

## Aetiological profile of nasal trauma in Ilorin North-Central Nigeria

\*Afolabi OA FWACS, FMCORL, \*Alabi BS FWACS, FMCORL

Dept of Otorhinolaryngology / Head&Neck Surgery, College of Medicine, University of Ilorin, Ilorin-Nigeria

### Abstract

**Background:** The nose being the most prominent part of the face is easily traumatized in facial injuries and these has been found to be common among the Caucasians compared to the Africans and Asians. The aim is to highlight the Aetiological profile of nasal trauma in Ilorin north-central Nigeria.

**Method:** A prospective study was carried out at the University of Ilorin Teaching Hospital Ilorin, Ilorin, north central Nigeria over a period of one and half years of all trauma cases seen at the A/E department of the hospital and those with nasal trauma were further studied. The data retrieved include demographic data, clinical presentation, and timing of presentation, examination findings, intervention offered and the outcome. Data were entered into SPSS 11.0 and analyzed descriptively.

**Results :** A total of one hundred and six (106) patients with nasal trauma were seen during the study period with a prevalence rate of 7%. The age range 6months to 65years with the majority of the patients in the age range 21-34 years (35.8%). The Male to female ratio was 1.7:1.0 and most patients were students ( 28.3%), followed by the traders ( 22.6%) the least were children (8.5%). Road traffic injury (RTI) constituted the highest cause of the nasal trauma ( 57.5%), assaults (17%), falls from heights ( 8.5%) and others were 17%. Majority of the patients presented within 1-6hours of occurrence of the injury (61.3%) and only 24.5% presented less than an hour of the incidence. The common forms of presentation were epistaxis (40.6%), nasal lacerations and epistaxis (25.5%) and nasal fractures in only 10.4%. Involvement of both the passengers and the pedestrians was (57.5%) and most of them, 44.3% had surgical intervention and 40.6% had conservative treatment with a mortality rate of 0.9%.

**Conclusions:** The prevalence of nasal trauma is 7% with RTI being the commonest cause in nearly two thirds of cases and cases of assaults only accounted for 17%. The commonest forms of presentation were epistaxis, nasal lacerations and nasal fractures in that order and most of them were surgically treated. Measures should be adopted to reduce incidence of RTI, with regulations enforced to protect pedestrians most of whom were the victims of these injuries.

**Key words:** Nasal trauma, North-central, RTI, Epistaxis.

**Date Accepted for Publication:** 18<sup>th</sup> May 2010

**NigerJMed 2010: 348 - 351**

**Copyright©2010 Nigerian Journal of Medicine**

### Introduction

Nasal trauma is relatively common, in cases of facial trauma, nasal fractures account for approximately 40% of bone injuries.<sup>1</sup> The nose being the most prominent part of the face is easily traumatized in facial injuries and these has been found to be commoner among the Caucasians compared to Africans and Asians.<sup>2</sup>

Trauma to the nose may either involve the soft tissue or the skeletal frame-work; however the involvement of the surrounding structure is also common<sup>3</sup>. Fracture of the nasal bones is generally considered the most common site-specific bony injury of the facial skeleton. Unfavourable changes in nasal appearance and function may occur where there is a loss of structural integrity. Nasal trauma in children merit special attention due to accentuated deformities if left untreated<sup>2,4,5</sup>.

There is paucity of data on aetiological profile of nasal trauma among Nigerians; hence this study is to find out the commonest causes and the common form of presentation.

### Patients and Methods

The prospective study was conducted at the University of Ilorin Teaching Hospital Ilorin, Ilorin, north central Nigeria over a period of one and half years (between July 2005 and Dec 2006). The study involved all trauma cases seen in the accident and emergency department of the hospital and those with nasal trauma were studied. Interview was conducted using a structured questionnaire after ethical clearance was secured from the hospital and informed consent was obtained from individual patient. The information obtained from the patient and patient relative include the demographic data which include age, sex, occupation, marital status, other information requested included the status of the

victim whether a driver or passenger or pedestrians or non of the above, the cause of nasal injury, the injury arrival time, forms of presentation, the type of intervention offered, the duration of stay if admitted and the treatment outcome. All the data were entered into SPSS version 11.0 computer software and analyzed descriptively.

## Results

A total of one hundred and six (106) patients with nasal trauma were seen during the study period. The age range was 6months to 65years with a mean of 26.40 years and the majority of the patients were in the age range 21-34 years( 35.8%), followed by 35-64years (27.4%), the least group being those less than one year ( 1.9%) as in table I. The male to female ratio was 1.7:1.0. Occupational categorization showed most patients involved in the study were students (28.3%), the traders (22.6%) the least was among the children (8.5%) and undetermined were 40.6%. On the status of the patient at the time of RTI, majority were either passenger in the vehicle or not related to road traffic injury are 32.1%, pedestrians were 27.4%,undisclosed were 32.1% and the least were the drivers 8.5% as shown in figure I.

