ORIGINAL PROF-1255

NASAL BONE FRACTURE

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Article Citation:
Rahim E, Ali M, Aslam S. Nasal bone fracture. Professional Med J Jun 2009; 16(2): 258-262.

ABSTRACT...Objective: To analyze modes of presentation, types of the nasal fractures and their management. **Setting and Period:** From 01 Apr 2006 to 31 Mar 2007 at Frontier Corps Hospital, Quetta. **Patients and methods:** This descriptive study consists of 50 patients of both sexes and all age groups, managed for nasal bone fractures, presented in emergency as well as in outpatient department. Selection of cases was non probability, convenient type. All patients were admitted in the hospital for evaluation and further management. Every case of nasal fracture was properly evaluated, assessed and was managed accordingly. Diagnosis was based on proper history, thorough clinical examination and radiological confirmation. **Results:** From this study it was concluded that adults (80%) were affected more than children. Highest incidence was seen in the age group 18-30 years (46%). The male to female ratio was 3:1. The main aetiological factors in adults were Sports injuries (30%), personal falls (24%), road traffic accidents (22%) and interpersonal assaults (20%) and in children personal falls (24%). Most of the patients (90%) presented within 2 weeks of the nasal trauma. Epistaxis (92%), nasal deformity (76%), pain and tenderness (72%) and nasal obstruction (70%) were main clinical features. Closed reduction under general anaesthesia (80%) was the most common and effective treatment awarded and complications were minimal. Three cases who presented after 1 year of trauma were treated by Septorhinoplasty (1), Septoplasty(1)and SMR(1). 14%(7) patients were treated conservatively. **Conclusion:** Nasal bone fractures should not be considered minor injuries until they have been thoroughly assessed. Closed reduction under GA is most effective treatment for the patients presenting within 2 weeks of injury. Prognosis of un-complicated nasal fractures, in general, is good and they heal within 2-3 weeks with good cosmetic and functional results.

Key words: Fracture Nose, closed reduction, rhinoplasty.

INTRODUCTION

Nasal bone fractures are the most common type of facial fractures[1]. It is the structural break in the anatomical continuity of nasal bones or cartilages which may be simple or comminuted, closed or compound (internally or externally).

Nasal bone fractures should not be considered minor injuries until they have been thoroughly assessed[2]. Nasal trauma, most often is not life threatening; however, significant functional and aesthetic impairment may result if these injuries are not accurately diagnosed and addressed[3].

Most commonly it is due to Sports injuries, road traffic injuries and interpersonal assaults. In children, falls, accidents while playing and sports injuries are the major causes. The nose alone is fractured by low velocity trauma while high velocity trauma is usually accompanied by other facial fractures or injury to cervical spine or skull.

Article received on: 11/06/2007
Accepted for Publication: 20/02/2008
Received after proof reading: 07/05/2009
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The aims of management of fractured nose are to avoid the complications and to restore the function of nose as well as its cosmetic appearance.

It is important that nasal bone fracture should be reduced immediately after trauma provided there is no soft tissue swelling. If any soft tissue swelling is present, then it should be allowed to subside preferably with an anti-inflammatory drug for about 3-7 days. However; the nasal fracture must be reduced within one week in children and within two weeks in adults.

Unfortunately, in developing countries like Pakistan, it is frequently mismanaged by quacks and general practitioners or neglected by the patients leading to longstanding nasal obstruction and cosmetic deformity.

The purpose of this study is to assess in general, various aspects regarding incidence of nasal bone fracture and to analyze modes of presentation, types of the fractures and their management.

MATERIAL AND METHODS

Material

This study was conducted at ENT Department, Frontier Corps Hospital Quetta between 01 Apr 2006 to 31 Mar 2007. This hospital receives Army personals and their families from various Frontier Corps Units & troops located in Quetta. In addition it also entertains all kinds of emergencies from the local civil population.

This descriptive study consists of 50 patients both sexes and all age groups, managed for nasal bone fracture, presented in emergency as well as in outpatients department. All patients with fracture nasal bone after radiological confirmation were included. Patients presenting more than 2 years history of fracture nasal bone and patients with severe head and multiple injuries were not included in our study. All patients were admitted in the hospital for evaluation and further management.

