OCULAR INJURIES IN A CIVILIAN CONFLICT IN JOS

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SUMMARY

Aim: To determine the pattern and visual outcome of the management of eye injuries that occur as a result of civil unrest.

Materials and Methods: Clinical records of patients without life threatening injuries that occurred as a result of a civilian conflict were reviewed. The cause of injury, nature of injury, management and visual outcome were determined.

Results: All 23 patients were middle-aged men. Of these, 96% had uniocular injury. The average period spent before getting medical care was 5.7days. The commonest cause of injury was a gunshot in 60.9% of patients. Nineteen eyes (79.2%) had some form of surgical intervention, with evisceration being the commonest form of surgery. Mean follow-up period was 4 weeks, and only 18.2% of the eyes studied had a visual acuity of at least 3/60.

Conclusion: Civilian conflicts are associated with ocular morbidity. Better ambulance services are required for rapid evacuation of victims, to enable them get early treatment and reduce the adverse consequences of such injuries.

Key words: civil unrest, eye injury, visual outcome, management

INTRODUCTION

About half a million people worldwide are blind as a result of ocular trauma, while many more suffer some impairment of vision.[1] Ocular trauma commonly causes unilateral blindness or visual impairment, and could occur at the workplace, in domestic accidents and increasingly from road traffic accidents.[1, 2] Recently, however, there has been an increase in conflicts, with resultant increase in bilateral blindness from ocular injuries.[3, 4] There has, therefore, been an increasing number of persons who have become blind as a result of ocular trauma. Also, time lost from work, and the cost of medical treatment and rehabilitation are increasing.[1, 5] Civil unrest has been on the increase in many of our societies, and where this involves a large number of injured persons, the facilities available for treatment can be stretched, resulting in poor quality of care.

Nigeria has witnessed an increase in civil unrest which has been attributed to freedom of speech and worship.[6] There was civil unrest in the city of Jos on the 7th, 8th, and 12th of September 2001. This study reviews the pattern of eye injuries sustained, and the management and visual outcome achieved with the facilities available.

MATERIALS AND METHODS

The clinical records of all patients who sustained eye injuries during the civil unrest and were managed in our unit were reviewed. Age, sex, type and duration of injury, cause(s) of injury and the treatment received were recorded. We also took note of the type of surgery for those who had undergone surgery.

Patients with life-threatening injuries were excluded from this study as these injuries took precedence over the eye injury.

Patients with posterior segment injuries, who required further treatment, were referred after initial care to other centres with facilities for posterior segment surgery, as we lacked such facilities.

Visual acuity was measured with the Snellen or illiterate 'E' chart at 6 metres, and patients who did not have a visual acuity of 3/60 with best correction were considered blind. Patients were examined with both the pen torch and slit lamp biomicroscope, or with the

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operating microscope in the cases of those who required surgical repair under general anaesthesia. Fundus examination was with the direct ophthalmoscope. We classified eye injuries into three groups, namely: blunt trauma, penetrating with or without retained intraocular foreign body, and disorganized globe.

RESULTS

Twenty-three patients (5.0% of 463 victims managed) who fulfilled the criteria outlined above were included in this study. All patients were males; the youngest was 18 years while the oldest was 48 years, with a mean of 30 years. Figure 1 shows the age distribution of patients seen.

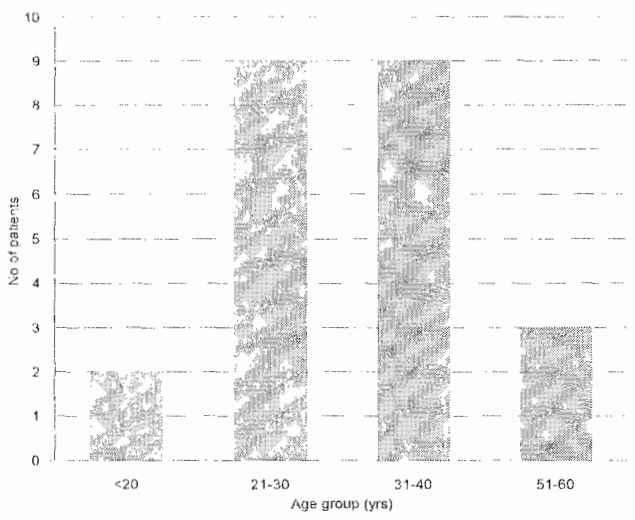

Figure 1. Age distribution of patients seen

Most of the patients presented within six days of injury. The mean period before presentation was 5.7 days, with 3 days post injury being the commonest day of presentation. Table 1 gives a breakdown of the duration of injury before presentation.

Table 1. Duration after injury before presentation

Duration after injury (days) before presentation	No of patients
2	2
3	10
4	4
5	3
14	1
15	2
21	1

Seventeen patients (73.9%) had injuries to the left eye, while 5 patients had injuries to the right eye, only one patient had both eyes injured. All parts of the eye and ocular adnexa were injured, and all eyes had injuries to more than one part of the eye. The eyelids were more the part of the eye most commonly injured; only one patient sustained injury to the lacrimal canaliculus. In eyes with anterior segment injuries, the cornea was the most frequently involved (27.3%) of all the eye structures. Table 2 gives a breakdown of the pattern of eye injuries seen. The most common type of injury was penetrating injury seen in 9 (37.5%) eyes, while blunt injury occurred in 29.2% of the injured eyes. Figure 2 shows the types of injuries sustained.

