

# OCULAR INJURIES IN A SEMI URBAN REGION

**OO BANKOLE, MBBS, FWACS, FMCOPH**

Eye Unit, Department of Surgery, Obafemi Awolowo University Teaching Hospital, Ile-Ife

*Correspondence:* Dr (Mrs.) Funmi Bankole, Blindness Prevention Programme Unit, Lagos State Ministry of Health, Alausa, Ikeja, P.O. Box 62, Oshopey Plaza Post Office, Allen Avenue, Ikeja

## SUMMARY

**Objective:** This study was conducted to find out the pattern of injuries to the eye in a semi urban region.

**Method:** All patients with injuries to the eye were studied prospectively at OAUTHC, Ile-Ife over a one year period between May 1999 and 30<sup>th</sup> April 2000.

**Result:** Injuries occurred in 213 eyes of 201 patients. Most injuries occurred in the third decade of life, and more frequently in males. Male to female ratio was 2:1. Blunt eye injuries (36.8%) and superficial foreign bodies (28.9%) formed the majority of injuries.

The causative agents were mostly projectiles (55.3%), i.e., missiles and other flying objects, and blunt objects (18.9%). Most injuries occurred during traffic activities. Sports and industrial accidents were rare. Visual prognosis was better in blunt injuries with 47.6% regaining visual acuity of 6/12 or better compared with 10% in perforating injuries.

**Conclusion:** This study reflects the effect of location, social habits, and prevailing circumstances such as communal clashes on the occurrence of ocular injuries in all age groups. There is need to educate people at all levels on the predisposing factors / habits, causes and prevention of injuries to the eye.

To improve visual prognosis, facilities for microsurgical techniques and corneal transplant should be provided at tertiary eye care centres.

**Key words:** ocular injuries, semi urban region, visual prognosis

## INTRODUCTION

The types of eye injuries reported in the literature varies from place to place.<sup>1-4</sup> Most studies in Nigeria have been done in cities and urban centres.<sup>2, 5</sup> This study was conducted in Ile-Ife, at the Obafemi Awolowo University Teaching Hospital Complex, which provides tertiary eye care coverage for Ondo, Osun and Ekiti states. The aim of the study is to determine the causes,

types and visual outcomes of injuries in a semi urban setting, where majority of the rural dwellers are farmers, and to provide the basis for recommending meaningful intervention aimed at preventing ocular injuries in semi urban and rural populations.

It is worthy of note that this study was conducted during a period of inter-communal clashes in Ile-Ife.

## MATERIALS AND METHODS

The 213 injured eyes of 201 patients who presented within the one year period, May 1999 to April 2000, were studied. Data on the age, sex, occupation, activity when injury occurred, causative agent, findings on physical and detailed examination of eye and adnexa were recorded in questionnaire format.

## RESULTS

There were 140 (69.6%) male patients and 61 (30.4%) female patients, with a male to female ratio of 7:3. Most injures occurred in the third decade of life accounting for 30.8% of cases while only 46 (22.9%) patients were children less than 16yrs of age (see in figure 1).

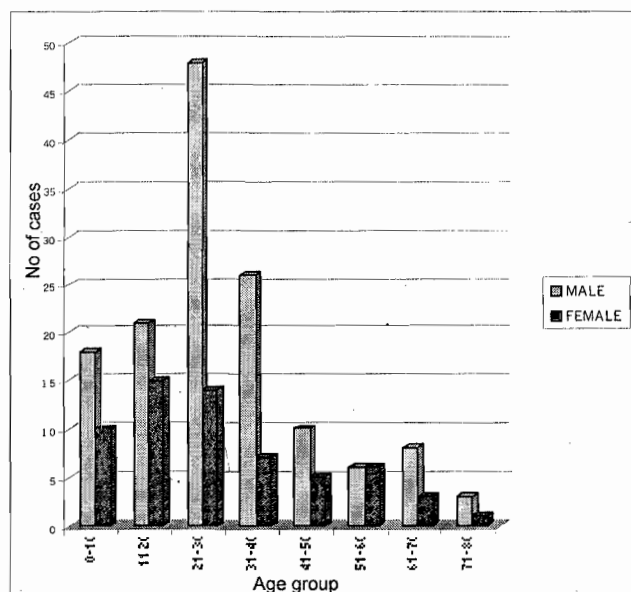


Figure 1. Age and sex distribution

**Table 1.** Activity/aetiology agent causing injury in 213 eyes

Activity	Projectile	Sharp/Pointed Agent	Blunt Objects	Falls	Organic Matter	Chemical/Heat	Others	Total (%)
Occupational	10	4		1		1	1	17 (8.0)
Domestic	15	2	5	1		3		26 (12.2)
Play	20	7	3	2	1			33 (15.5)
Assault/Fight	7	3	11				1	22 (10.8)
Corporal/Punishment	5		1					6 (2.8)
Sports	1			1				2 (0.9)
Farming	16	1	2	2	3			24 (11.3)
Traffic	28	3	13	9			1	54 (25.4)
Others	11	3	5	1	3	2	4	19 (13.1)
<b>Total</b>	<b>113</b>	<b>23</b>	<b>40</b>	<b>17</b>	<b>7</b>	<b>6</b>	<b>7</b>	<b>213</b>

Table 1 illustrates the activity of patients at the time of injury as well as the details of causative agents. Projectiles (i.e., moving objects like sticks, stones, metal splinters, dirt, missiles from shotguns and dane guns) were responsible for most of the injuries occurring in 113 eyes (53.3%). Blunt objects and sharp objects accounted for 18.8% and 10.8% respectively.

