

COMMUNAL CONFLICT - RELATED OCULAR TRAUMA

A. O. Adeoye*, S. O. Olateju, E. O. Soetan**

*Surgery Department, Faculty of Clinical Sciences, Obafemi Awolowo University, *Surgery Department, Obafemi Awolowo University Teaching Hospitals Complex, **Imole Specialist Eye Hospital, Ile-Ife.

SUMMARY

Purpose: To determine the causes, morbidity and visual outcome of ocular injuries sustained during the Ife/Modakeke communal conflict which occurred between August 1997 and December 1998.

Method: We conducted a retrospective study of all patients with eye injuries resulting from the conflict, treated at Obafemi Awolowo University Teaching Hospital, Ile-Ife and 2 private eye clinics in Ile-Ife and Modakeke.

Results: Fifty-five eyes of 54 patients were injured. The mean age was 32 years with a male preponderance of 96.3%. Forty-two eyes (76.4%) were injured by gunfire through direct impact, backfire or stray bullet. Thirty-one eyes (56.4%) sustained closed-globe injuries while 24 (43.6%) had open-globe injuries. Thirty-five eyes (63.6%) were blind, out of which 9 eyes (16.4%) required primary enucleation.

Conclusion: Civilian conflict with the use of firearms is associated with severe ocular morbidity. Maintenance of peace is essential.

KEYWORDS: Conflict, ocular trauma, gunshot injury, blindness

INTRODUCTION

Ife-Ife and Modakeke are neighbouring communities of southwestern Nigeria that had been embroiled in an age-long feud¹ which resurfaced between August 1997 and December 1998, with periods of sporadic outburst of hostilities. The injured were managed at the Obafemi Awolowo University Teaching Hospital, Ile-Ife and private eye clinics in proximity to either community.

Ocular injuries have been studied extensively in Nigeria.²⁻⁷ All but Olurin's study⁵ were reported in times of peace. The purpose of this study was to determine the aetiology, type and visual outcome of ocular injuries during the civil conflict, where sophisticated weapons were used alongside Dane guns commonly used for game hunting.⁶

MATERIALS AND METHODS

A retrospective study was undertaken of all eye injuries relating to Ife/Modakeke communal conflict seen by ophthalmologists working from Obafemi Awolowo University Teaching Hospital, Ife and 2 private eye clinics in Ife and Modakeke between August, 1997 and December, 1998. Case files of such patients were reviewed one and a half years after the study period to allow for possible late complications presenting. Relevant data extracted include age, sex, occupation, date of injury, interval between injury and presentation, eye injured, initial visual acuity (VA), aetiology of injury, management, outcome and

final VA. Injuries were classified according to the classification system for mechanical injuries of the eye by the Ocular Trauma Classification Group.⁸ Follow-up period ranged from 2 weeks to 18 months. Computer Statistical Package for Social Sciences (SPSS) 7.5 Version software was used to record and analyze the data.

RESULTS

Fifty-four patients sustained eye injuries during the study period. The mean age of patients was 31.5 years \pm 9.3 (range from 14 to 52 years). There was only one 14-year-old and two 19-year-olds in the study group. The largest number of injuries occurred in the 21-30 years age group (Table 1). Only 2 females (3.7%) were injured as a result of stray bullet in one and a wooden plank in the other, while fleeing. Fifteen patients (27.8%) were taxi/bus drivers, 11 (20.4%) artisans, 7 (13%) traders, 6 (11.1%) civil servants, 5 (9.3%) farmers, 5 (9.3%) students and 5 others (baker, barber, entertainer). Of all the patients, one sustained bilateral eye injuries, accounting for 55 eyes. The interval between injury and presentation varied considerably. It ranged from 30 minutes to 28 days. Only 26 patients (48.2%) were seen within 24 hours of injury.

The aetiology of injuries is summarized in Table 2. Thirty-three eyes (60.0%) were injured by direct impact of gunshot pellets, or bullets; 7 (12.7%) from stray bullets and 2 (3.6%) from backfire of Dane guns. Seven eyes (12.7%) were injured by blows and beating with sticks or whip. Stone missiles injured two eyes. A wooden plank injured one eye; another patient fell off a

*Correspondence: Dr. Adenike O. Adeoye

Table 1: Age and sex distribution of 54 patients with eye injuries.

Age group (years)	Male	Female	Total	%
0-10	-	-	-	-
11-20	6	1	7	12.9
21-30	25	-	25	46.3
31-40	11	-	11	20.4
41-50	10	-	10	18.5
51-60	-	1	1	1.9
Total	52(96.3%)	2(3.7%)	54	100.0

Table 2: Aetiology/sex of patients with injury in 55 eyes.

Aetiology	No. of eyes	%	Male	Female
Direct gunshot	33	60.0	33	-
Gun backfire	2	3.6	2	-
Stray bullet	7	12.7	6	1
Assault	7	2.7	7	-
Metallic object	2	3.6	2	-
Stone missile	2	3.6	2	-
Fall off motorbike	1	1.8	1	-
Wooden plank	1	1.8	-	1
Total	55	100.0	53	2

motorcycle while fleeing and injured his eye. Two eyes sustained injuries from flying metallic objects while the patients were testing newly constructed canon-like contraption.

