



Diagnosis of Nasal Fractures: A Comparison between Radiological and Clinical Findings

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ABSTRACT

Background: Fractures of the nose are one of the most common cases referred to the ENT emergency clinic. This study was performed to determine the value of routine radiography in diagnosing patients with nasal injuries.

Methods: In this study, for all patients who referred to the ENT emergency department of Salmaniya Medical Complex in Kingdom of Bahrain with nasal injuries, accurate clinical information was recorded and nasal radiographs were taken. Based on the results, patients were examined.

Results: Out of 176 patients who had nasal fractures on clinical examination, 74% (161 of them had positive radiological findings in favor of the fracture and 19% (33 of them had negative radiological findings. Also 29% of patients (48 patients) had clear ocular ecchymosis and 72% (126 patients) had no ocular ecchymosis.

Conclusion: Nasal radiography in patients with nasal trauma is not as useful as clinical examination, but it is recommended to confirm the diagnosis for legal issues.

Keywords: Nasal Fracture, Nasal Radiograph, Ecchymosis around the Eye

Introduction

Nasal bone fractures are exceedingly common in facial trauma due to the central location, prominent projection, and thin nature of the nasal bones [1]. Left untreated, these fractures can lead to long term sequelae including nasal obstruction including nasal valve collapse, cosmetic deformity chronic sinusitis and nasal growth retardation in children [2],[3].

Patients who present to the emergency department with facial and nasal injuries are first examined by a physician for examination of other areas as well. The decision to have an X-Ray nose is made on the assumption that, like other parts of the body, the radiography may affect the management process. In the next stage, depending on the type of nasal deformity injury, a group of patients may undergo general anesthesia with a reduction of fracture nasal bone [4]. This study was performed to determine the value of routine radiography in patients with nasal injuries.

Method

During a period of twelve months, all patients with nasal trauma who referred to the main emergency department of Salmaniya Medical Complex underwent detailed clinical examinations and clinical findings including ecchymosis, crepitation, deformity and septal hematoma were recorded. For all patients who presented with obvious nasal trauma or deformity, standard antero-posterior and lateral nose X-Ray was performed. Radiographic examinations were performed immediately for all patients in consultation with a radiologist. Radiographic findings were reported by a specialist to check for nasal bone fractures. Patients with significant deformity or suspected fracture were referred to the ENT emergency clinic. The determinant of treatment was apparent nasal deformity. The presence or absence of a fracture in the X-Ray was not considered as a determining factor in the decision.

Results

Out of 260 patients who referred to the ENT emergency department with a complaint of nasal injury, 230 patients suspected of fracture based on initial clinical examination were referred for radiography. 14 patients did not have radiographs and 216 patients returned to the emergency department after radiography. From the above cases, after re-examination in ENT clinic, 196 cases of fractures were registered for reduction of fracture. Of these patients, 75% (147 patients), were male and 25%, (49, patients) were female (Figure 1). According to the age distribution, the peak average age of patients was 21 to 30 years and then 11 to 20 years (Figure 2).