The predisposing activity to most injuries was road traffic accidents (RTA), i.e., 54 (25.4%) cases. This was followed by accidents sustained at play, 33 cases (15.5%). Of the 33 cases, 30 (91%) occurred in children. Domestic accidents accounted for another 12.2% and eye injuries on the farm, 11.3%.

Blunt eye injury followed by superficial foreign bodies constituted the majority of all injuries, accounting for 36.8% and 28.9% respectively (see table 2). Perforating injuries were responsible for 10.4%; 47.6% of these perforating injuries occurred in children less than 16 years.

While 113 (65.2%) of the patients had medication and minor operative procedures on outpatient basis, 70 (34.8%) required admission. Of these, 28 (40%) were treated conservatively while the remaining 42 (60%) had surgical interventions.

Lid and adnexa lacerations repair constituted 49.1% of the surgical procedures; repair of corneo-scleral lacerations with or without soft lens matter wash out, 31.6%; evisceration/enucleation 10.5%; anterior chamber paracentesis 1.8%; removal of intraocular/intraorbital foreign bodies 3.6%; and cataract extractions 3.5% in cases (complicated by cataract).

Common anterior segment complications seen were corneal scar in 20.7%, uveitis in 20%, traumatic cataract

in 13.6%, hyphaema in 10.7%, and secondary glaucoma in 6.4% of patients.

**Table 2.** Type of injury / sex of 201 patients with ocular injuries

Type of Injury	Male	Female	Total	%
Orbital Injury	7	1	8	4
Laceration/Lid and Adnexa	21	9	30	15
Blunt Eye Injury	46	28	74	36.8
Perforating Injuries	15	6	21	10.4
I O F B	4		4	2
Burns	3	3	6	3
Superficial FB	44	14	58	28.9
Traffic	28	3	13	9
<b>Total</b>	<b>140</b>	<b>61</b>	<b>201</b>	<b>100</b>

Other complications seen were panophthalmitis, phthisis bulbi, endophthalmitis, anterior staphyloma, aniridia.

Posterior segment complications such as vitreous haemorrhage, commotio retinae, optic atrophy, chorio-retinal scar, and retinal detachment occurred in 8.4% of patients while orbital complication such as enophthalmos, orbital cellulitis, retrobulbar haemorrhage occurred in 3.5%.

The visual outcomes are illustrated in table 3. It was not possible to assess visual acuity in children who were too young to cooperate and adults who were either lost to follow-up or were referred to other eye care centres which have facilities for posterior segment surgery. Only 54.9% of injured eyes had visual acuity of 6/12 or better, while 9.9% had total loss of vision.

**DISCUSSION**

Injuries to the eye are of great importance due to the ocular morbidity and visual loss, which may result.

Earlier studies<sup>2, 5</sup> in urban areas found that ocular injuries were common in children. This is at variance with the results in this study, in which the highest incidence occurred in the second decade of life. This is probably because the inter-communal clashes in Ile-Ife during the period of the study made parents keep their children under close surveillance.

The preponderance of males with eye injuries is similar to that of earlier reports.<sup>5,7</sup> This is due to the fact that males are more involved in activities which result in injuries.

In this study, the commonest aetiological agents were projectiles, while the most frequent accident activity was related to traffic. This differs from reports by Olurin<sup>2</sup> and Abiose,<sup>5</sup> who reported child play as the commonest activity leading to injury. This difference can be explained by the location of the study centre, being on the major road through which travellers from Osun, Ekiti, and Ondo states, among others, pass to get to major commercial centres such as Ibadan and Lagos. Moreover, there is the daily vehicular movement from rural to urban centres for employment and trading

purposes. OAUTHC is also the closest tertiary eye care centre in this area. Many of the RTA victims are likely to be referred there.

Only 8 of the patients who sustained their injuries from projectiles were caused by missiles related to the communal clash between Ile-Ife and Modakeke. The low turnout of patients in the teaching hospital is due to its location. At the time of the study, it would have been dangerous for patients from Modakeke to seek treatment in Ile-Ife; they would have preferred private specialist hospitals in Modakeke.