Road traffic injury (RTI) constituted the highest cause of the nasal trauma (57.5%) which involved both the passengers and the pedestrians, then assaults was (17%), falls from heights were 8.5% especially in children, sports 6.6% while work related nasal injuries and burn to the face were 3.8% each and physical home abuse was 2.8% (table II).

Majority of the patients presented within 1-6hours of occurrence of the injury (61.3%), almost a quarter of the patient were able to present within one hour of injury (24.5%) and the least was a patient who presented after one week due to recurrent epistaxis (Figure II).

The commonest presentation was epistaxis from blunt nasal injury (40.6%) followed by bleeding with nasal laceration (25.5%), nasal laceration ( 18.9%), Bleeding, nasal laceration and fracture (10.4%),facial burns involving the nose (3.8%) and the least presentation was in one patient with nasal injury with CSF leakage (0.9%). Incidence of associated injury showed 52.8% do not have associated injury with the nasal injury while 41.5% had facial bruises especially among the RTI patients and the least injury recorded was in a patient with long bone injury which constituted 0.9%.

The modality of treatment was surgery in the form of nasal packs (anterior and posterior), manipulation with reduction of nasal fractures under anaesthesia and suturing of lacerations in 44.3% of the patients as shown

in legends I- III. About 40.6 % of the patients had conservative treatment in the forms of nasal pinching to control epistaxis, electrical and chemical cauterization of bleeding vessels, application of ice packs to nasal bridge and medications (drugs), 11.3% of the patients discharged against medical advice (DAMA) and 3.8% were co-managed with other specialists (Plastic and reconstructive, Orthopaedic and Ophthalmological teams).

The treatment outcome, showed a mortality rate of 0.9% in a patient with severe head and nasal injuries due to late presentation. Only 53.8% attended follow up outpatient clinic with majority (51.9%) within the first six month after the injury while about 46.2% were lost to follow up due to feeling of being totally well, ignorance of the need for follow- up visits. The complications observed on the follow up were scar formations over the healed wounds and mild nasal deformities as shown in legends I-III.

**Table I: Age distribution of patients with nasal trauma.**

	Frequency	Percentage (%)
<1year	2	1.9
1-5years	5	4.7
6-10years	8	7.5
11-20years	22	20.8
21-34years	38	35.8
35-64years	29	27.4
65years and above	2	1.9
Total	106	100.0



**Figure I- Status of patients with nasal trauma.**

	Frequency	Percent
RTI	61	57.5
Fall	9	8.5
Assault	18	17.0
Sports	3	2.8
Physical abuse at home	7	6.6
Work related accident	4	3.8
Burns	4	3.8
Total	106	100.0

\* RTI Road traffic injury.

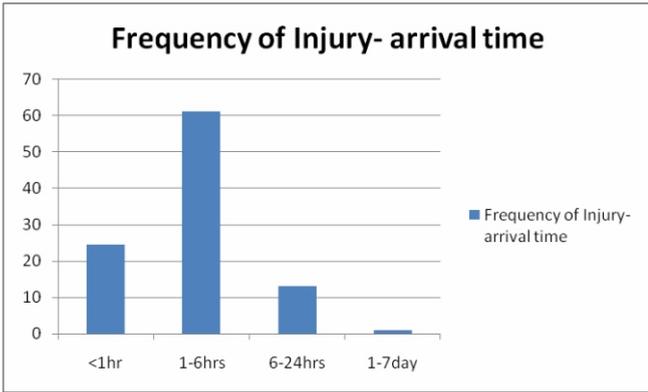
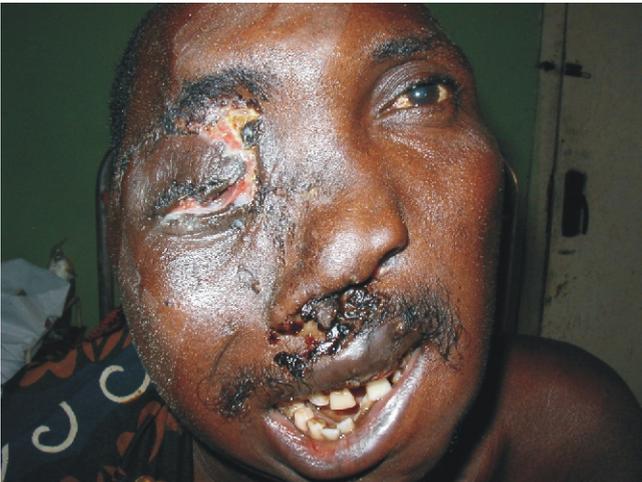


Figure II: Injury- arrival time among patients with nasal trauma.

Legends I to III.

Legend II



Legend I



Legend II



Legend III

### Discussion

The nose is exposed, unprotected and occupy the central portion of the face, hence it is more frequently affected by trauma compared to other parts of the face<sup>1</sup>. The nose being the most prominent part of the face is easily traumatized in facial injuries and this has been found to be common among the Caucasians compared to Africans and Asians.

In this study, the prevalence of nasal trauma was 7.0 % unlike among Caucasians with a prevalence of 28%<sup>1</sup> but it is comparable to findings in another centre in Nigeria (Ibadan, South western Nigeria) with a prevalence of 10.7%<sup>2</sup> these prevalence rates may be attributed to the squat-like nature of nose of the blacks and the pointed nature of the Caucasian nose.