Table 3 shows the types of injuries. There were 31 (56.4%) closed-globe injuries; 30 of which were contusion and 1 lamellar corneal laceration. Contusion injuries resulted in lid edema, ecchymosis, subconjunctival haemorrhage, hyphema, vitreous haemorrhage, cataract, retrobulbar haemorrhage and retinal edema. These resulted from blunt trauma or a bullet grazing the globe posteriorly as it crossed the orbit.

Of the 24 eyes (43.6%) with open-globe injury, 7 had ruptured and completely disorganized globes. One was Type A rupture without intra-ocular foreign body (IOFb) while 6 were Type E i.e. ruptured with pellets or large cylindrical bullets retained within the globe (Figs 1 & 2). In 5 eyes, a double perforation resulted in pellets lodging in the orbit, frontal sinus, sphenoidal sinus or base of the skull. Of the 12 eyes with single perforation, 8 had anterior perforation and 4 had posterior scleral perforation. One patient had a pellet that entered through the neck and lodged in the frontal sinus leading to hyphema, vitreous haemorrhage, lid edema and retrobulbar haemorrhage. Another posterior perforation led to inferior retinal detachment, optic nerve avulsion and intraorbital foreign body.

Thirty-seven eyes (67.3%) were managed conservatively.

These consisted of 29 closed-globe injuries and 8 patients with open-globe injuries who refused surgery; the eyes became phthisical. Complication from sympathetic ophthalmia in these patients was not observed. Two patients with contusion injuries had cataract, which required extracapsular cataract extraction (ECCE) without intraocular lens implantation. Nine eyes (16.4%) with open-globe injuries had primary enucleation while 7 eyes (12.7%) were repaired. There was no facility for vitrectomy in eyes with posterior segment injuries.

Altogether, 34 eyes (61.8%) were blind; 25 of which had VA of Counting Fingers (CF) or less and 9 enucleated. Another 4 (7.3%) had low vision i.e. VA < 6/18 > CF. Visual prognosis for closed-globe injury was generally good (Table 4). In 17 of the 31 eyes (54.8%), the visual acuity recovered to 6/18 or better. Prognosis was worsened by vitreous haemorrhage (8 eyes), macular hole (3 eyes) and retinal detachment (3eyes). Open-globe injuries resulted in poor visual outcome. Of the 24 eyes in this group, only 4 (16.7%) had final VA of CF or light perception (LP); the remaining 20 had either no light perception (NLP) or enucleation.



Fig. 1: Radiograph of an intraocular pellet in one of the conflict victims.

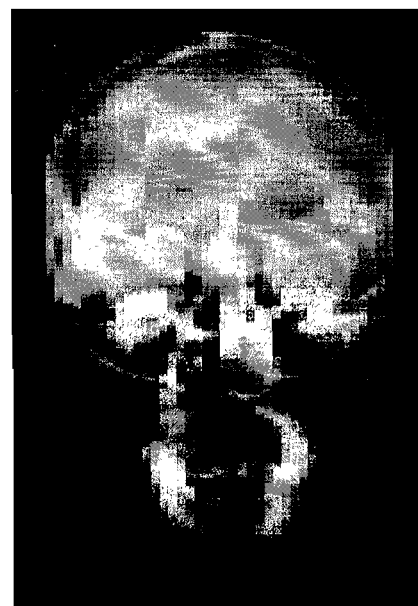


Fig. 2: Radiograph of a cylindrical bullet in the orbit of one of the conflict victims.

Table 3: Type and management of injury in 55 eyes.

Type of Injury	Management				Total	%
	Conservative	ECCE	Enucleation	Repair		
Closed-globe						
A. Contusion	28	2	-	-	30	54.5
B. Lamellar laceration	1	-	-	-	1	1.8
C. Superficial Fb	-	-	-	-	-	-
D. Mixed	-	-	-	-	-	-
Open-globe						
A. Rupture	-	-	1	-	1	1.8
B. Penetrating	-	-	-	-	-	-
C. Intraocular Fb	1	-	2	2	5	9.1
D. Perforating	6	-	1	5	12	21.8
E. Mixed	1	-	5	-	6	10.9
Total	37	2	9	7	55	100.0

Table 4: Final visual acuity in 55 eyes.

Type of Injury	6/4-6/6	6/9-6/18	6/24-6/60	CF - LP	NLP	Enuc	Total
Closed-globe							
A. Contusion	15	2	3	7	3	-	30
B. Lamellar laceration	-	-	1	-	-	-	1
C. Superficial Fb	-	-	-	-	-	-	-
D. Mixed	-	-	-	-	-	-	-
Open-globe							
A. Rupture	-	-	-	-	-	1	1
B. Penetrating	-	-	-	-	-	-	-
C. Intraocular Fb	-	-	-	1	2	2	5
D. Perforating	-	-	-	3	8	1	12
E. Mixed	-	-	-	-	1	5	6
Total	15	2	4	11	14	9	55

DISCUSSION

Ocular trauma is one of the major causes of unilateral low vision and blindness worldwide, with significant socio-economic consequences. This is even more so in periods of conflict. The Ife/Modakeke communal conflict dates back to the 19th century during the inter-tribal wars, when peoples migrated from one part of Nigeria to the other. This resulted in conflict of interests between the migrants and the landowners¹. Short periods of clashes were often witnessed in 1981 and 1983, but there was an escalation of hostilities from August 1997 to December 1998 when sophisticated weaponry was used.

