

Highway Armed Robbery: A Major Cause Of Extremity Gunshot Injury In Northeastern, Nigeria

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Abstract

Background: Gunshot injury is a global problem and has its toll especially in a developing region like ours where poverty and violent crimes are the twin evils. Previous studies from this sub-region dwelt on abdominal and facial gunshot injuries. We retrospectively studied extremities gunshot injuries and its peculiarities in this sub-region.

Methods: All case notes of patients admitted and managed at the University of Maiduguri Teaching Hospital with extremities gunshot injuries between 2001 and 2004 were retrospectively studied.

Results: A total of 70 patients were studied males were affected more than females in the ration of 10.6:1. Young adults between the ages of 21 – 40 years constituted the majority with a mean of 32.2 ± 11.2 years. Majority of the victims were traders (24.3%). The commonest reason of gunshot injury was armed robbery (80%) mostly on the highway, while accidental discharge ranked second (10%). The lower limb was the predominant site of injury (51%) with thigh accounting for (31.4%) of the injuries, majority of the fractures (90.6%) were managed by non operative methods. Wound infection (20%) was the commonest complications encountered.

Conclusion: Firearms violence is a public health problem in North-eastern Nigeria.

The law enforcement agencies should device strategies to monitor the sale, acquisition and use of such firearms. The government must take urgent and adequate steps to combat highway robbery in an attempt to reduce further poverty and the number of disabled people in our society.

INTRODUCTION

Gunshot injuries (GSI) have increasingly become more common in civilian sector, ^{1,2,3} making many of our trauma units resemble military hospitals. The issue is fast becoming an epidemic, which is being blamed on the dwindling economic fortunes of majority and the widening gap between the effluence and the poor in our society ^{4,5,6,7} leading to violent crimes especially armed robbery.

Firearm injuries are potentially devastating to tissues, depending on the caliber of the weapon. In high velocity rifle and shotgun wounds, the damage to soft tissues and bone is massive with extensive tissue necrosis, such that the injury is managed similar to battle wounds⁵. On the other hand, low velocity pistol or handgun wounds which is the expected encounter in civilian practice, injuries are usually devoid of temporary cavitatory effects and severe soft tissue devitalization⁴.

The practice of early internal fixation of fracture for

improved outcome and reduced period of hospitalization is still far from being realized in most developing countries^{4, 9} due to lack of appropriate facilities.

The study is a review of extremity GSI cases presented to our hospital with a view to highlight the pattern and factors responsible for the upsurge this problem.

PATIENTS AND METHODS

A retrospective study of patients with extremities GSI who presented to our centre between January 2001 and December 2004 was carried out. The University of Maiduguri Teaching Hospital is the level 1 tertiary health institution in the Northeast sub-region. The study area includes the six states in the Northeastern Nigeria.

Source of information were patient's folder from medical records department and operating register. Data collated include age, sex, occupation and circumstance around GSI, part(s) of limb involved, associated injuries, time of

presentation, modalities of treatment, duration of hospitalization, complications and out come of treatment. Data were then analysed and results presented in tabular form.

RESULTS

There were seventy patients with GSI, sixty-four males and six females giving a male: female ratio of 10.6: 1. The ages of the patients ranged between 12 and 60 years, with the mean of 32.2±11.2 years and majority 53 (75.7%) of the patients were aged 21 – 40 years (Table 1). Children below the age of 10 years and females above the age of 30 years were not involved in the GSI.

Figure 1

Table 1: Age and sex distribution of GSI of the extremities.

Age (years)	Male (%)	Female (%)	Total %
0 – 10	-	-	-
11 – 20	1 (1.4)	2 (2.9)	3 (4.3)
21 – 30	27 (38.6)	4 (5.7)	31(44.3)
31 – 40	22 (31.4)	-	22 (31.4)
41 – 50	12 (17.1)	-	12 (17.1)
51 – 60	2 (2.9)	-	2 (2.9)
Total:	64 (91.4)	6 (8.6)	70 (100)

Table 2 has shown the increasing trend of GSI of the extremities during the period under review.