In this study the commonest age groups involved were those in their second and third decades who are the economically productive group who travel about and are more involved in road traffic injury<sup>3, 4</sup>. The study also showed male preponderance in nasal injury as found elsewhere<sup>6,7</sup>, in the African set up, male as the head of the family has to fend for the family and in the process are more predisposed to road traffic injury and are usually more involved in assault cases. Majority of those involved were students and traders who move from one part of the country to the other for the economic activities. The injury arrival time for most of these patients was 1-6hours while about less than a quarter presented within an hour of onset of symptoms, this is to show how emergent nasal injury with epistaxis could be and the need for urgent attention<sup>4,7</sup>.

The commonest cause of nasal trauma was RTI as against assault found by Murray<sup>4,5,6</sup> in developed parts of the world where interpersonal violence is more

rampant. Most of the RTI were from motorcycle related injuries which is now the commonest source of income in those with or without licenses in the form of transportation compared to four wheel vehicles so this predisposes to high accident rates. In a report<sup>8</sup>, south western Nigeria alone (30% of Nigerian population) has an average of 20 road traffic accidents daily with 30 injured and 5 fatalities. Assault was the next commonest cause due to interpersonal violence which is gradually on the rise in Nigeria especially among the age group 21 to 34 years of age.

As child labour is a risk factor in this, fall was observed among the children under the age of one year this was similar to findings by Zerfowski et al<sup>6</sup> the least was sport injuries as against finding by Murray<sup>5</sup>.

Anterior epistaxis was the commonest presentation as it commonly accompanies nasal injuries. Presence of epistaxis usually indicates a disruption of mucosa and possible nasal bone or septal fracture<sup>9</sup>, followed by bleeding with nasal laceration the least presentation was in a patient with epistaxis and CSF rhinorrhea<sup>10</sup> who presented late and was the only mortality of this study. More than half of the patient did not have associated injury in addition to the nasal injury which was an unusual finding, this was followed by facial bruises as against nasal fractures among Caucasians<sup>1,6</sup>. Majority of the patients had surgical intervention which is the main modality of

treatment of this condition. The percentage of those that discharged against medical advice is quite high due to socio-economic reasons as there is no established social insurance scheme more so the national health insurance scheme in place only covers the federal civil servants and few state workers only however those in private sector are not planned for.

For those that had intervention more than one-third (41.5%) spent between 1-5days in the hospital while about 35.8% had less than a day in the hospital this is to show the significant of nasal trauma and the need to have proper assessment before discharge. Mortality of 0.9% was observed in these study and more than half of the patient came for follow up and more than half had follow up for more than six months as this assisted in the identification of late complications of nasal injury

In conclusion, nasal trauma in our series is due usually to RTI and cases due to assault are gradually on the increase due to urbanization.

The commonest presentation is epistaxis and the modality of treatment was surgery. It is recommended that all patients with head and neck trauma either from road traffic injury or assault or physical abuse should be made to under go full otorhinolaryngological evaluations to treat these injuries before complications set in and the need to encourage private establishment to start a health insurance scheme.

## Reference

1. Maran AGD, the fractured Nose Scott-Brown Otolaryngology, 6<sup>th</sup> edition Butterworth Ltd. Oxford Rhinology 1997; 4/16/6-4/16/11
2. Isa A, Nwaorgu OGB, Nwawolo CC Prevalence of Nasal trauma in UCH, Highland medical research journal vol 2 (No 1); 2004:53-55
3. Oyemade A, Epidemiology of road traffic accidents in Ibadan and its environs. Niger. Med. J. 1973;3(4):174-7
4. Alabi BS, Afolabi OA, Ismail A, Severe maxillofacial injuries in a Nigerian: The need for a safe road, Pakistan oral & Dental Jr.26 (2).Dec.2006,167-170.
5. Murray JAM and Maran AGD, the treatment of nasal injuries by manipulation. J. Laryngol. Otol. 1980; 94: 1405-1410
6. Zerfowski M, Bremerich A, Facial trauma in children and adolescent, Clinical Oral Investigations Volume 2 (3); 1998: 120-124.
7. Olatoke F, Ologe FE, Alabi BS, Dunmade AD, Segun- Busari S, Afolabi OA, Epistaxis: five year review, Saudi Med J 2006; Vol.27 (7) 1077-1079
8. Adeleye A and Udeku EL, the pattern of road traffic accidents seen in UCH, Ibadan Nigeria. W. Afri. Med. J. 1970: 153-157.
9. Reinbolt RL, Welch RD. Nasal fracture. Emedicine, 2004. [Http://www.emedicine.com/sports/topic84.htm](http://www.emedicine.com/sports/topic84.htm) (accessed 29 July 2005).
10. Ologe FE, Odebode TO. Cerebrospinal fluid rhinorrhea and otorrhea in patients with head injury. *Afr J Med Med Sci* 2005; 34: 173-175.