Consistent with previous studies^{5,6,9,10}, persons injured during this conflict were mostly men. Most were drivers and artisans untrained in the handling of firearms which was the commonest cause of injury, accounting for 76.4% of all eye injuries.

This study was limited to patients presenting to the ophthalmologist. There seems to be an under-representation of the total number of patients with eye injuries as some had multiple

areas or organ systems involved, thereby presenting in other departments like neurosurgery. The dusk to dawn curfew imposed and fear of being caught in the crossfire contributed to delayed presentation. The eyes have greater risk of injury in conflict than other body parts due to the preferential exposure of the face in combat. It is known from previous studies^{9,12} that open-globe injuries sustained at war or conflict tend to result in more severe and extensive damage as similarly noted in our study. In this series, 9 (37.5%) of the 24 eyes with open-globe injury had primary enucleation; 11 (45.8%) resulted in No Light perception vision and only 4 (16.7%) had VA of Counting Fingers/Light Perception.

The beneficial effect of recent advances in the management of open-globe injury in form of vitrectomy was not available in our centre. In a series of 228 eyes with open-globe injuries, Sobaci & associates¹⁰ reported that 55% of eyes that had pars plana vitrectomy had favourable visual outcome (Final VA of CF at 1m or better) as against 35% that did not have such management. Vitrectomy done within one week of primary closure in a series¹¹

had a much more favourable outcome as 3 of the 7 perforating eye injuries regained a VA of 6/12 or better.

Sudden blindness in an otherwise healthy young man is devastating, as vision is the most important sense, accounting for more than 90% of the total sensory input.¹² It becomes a great burden on the sub-urban communities that are struggling to develop. People who sustained unilateral eye injuries could still manage to continue with their former occupations. Rehabilitation of the blind and partially sighted will offer them another chance at a trade or educational attainment.

In conclusion, the results of this study show that eye injuries sustained in times of conflict with the use of firearms are severe. Equipment for vitrectomy should be available in teaching hospitals to improve the visual prognosis of eyes with open-globe injuries. Rehabilitation of the injured is necessary. Also importantly, dialogue as a means of effective communication can resolve conflicts without having to resort to violence. We need to coexist in peace.

ACKNOWLEDGEMENT

We wish to thank the staff of Imole Specialist Eye Hospital, Ile-Ife and Lighthouse Hospital & Eye Care Centre, Modakeke-Ife for their cooperation.

REFERENCES

1. **Johnson S.** The history of the Yorubas. 1st ed. Lagos, CSS Bookshops, 1921; 521–537.
2. **Ajayi BGK, Osuntokun O.** Perforating eye injuries in Ibadan. *W Afr J Med* 1986; 5(3): 222–228.
3. **Ajaiyeoba AI.** Ocular injuries in Ibadan. *Nig J Ophthalmol* 1995; 3(2): 18–20.
4. **Agbeja AM, Osuntokun O.** Ocular gunshot injuries in Ibadan. *Afr J Med med Sci* 1991; 20: 35–40.
5. **Olurin O.** Eye injuries in Nigeria. *Am J Ophthalmol* 1971; 72(1): 159–166.
6. **Adeoye AO.** Eye injuries caused by locally manufactured Daneguns *Nig J Ophthalmol* 1996; 4(1): 27–30.
7. **Adefule-Ositelu AO, Soetan II, Akinsola FB.** Ocular trauma in Lagos. *W Afr J Med* 1996; 15(4): 210–214.
8. **Pieramici DJ, Sternberg P, Aaberg TM, Bridges WZ, Capone A, Cardillo JA et al.** A system for classifying mechanical injuries of the eye (globe). *Am J Ophthalmol* 1997; 123: 820–831.
9. **Jaouni ZM, O'Shea JG.** Surgical management of ophthalmic trauma due to the Palestinian Intifada. *Eye* 1997; 11: 392–397.
10. **Sobaci G, Mutlu FM, Bayer A, Karagul S, Yildirim E.** Deadly weapon-related open-globe injuries: Outcome assessment by the ocular trauma classification system. *Am J Ophthalmol* 2000; 129(1): 47–53.
11. **Roden D, Cleary P, Eustace P.** A five-year survey of ocular shotgun injuries in Ireland. *Brit J Ophthalmol* 1987; 71: 449–453.
12. **Wong TY, Seet B, Ang CL.** Eye injuries in Twentieth Century warfare: A historical perspective. *Surv Ophthalmol* 1997; 41(6): 433–459.