Figure 2

Table 2: Yearly distribution of GSI patients of the extremities.

Year	Number of patients	Percentage (%)
2001	12	17.14
2002	15	21.43
2003	18	25.71
2004	25	35.72
Total	70	100

The occupations of the victims were shown on table 3, majority of whom were traders closely followed by law-enforcement agents.

Figure 3

Table 3: Occupation of Victims of GSI of the extremities.

Occupation	Number	Percentage
Trader	17	24.3
Civil servants	11	15.7
Police	9	12.8
Driver	9	12.8
Students	6	8.6
Soldier	3	4.3
Vigilante Group	2	2.9
Other Paramilitary	3	4.3
Others	6	8.6
Total	70	100

Armed robbery (table 4) was the commonest reason for gunshot injuries 56 (80%) patients while accidental discharge accounted for 7 patients (10%).

Figure 4

Table 4: Circumstances of GSI of the extremities.

Motives	Number	Percentage
Armed Robbery attack on the Highway	46	65.7
At home	10	14.3
Accidental Discharge	7	10.0
Conflicts	3	5.7
Armed robbery suspect	1	1.4
Others	2	2.9
Total	70	100

Thirty-two (45.7%) of the patients had long bone fractures; the rest 38 (54.3%) had only wounds of the extremities. The lower limbs were the commonest area of injuries in 51 (72.9%) patients, with the thigh (fig.1) accounting for 22 (31.4%) of these figures, while the upper limb (fig.2) accounted for 19 (27.1%).

Figure 5

Figure 1: Sshowing comminuted fracture involving the distal femur with multiple bone fragments and gun pellets. Note the surrounding soft tissue swelling.

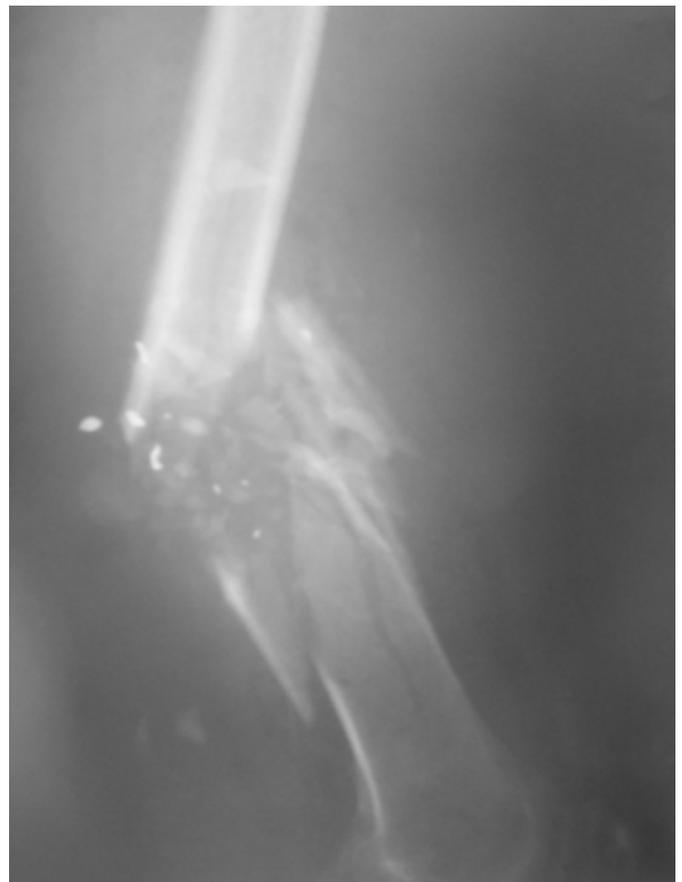
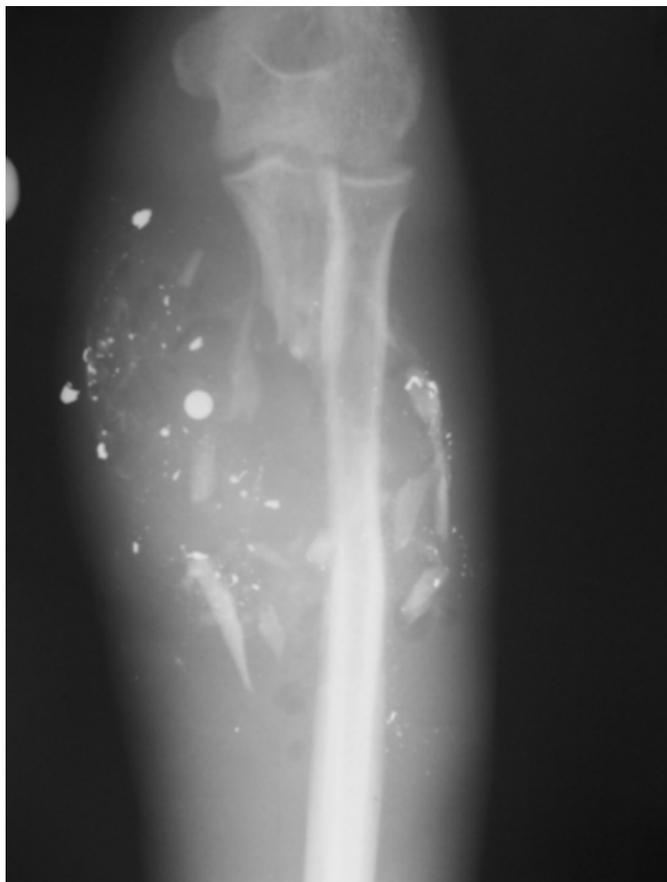


