

Nasal Bone Fracture Detected by Bedside Emergency Department Ultrasonography

Nazal Kemik Kırığının Yatak Başı Acil Ultrasonografi ile Tespiti

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Abstract

Yirmi yaşında erkek, acil servise darp nedeniyle getirildi. Hastanın yapılan yatak başı acil ultrasonografisinde nazal kemikteki kırık hattı irregüler hiperekojenir hat olarak gösterildi. Nazal kemik kırıklarının acil serviste yatak başı ultrasonografik olarak belirlenmesi, basit, ucuz, radyasyona maruz kalmadan yapılan bir yöntemdir. (*JAEM 2010; 9: 148-9*)

Key words: Nazal kırık, ultrasonografi, acil tıp

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Özet

A 20-year-old man presented to the emergency department with nasal fracture after a personal assault. The nasal bone appeared as a hyperecogenic structure on ultrasonographic examination and the irregularity and displacement of the bone was recognized. The evaluation of nasal bone fractures by ultrasonography is a proposed method involving no radiation exposure, rapid topographic evaluation and bedside application. (*JAEM 2010; 9: 148-9*)

Anahtar kelimeler: Nasal fracture, ultrasonography, emergency department

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Introduction

A 20-year-old man presented to the emergency department (ED) with nasal fracture after a personal assault. The nasal bone appeared as a hyperecogenic structure on ultrasonographic examination and the irregularity and displacement of the bone was recognized. The evaluation of nasal bone fractures by ultrasonography (US) is a proposed method involving no radiation exposure, rapid topographic evaluation and bedside application.

Case Report

A 20-year-old man presented to the ED with crepitous swelling of the nose and epistaxis after a personal assault. Physical examination was normal except for a swelling of the nose, bone deformity and septal mucosal laceration. These findings led us to suspect that the patient had a nasal fracture. US was performed using a 5-10 MHz linear probe in the midline longitudinal plane in order to display the nasal fracture. The size of the ultrasound head used in this study was 5 x 1.4 cm (Medison Digital Sonoace 5500. Medison America, Inc. Cypress, CA 90630). The nasal bone appeared as a hyperecogenic structure on US examination and irregularity and displacement of the bone was detected. The fracture, with minimal displacement of

the distal portion of the nasal bone, was displayed on US examination (Figure 1A). Nasal x-ray was ordered to confirm our diagnosis and document the fracture. The same fracture line was seen at the distal portion of the nasal bone (Figure 1B). The patient's fracture was treated with a closed reduction maneuver under sedation and analgesia.

Discussion

Nasal bone fractures are the most common types of facial fractures (1). Blunt trauma such as motor vehicle accidents, sports injuries, and physical altercations are the most common causes (2). The diagnosis of nasal fracture may be made with conventional radiography, ultrasonography and computerized tomography. Since most nasal fractures are diagnosed clinically, use of radiographs for detecting nasal fractures in the ED is not common. Although a physical examination is regarded as the gold standard for the diagnosis of nasal fractures, establishing the diagnosis can be difficult due to the considerable surrounding hematoma and edema (3). Further diagnostic modalities may be useful, especially in this patient group.

The use of ultrasound (US) in the practice of emergency medicine has grown dramatically over the last 2 decades. Many fracture types, such as zygomatic arch (4), calcaneal fracture (5) and long

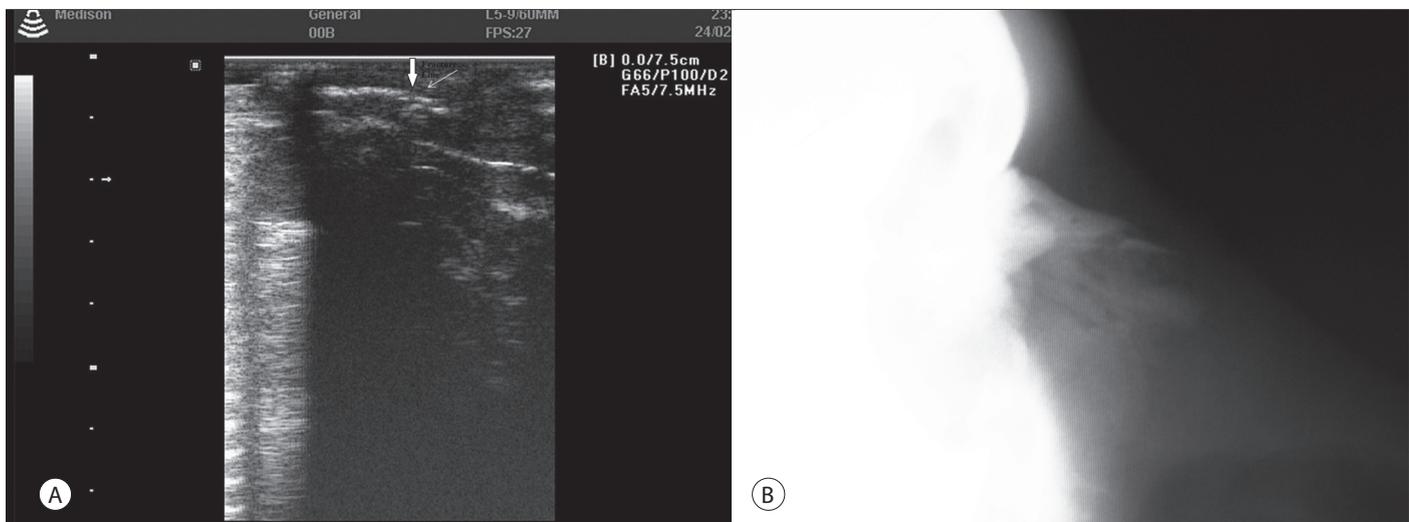


Figure 1. Ultrasound image (A) and lateral view of the nose (B) in a patient with a nasal fracture.

bone fracture in pediatric patients (6) can be accurately imaged with bedside US. Hong HS et al (7). concluded that sonography can be a primary diagnostic technique for evaluating nasal fractures in children. It inflicts no radiation and provides various imaging planes without positional change. High resolution ultrasonographic imaging especially provides more accurate diagnosis in low grade nasal fractures than computerized tomography (8). Another prospective study compared the diagnostic value of high-resolution ultrasonography and conventional radiography in the evaluation of suspected nasal fractures. It was found that the diagnostic accuracy of ultrasonography was higher than conventional radiography (9).

Conclusion

The evaluation of nasal bone fractures by ultrasonography is a proposed method involving no radiation exposure, rapid topographic evaluation and bedside application. ED US can be used especially in patients with a suspicious physical examination, to confirm the diagnosis.

Conflict of Interest

No conflict of interest is declared by the authors.

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