Table 2. Pattern of eye injuries seen

Organ	Frequency
Extraocular	
Bruised eyelid	14
Lid oedema	12
Lid laceration	5
Lacrimal canaliculus	1
Orbital fracture	2
Extraocular foreign body	9
Anterior Segment	
Subconjunctival haemorrhage	4
Corneal abrasion	1
Corneal perforation	5
Scleral perforation	2
Hyphaema	5
Iris injury	2
Cataract	3
Posterior Segment	
Vitreous haemorrhage	5
Intraocular foreign body	2
Whole globe	
Ruptured globe	8
Total	81

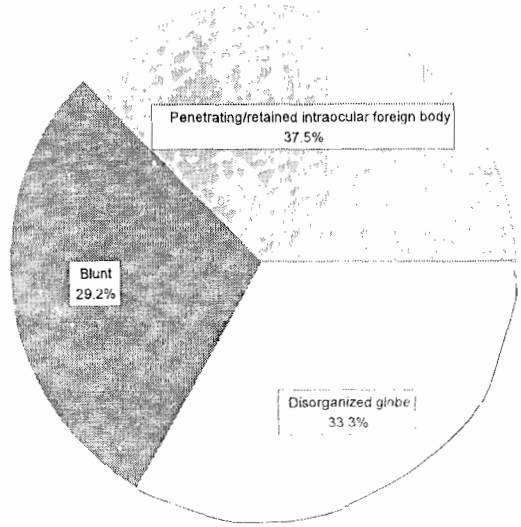

Figure 2. Types of injury seen

The commonest cause of injury was a gunshot in 14 patients (60.9%). The machete was the next most common cause of injury. The other causes of injury are as shown in table 3.

Table 3. Nature of offending objects

Offending object	No of patients	%
Gun shot	14	60.9
Machete	4	17.4
Stone	2	8.7
Stone	2	8.7
Arrow	1	4.3
Total	23	100.0

Eighteen patients (78.3%) were admitted, while five were treated on outpatient basis. The average period of admission was 7 days, with a range of 5 to 10days.

Nineteen eyes (79.2%) had surgical intervention, three were managed conservatively and two were referred. The commonest surgical procedure was evisceration in 8 eyes (42.1%); while canalicular repair was carried out in the only patient who had injury to the lacrimal canaliculus. Table 4 shows the surgical procedures carried out.

Table 4. Operative procedures performed

Procedure	No of eyes	%
Lid repair	5	26.3
Canalicular repair	1	5.3
Corneal repair	3	15.8
Corneo-scleral repair/removal of intraocular foreign body	2	10.5
Evisceration	8	42.1
Total	19	100.0

Follow-up ranged from 3 to 6 weeks with an average follow-up period of 4 weeks. At the end of this period, 18 eyes were blind, while only 18.2% of the injured eyes had a visual acuity of at least 3/60. Visual acuity in two of the eyes were not recorded in the notes prior to discharge, and these patients did not present for follow-up. Table 5 shows the visual acuities at presentation and postoperatively.

Table 5. Visual outcome of management

Visual acuity	Pre-op		Post-op	
	No of eyes	%	No of eyes	%
6/6-6/18	1	4.2	2	9.1
6/24-3/60	5	20.8	2	9.1
< 3/60-PL	10	41.7	3	13.6
NPL	8	33.3	15	68.2
Total	24	100	22	100

DISCUSSION

Ocular injuries have remained more common in young males compared with females. This is especially so in conflict situations where males are frequently the persons involved. In this study, all patients were male, with an average age of 30 years. This pattern is similar to what has been reported by other authors.[3,4,7] This has economic implications, as young productive persons are the ones most frequently affected.

One patient was injured in both eyes, while the rest were injured in only one eye. This agrees with the findings of other authors who have reported ocular trauma as a common cause of unilateral blindness.[1,2,5,8] Some studies on the pattern of eye injuries have reported a more frequent involvement of the left eye.[2,3,9] In this study, we found that 70.8% of injuries were to the left eye. This is not unexpected, as a gun aimed by the right eye would likely injure the opponents left eye.[7]

Most patients were either attacked by mobs or sustained wounds from gunshots or arrows. Machetes, stones and fists were also the causes of some of the injuries sustained. This may explain the severity of injuries seen. The impact of the bullet to the eyeball resulted in severe damage to the anterior and posterior segments. In close globe injuries, severe damage resulted from transmitted force to intraocular structures.[10] The combination of penetrating injuries with retained intraocular foreign bodies made this group of injuries more common than disorganized globe. This is similar to the findings in the study by Adeoye,[7] whose study showed that 75% of injured eyes presented were blind at presentation. This was related to the severity of the injuries and the damage to the multiple ocular structures.[11,12]

In this study, up to 81.8% of eyes were blind at the end of follow-up. Timely evacuation of eye casualties to a surgical facility has been shown to be the single most important factor for visual prognosis and preservation of the globe.[13] This may explain the adverse consequence on visual outcome in this study, as most patients were not seen immediately and surgery was delayed since even health personnel had difficulty getting to the hospital during the conflict. A similar pattern of presentation has been reported in Kaduna, Nigeria.[14] The large number of blind eyes at presentation and delay in presenting for treatment would also explain why evisceration was the most common procedure done.

The follow-up period was short, as all patients were lost to follow-up at the end of the study; we were, therefore, unable to comment on the long-term outcome of our management. We, however, expect long-term sequelae such as retinal detachment, cataract, and corneal scarring. The problem of long-term follow-up has been a recurrent difficulty with many studies in the developing world.[14,15]

CONCLUSION

More recently, the use of firearms has been increasingly associated with civil conflicts. This has resulted in severe and blinding eye injuries. The inability to evacuate casualties to health facilities to receive prompt medical care during conflicts is one factor associated with the increased number of patients presenting with blindness after such incidents. There is a need for better ambulance services during conflicts and the provision of better facilities for managing severe eye injuries.

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