Figure 6

Figure 2: Showing comminuted fracture of the ulna with multiple bone fragments and gun pellets. Note the extensive surrounding soft tissue swelling and emphysema.



Associated injuries were as follows: Spinal injury 2 (2.9%), penetrating abdominal and chest injury 3 (4.3%) each; while head and perineal injuries 1 (1.4%) each.

Regarding the timing of presentation, 31 (44.8%) of the patients presented within the first 6 hours, 29 (41.4%) presented between 6 and 24 hours, while the rest 10 (13.8%) presented after 24 hours.

Fifty-five patients (78.6%) had wound debridement; the rest 15 (21.4%) had surgical wound dressing. Soft tissue cover was achieved by secondary intention 49 (70%) of cases, and 17 (24.3%) had delayed primary closure, while 4 (5.7%) had split thickness grafting cover.

Ten (31.2%) of the fracture cases, were treated by traction, 13 (40.6%) by Plaster of Paris (POP), and 6 (18.8%) by external fixation, while 3 (9.4%) had delayed plate and screw fixation. Wound infection was the commonest complications; and the mean duration of period of hospitalization was 34.5 day; while the range was between 2

and 210 days.

DISCUSSION

Gunshot Injuries (GSI) is a global problem and causes a considerable problem in the developing countries like ours where poverty and violence is rife. It cuts across the age groups, but the most vulnerable groups are the young between the ages of 20 – 40 years accounting for 73.7% of our cases; this is in keeping conformity with other studies^{4,5,10}, which indicates that real active and productive age groups are the most effected in the society. There was male preponderance in the ratio of 106:1 in keeping with global trend, ^{4,6,11} since males are more out going and more adventurous than their female counterpart especially in our society.

While the reasons for GSI in most parts of the world especially the developed countries are accidental discharge, suicide attempts and assault; ^{9,13} our study like others, ^{5,10,12} from different parts of the country and Africa indicates that armed robbery dominated the events. In our report 80% of the GSI were due to armed robbery, but peculiar in our findings compared to others ^{4,5,10} were that majority of the victims of armed robbery 65.7% were attacked and sustained injury while traveling on the highways on legitimate businesses. They were mostly traders and other commuters. The armed robbers often ambush their targets at late evenings, night or early morning hours. The men of underworld, as they are popularly known, often spray bullets with sophisticated weapons on vehicles. This is done to scare their victims and get them to fully surrender, but serious injuries are sustained in the process despite the fact that the missile pass through the body of the vehicle before hitting the victims.