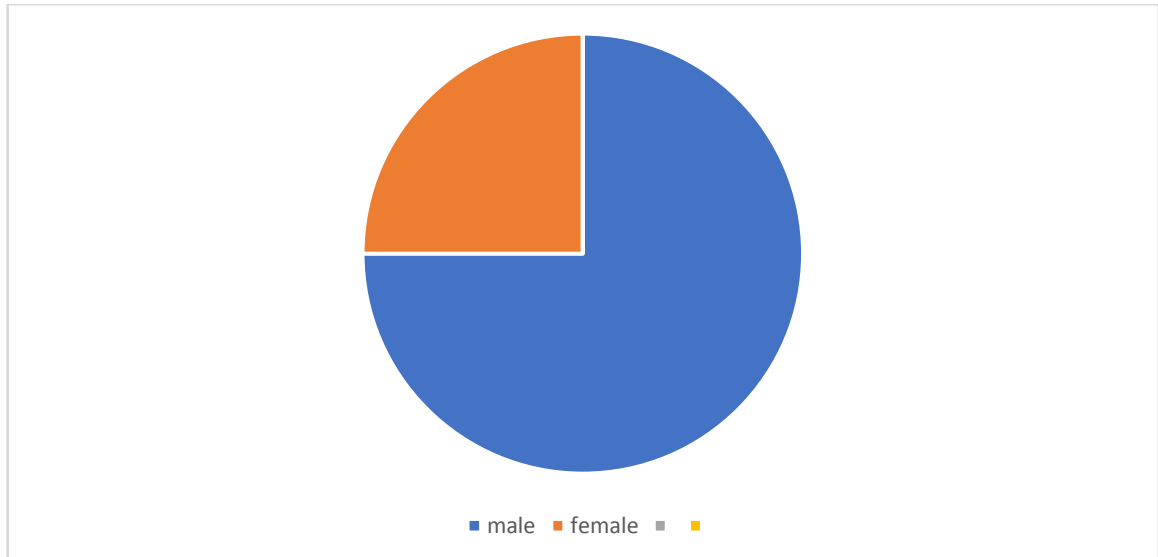


Figure 1. Sex distribution of patients

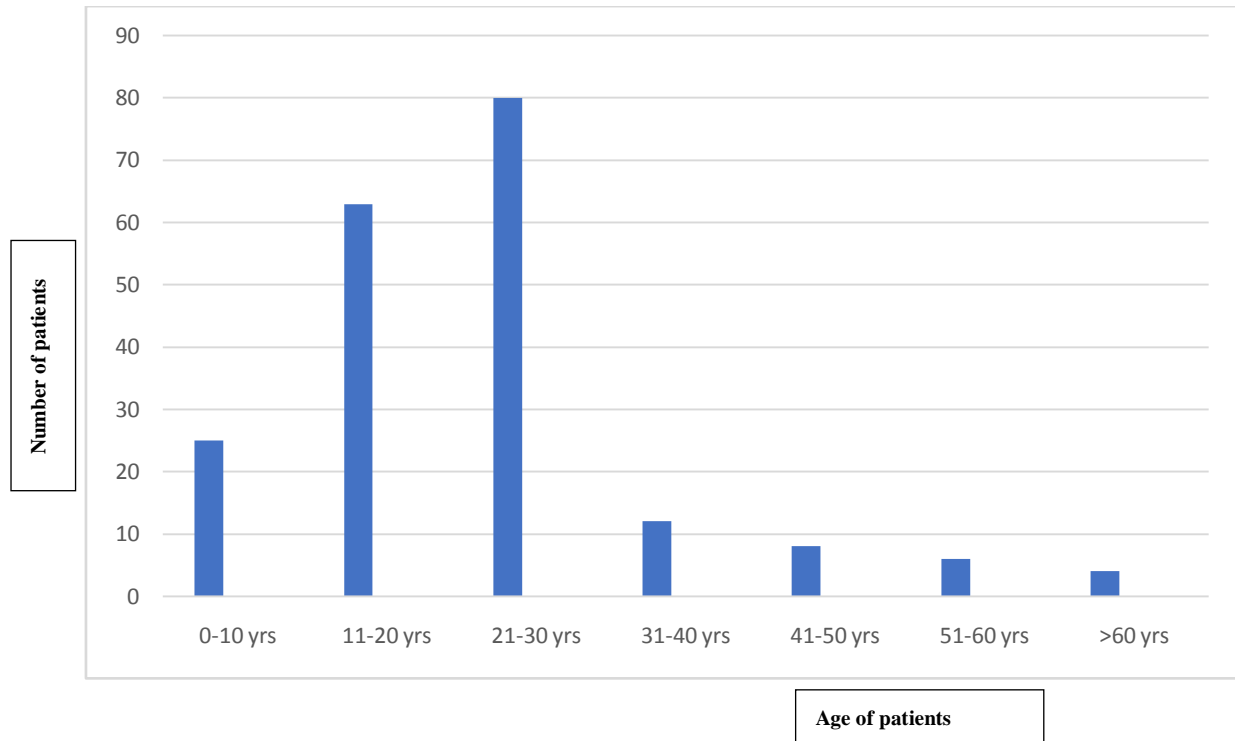


Figure 2- Age distribution of patients

Discussion

There are various ways to treat a nasal fracture. In some centers, the fracture of the nose is reduced in an emergency surgery, and in appropriate patients, emergency septoplasty is performed. [5] Another group of surgeons prefer to perform reduction of fracture nose under general anesthesia [5], some authors believe that if the radiography shows the displaced fracture of the nose, reduction should be performed even if the nose looks straight [6]. In this study, the decision to reduce the fracture of the nose is made based on the appearance of the nose on inspection, and it is no exaggeration to say that there are very few surgeons who perform the reduction of the nose fracture based on radiological findings in the absence of any apparent deformity [7]. According to the results of this study, there was a fracture line with apparent deformity in about 81% of patients referred to the emergency department and 19% of patients (33 patients) who were operated did not have visible fractures on radiography. So according to this result radiography is not an investigation with high specificity and sensitivity but based on the statistics published by others, it is [8]. Consequently if radiography is used as a screening test for patients with nasal deformities who need treatment, a large group of patients which have fractures but have normal radiograph are ignored. In contrast, using radiography as a screening test leads to unnecessary treatment for a group of patients who do not have deformity. [9] Clayton & Lesser in their study showed that radiography was unnecessary in the traumatized nose. Nasal radiographs are not easily interpreted and anatomical variations and the presence of vascular effects on the bone make it very difficult to assess the presence of fractures. [10] In this study 28% of patients (48 patients) who had under eye ecchymosis had a fracture. Therefore, we conclude that under-eye ecchymosis is a significant sign of fracture. The average age of patients with fractures is 11-21 years and is more common in men, which is probably because driving car accidents and involving in assaults are more common in these ages and sexual groups. A significant proportion of nasal injuries may be compound fractures, and these fractures are associated with nasal skin damage and epistaxis. Which after controlling the epistaxis and suturing the skin if it is damaged, it is managed like a simple fracture [10]. The main reason given for doing radiography of patients with nasal trauma is legal reasons. Another reason for performing a radiography is that the patient insists on an apparent deformity while the surgeon cannot detect it. [11] A photograph may be more useful than a radiograph in the case of apparent deformity as there is clear and defensible evidence in future complaints. [12]

Conclusion

Nasal fractures are not necessarily associated with external deformities. Also, a deformed nose is not always showed a fracture in radiography. Therefore, performing nasal radiography in patients with nasal trauma is not as useful as clinical examination, but it is recommended to confirm the diagnosis in suspected clinical cases and for legal issues.

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