Projectiles (i.e., any moving object), as an agent of injury, have been a regular feature in all settings or activities studied, including corporal punishment. This portrays vividly the habit of tossing objects, either in a bid to discard them, especially on our roads, or to use them as toys during play or weapons of offence or defense during assault or corporal punishment.

Despite the fact that this study was done in a semi urban/rural setting, farming accounted for only 11.9% of injuries. This is low when compared with an earlier study by Olurin<sup>2</sup> in Ibadan, in which 24.5% of injuries occurred during farming activities.

Blunt eye injuries have taken the place of perforating injuries in earlier reports.<sup>2,5,7,8</sup> This is because activities resulting in blunt injuries, e.g., RTA, fights/assaults and domestic activities are on the increase, while activities such as game hunting with dane guns, which used to contribute significantly to the aetiology of perforating injuries in earlier reports<sup>7,8</sup> are on the decline, due to improved awareness and use of sophisticated guns. Seat-belt legislation, that was recently instituted in Nigeria, has been found to reduce

**Table 3.** The final visual acuity in 213 eyes

Final Visual Acuity	Blunt Eye Injuries	Foreign Bodies			Lid/Adnexal Lacerations	Perforating Eye Injuries	Orbital Fractures	Burns	Total (%)
		Superficial	Intraocular/ Intraorbital						
6/4 -6/12	30	47	1	28	2	4	5	117 (54.9)	
6/18 - 6/60	2	3	1	-	4	2	1	13 (6.1)	
CF	9	2	1	1	1	-	-	14 (6.6)	
<CF AT									
3M - PL	9	6	-	-	6	2	-	23 (10.8)	
NPL	13	-	1	-	7	-	-	21 (9.9)	
Undetermined	21	-	-	2	2	-	-	25 (11.7)	
<b>Total</b>	<b>84</b>	<b>58</b>	<b>4</b>	<b>30</b>	<b>23</b>	<b>8</b>	<b>6</b>	<b>213 (100)</b>	

the incidence of injuries to the eye secondary to RTA in other places.<sup>9</sup> It would be of great interest to find out the effect of seat-belt legislation on RTA as a cause of injuries to the eye in the near future.

Most of the perforating injuries occurred in the age group less than 20 years because of use of dangerous objects such as sticks, stones, broken pieces of furniture, writing instruments, scissors and other sharp-pointed objects during play. Eye health education, provision of safe toys for children to play with, will go a long way in reducing injuries from these agents. This may well be secondary, however, to the socioeconomic status of the homes from which these children come. Improvement in the economic and social status of our people in the semi urban setting and improvement in the present status of our eye health awareness will go a long way to reducing the incidence of ocular trauma. We may achieve this through regular eye health talks in our clinics, schools, and through the mass media.

Loss of vision due to injuries is significant; 21 patients (9.9%) suffered complete loss of vision. This is because some patients had enucleation or evisceration done for ruptured globes, while others lost their vision due to the severity of the injury and complications. It would be possible to save more eyes and restore vision with the provision of facilities for vitrectomy<sup>10</sup> and corneal transplant in our tertiary eye care centres to manage vision threatening complications of ocular injuries adequately.

#### ACKNOWLEDGEMENT

I wish to acknowledge the invaluable advice and support given to me by Professor AA Majekodunmi, Dr AO Adeoye, Dr II Soetan in the course of the research. I thank Professor O Adejuyigbe for reading through this manuscript.

#### REFERENCES

1. Macewen CJ. Eye injuries: A prospective survey of 5,671 cases. *Brit J Ophthalmol* 1989; **73**: 888-894.
2. Olurin O. Eye injuries in Nigeria. *Am J Ophthalmol* 1971; **72**: 159-166.
3. Weerekoon L. Pattern of ocular accidents in Ceylon. *Brit J Ophthalmol* 1964; **48**: 444-449.
4. Karlson TA and Klein BEK. The incidence of acute hospital-treated eye injuries. *Arch Ophthalmol* 1986; **104**: 1473-1476.
5. Abiose A. Eye injuries in Lagos. *Nig Med J* 1975; **5(2)**: 105-107.
6. Canavan YM, O Flaherty MJ, Archer D B, and Elwood JH. A 10-year survey of eye injuries in Northern Ireland, 1967 - 76 *Brit J Ophthalmol* 1980; **64**: 618-625.
7. Onabolu OO. Visual loss in ocular trauma. *Nig J Ophthalmol* 1994; **2(2)**: 18-24.
8. Adeoye AO. Eye injuries caused by locally-manufactured dane guns. *Nig J Ophthalmol* 1996; **4**: 27-30.
9. Mackay GM. Incidence of trauma to the eye of car occupants. *Trans Ophthal Soc UK* 1975; **95**: 311-314.
10. Lam DSC, Tham CCY, Kwok AKH and Gopal L. Combined phacoemulsification pars plana vitrectomy removal of intraocular foreign body (IOFB), and primary intraocular lens implantation for patients with IOFB and traumatic cataract. *Eye* 1998; **12**: 395-398.