Though the rise in armed robbery and other violent crimes has been attributed to poverty, unemployment and unequal distribution of wealth^{4, 5, 6}. The unstable political environment in very close neighboring countries of Chad and Niger Republics with many armed groups may also be an important factor in the highway robbery¹⁶. This is further supported by the sophisticated nature of weapons used and the poor command of any of the Nigerian language by the robbers.

Other reasons for GSI include accidental discharge 10%, conflicts 5.7%. Accidental discharge was commonest among policemen, other law enforcement agents and vigilante groups. This is not surprising as it is a reported leading cause

of GSI especially in developed country where guns are easily accessible^{3, 14}. The accidental discharge injury is uncommon among our civilian population because handling of firearms is largely illegal and those found in possession of such often face severe sanctions. We did not record GSI from suicide attempt.

The lower limb was more than twice (Table 5) commonly affected than the upper limb; within the region of the lower limb the thigh was the commonest area injured. This is similar to other studies, ^{3,4,13} which may not be unconnected with aim of demobilizing their victims from fight or flight by the armed robbers. Thirty-two (32) patients (45.7%) had associated with gun shot fractures and in keeping with the injury pattern; there were more fractures in the lower limbs. Patients that had fracture, sustained more tissue damage than those with only soft tissue injury. This is in keeping with pattern of GSI which depend not only on missile velocity but tissue resistance, which in case bone could generate secondary missile of bone fragments which can further damage tissues. This was also reflected on duration of hospitalization, those with fractures stayed longer than their counter part.

Figure 7

Table 5: Analysis of regional involvement of GSI to the extremities.

Parts	Number	Percentage
Shoulder	2	2.9
Arm	7	10
Forearm	4	5.7
Elbow	3	4.3
Hand	3	4.3
Thigh	22	31.4
Knee	10	17.1
Leg	12	8.6
Ankle	6	1.4
Foot	1	
Total	70	100

Gun shot wounds management are staged in our centre, after initial basic resuscitation and arrest of hemorrhage. Tetanus toxoid and necessary antibiotics administered; radiography and emergency haematological investigations are carried out during this stage. The next stage of treatment consist of exploring the injured area and possibly removing the missiles, then wound debridement is carried out and fracture stabilization achieved by external splintage, only three of the fracture cases had delayed plate and screw fixation/bone grafting for non union. The practice of early internal fixation with locked intramedullary nail as advocated by many surgeons^{1,2,3} for improved outcome treatment, was not feasible in our centre as there were no facilities for such. In most of our cases soft issue cover was achieved by secondary intention while a few had either delayed primary

closure, or split thickness skin grafts this was to reduce the risk of sepsis as most of our patients presented more than 6 hours after injury.

Commonest complication encountered was wound infections (20%), this is similar to finding of (25%) of Yinusa W and Ogirima MO⁴. This is higher, when compared to Victor, BN et al series¹³. The high rate of infection could be explained by the late presentation and the GSI in most of our patients were sustained on the bush highways.

Other complications include malunion, joint ankylosis and Gangrene due to delayed presentation of associated vascular injuries, which necessitated amputation in 3 patients. The other associated injuries were managed jointly together with the relevant specialists with good outcome, except for the 2-spinal injured patients that remain wheelchair bound.

Mortality was apparently low among hospitalized reported series of GSI^{4, 6,8,11} Yinusa W and Ogirima O.O recorded 3%, Onuminya JE, et al had 5.7% mortality, while we recorded none. The apparently low mortality was attributed to natural selection as most severely injured die prior to hospitalization and because most of the victims were young people⁸.

GSI cause profound morbidity and significant mortality among innocent law abiding citizens. There is need for the law enforcement agencies to devise strategies to monitor sale, acquisition and use of firearms. The need for regular patrol of the highways by law enforcement agents is highly desirable to reduce the incidence of armed robbery. While improvement of health care facilities at our tertiary institutions is long overdue to take care of these challenges.

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