Methods

Every case of the nasal bone fracture was treated after proper evaluation and assessment. For this purpose a performa was used in each case which was subsequently utilized to compile the results of study. Diagnosis of the nasal fracture was based on proper history, thoroughly clinical examination and radiological investigations. In history detailed information was obtained particularly regarding age, sex, occupation, duration of nasal trauma, mechanism of injury and functional deficits. Previous history of treatment for nasal trauma and nasal deformity was also inquired. Nasal bleeding amount of blood loss, nasal obstruction, watery nasal discharge and nasal deformity due to injury was also asked for.

46(92%) patients had epistaxis after the injury and 41(82%) patients had mild to moderate bleeding which either stopped itself or by a temporary ribbon gauze anterior nasal packing soaked in 2% lignocain with adrenaline done in the hospital on reporting. While 4(8%) patients were having severe nasal bleeding requiring anterior nasal packing of Vaseline gauze for 48 hours. In all cases of nasal bone fracture, detail ENT as well as General examination was carried out. Plain x-rays for nasal bones (right and left lateral views) were requested in all cases. In suspected sinus fracture, occipito-frontal, submentovertical and lateral views were asked for. Photographs were taken in cases requiring Rhinoplasty preoperatively and a month after the operation. 2(4%) patients were having septal hematoma along with nasal one fracture which was treated immediately with drainage and anterior nasal packing.

For treatment purpose patients were divided into III groups receiving immediate, delayed and late treatment. All patients were followed up for a considerable period ranging from 1-6 months. Nasal synechiae developed in 4 cases which were treated by sectioning and nasal decongestants. In 2 cases, acute maxillary sinusitis was managed by antibiotics, analgesic and nasal decongestant.

RESULTS

Incidence of age and sex

The mean age was 32 years ranging from 4 to 60 years. Adults were affected more than the children as shown in table I. Majority of patients (86%) were between 6 to 40 years of age and highest incidence (46%) was noted in the age group 18-30 years. Only 2 cases (4%) were noted under 6 years and 2 cases (4%) over 50 years of age.

Aetiology of injuries

Various aetiological factors of injuries are shown in table-II.

Various treatment modalities employed

Table IV shows that closed reduction was the main mode of treatment performed with in due period in 40 cases (80%) of nasal fracture. Conservative treatment was required in 7(14%) in which 5 were having un-displaced nasal fractures and 2 cases (both of old age, one male and other female) accepted the mild to moderate nasal deformity denying the operation. Immediate closed reduction was performed in 6 cases (12%), which comprised 3 cases(6%) where manual reduction under local anesthesia was done for mild lateral nasal deviation without nasal swelling and 3 patients (6%) in whom closed reduction under general anesthesia was carried out for compound nasal fractures with closure of lacerations.

Table-I. Age incidence in 50 patients with nasal fracture.

Age group 9years)	No. of pts.	%age
0-5	2	4%
6-11	8	16%
12-17	7	14%
18-30	23	46%
31-40	5	10%
41-50	3	6%
51-60	2	4%
Total	50	100%

Table-II. Aetiology of nasal fractures (n-50)

Cause of injury	No. of pts	%age
Sports injuries	15	30%
Personal falls	12	24%
Road traffic accidents	11	22%
Assaults	10	20%
Occupation accidents	2	4%
Total	50	100%

32(64%) patients were managed by delayed closed reduction within 2 weeks of injury. Satisfactory results were obtained by this treatment.

02 patients(4%) reported late(after 3 weeks of injury) in which closed reduction after re-fracture of nasal bone was done under general anesthesia but with a little difficulty and unsatisfactory outcome.

Table-III. Time of presentation

Duration since trauma	No. of pts	%age
Immediate (within 1-3 hours)	8	16%
After 3 hours but within 1 week	30	60%
Between 1-2 weeks	7	14%
During 3rd and 4th weeks	2	4%
After 1 year upto 2 yrs	3	6%
Total	50	100%

Table-IV. Various definitive treatment modalities employed.

