively

Note: Intraocular pressure measurements were all taken between 8 am -11 am using Goldmann applanation Tonometer

month, and 34.8% at three months, respectively.

Conclusion: We advocate close IOP monitoring after pterygium excision to enable early detection of steroid responders and timely intervention with IOP-lowering medications.

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