Age Group (years)	No of pts	%age
Conservatively treated	7	14%
Immediate closed reduction	6	12%
Delayed closed reduction	32	64%
Refracture and alignment by closed reduction method	2	4%
Septo-rhinoplasty	1	2%
Septoplasty	1	2%
S M R	1	2%
Total	50	100%

3 patients (6%) who reported after one year of injury were managed by Septoplasty, Septo-rhinoplasty or SMR depending upon the requirement.

DISCUSSION

Fractures of the nasal complex are the most common facial fractures[1,6]. This is due to the fact that the nose is

the most anteriorly projecting facial structure and is a composite structure of bone, cartilage and soft tissues. Furthermore, the forces required to cause significant injury are less than that causing other facial fractures. This study of 50 patients with fractured nose appears to show that nasal fractures were common in adults (80%) than in children (20%). Most of the patients (86%) were between 6 to 40 years of age and highest incidence (46%) was noted in the age group 18-30 years .The age related findings are comparable with that of Hayter et al[7] who performed study of 153 cases and found that most frequent age is third decade(40%). Complications of fractures seen were Epistaxis (12%), nasal synechiae (8%), maxillary sinusitis (4%), saddle nose (2%) and DNS (4%).

The most common cause of nasal bone fracture in our study was Sports injuries (30%). The probable reason for this is that aggressive sports like Boxing, Wrestling, Hockey, Foot-ball and Squash are regularly played in army ,so individuals are more prone to such injury. This is quite comparable to 33% cases of Maxillo- facial injuries caused by sports, found in study conducted at Cork Regional Hospital during 1 year in 332 facial fractures[5]. Our study is also comparable with the study of Soccer related injuries conducted at Department of Maxillo-facial surgery, University of Rome, Italy where out of 46 cases, 34 (73.9%) had nasal and zygomatic area injuries[9].

Personal falls causing nasal bone fracture was noted in 24% especially in children .This finding is similar to the study of Ear, Nose and Throat injuries in 160 children conducted at ENT Deptt. DHQ, Swabi and Khyber Teaching Hospital, Peshawar during June 2001 to June 2003[4]. Although nasal trauma under 5 years of age is very common but only 2 cases (4%) of nasal fracture reported in our study at outdoor patient department.

Road traffic accidents accounted for 22% cases and most of them were also having associated injuries. The diagnosis of nasal bone fractures in this study was based mainly on clinical features and plain X- rays nasal bones(Right and Left Lateral views).Other radiological views (Occipitofrontal, Submentovertical) were also requested in all cases to rule out associated other facial fractures and in some cases for medico-legal purpose. The most common clinical features noted were Epistaxis (92%), nasal deformity (76%), pain and tenderness (72%) and nasal obstruction (70%).

Closed reduction under general anaesthesia and immobilization by nasal packing for 24 hours and external POP for 7 days was the treatment of choice in majority of the cases .The general anaesthesia was preferred in all cases except in three adult male patients with mild lateral deviation where local anaesthesia was used but there was difficulty in assessing the correction and controlling of Epistaxis during fracture reduction. Therefore, it is suggested that closed reduction under LA should be carried out only in selective co-operative adult patients having simple un-displaced nasal fracture[8].

The results of our study were generally satisfactory and no patient requested for corrective surgery. This finding is comparable to 6 years study of Analysis of nasal bone fractures in 503 patients at Plastic Surgery Deptt. Inha University Hospital, South Korea[7].

Timing of reduction of the nasal fracture is of critical value. In this study all fractures except two were reduced within two weeks in adults and within one week in children. Results were very good. Associated injuries were present in 22% cases and most of them were caused by RTA. Out of these, facial soft tissue injuries were most common 12%.

CONCLUSION

Out of 50 patients of nasal bone fractures, 38(76%) were treated by closed reduction (mostly under GA) within 1-2 weeks with success rate of 80 -100 %.But this procedure did not produce satisfactory results both cosmetically and functionally in 2(4%) patients who reported after 3 weeks of injury.

Prognosis of un-complicated nasal bone fractures, in general, is good and they heal within 2-3 weeks with good cosmetic and functional results[3].

The aim and objective of this study is to emphasize the importance of early treatment of fracture nasal bone in general public as if it is treated within two weeks of injury

by simple closed reduction, complicated surgery can be avoided.

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