

Unusual presentation of more common disease/injury

Heading the ball: a case of a Le Fort II fracture in a football match

Ebru Akoglu,¹ Ozge Onur,¹ Arzu Denizbasi,¹ Mehmet Kosargilir,² Haldun Akoglu,³ Abdullah Ibrahim²¹Department of Emergency Medicine, Marmara University, Istanbul, Turkey;²Department of Emergency Medicine, Haydarpasa Numune Education and Research Hospital, Istanbul, Turkey;³Department of Emergency Medicine, Dr Lutfi Kirdar Kartal Education and Research Hospital, Istanbul, Turkey

Correspondence to Dr Ebru Akoglu, ebryunal@gmail.com

Summary

Facial injuries can impair a patient's ability to eat, speak and interact with others. Severe injuries occur as a result of interpersonal or domestic violence, or in motor vehicle collisions, including those involving motorcycles and all-terrain vehicles. The authors present a case of LeFort II fracture caused by a collision of opponents while heading the ball in a football match.

BACKGROUND

Sports like football, baseball and hockey account for a high percentage of facial injuries among young adults.^{1–4} Although most sports-related facial injuries are minor, the potential for serious damage exists.^{5 6} This case presents a LeFort II fracture that depended entirely on a collision of two players while heading the ball; which is extremely rare in a sport event. There are, to our knowledge, no published case reports about LeFort II fractures produced by a head collision. This case also serves as a reminder of the diagnosis of LeFort fractures in the emergency department.

CASE PRESENTATION

A 19-year-old professional football player was brought by ambulance to the emergency room (ER) after a collision with his opponent. Both the players were reported to have suffered head injuries when they collided while attempting to head the ball. The patient experienced a transient loss of consciousness lasting for 1–2 min according to witnesses. He had headache and tenderness of the nasal bone and left orbital rim. His vital signs were stable and his airway was patent but he was somnolent. On physical examination, he had several facial ecchymoses over the left zygomatic bone and a clotted nose bleed. The mandible was not dislocated and was not tender on palpation. On further examination, the maxilla could be moved anteriorly, also demonstrating mobility of the nose. No crepitations were palpated over the orbital rims but the nasal bone was felt to be broken and the left frontal sinus was tender. Visual acuity and ocular movements were normal. Physical and neurological examination showed no other findings.

INVESTIGATIONS

In plain x-rays, the only evident finding was a fracture of the nasal bone. In a maxilla-facial CT, a pyramidal fracture traversing the nasofrontal junction and extending laterally across the medial orbital wall, orbital floor, infraorbital rim and through the zygomaticomaxillary suture line was observed and LeFort II fracture was diagnosed (figure 1).

The fracture was confirmed as proceeding posteriorly through the nasal septum and pterygoid plates (figure 2). No cerebral parenchymal haemorrhage or contusion was observed on cranial CT. A cervical spine CT was also reported to be normal.

TREATMENT

His somnolence vanished while he was in the ER observation unit. After ENT, plastic and neurosurgery consultations, nasal tamponade was performed.

OUTCOME AND FOLLOW-UP

He was admitted to the plastic surgery ward for a planned operation. 1 week later, his facial bones were reduced successfully with an operation.

DISCUSSION

Complex fractures of the midface are classified using the LeFort system, although many complex fractures defy such classification. LeFort fractures account for 10–20% of all facial fractures. They result from a considerable amount of force. Motor vehicle accidents are the predominant cause; other causes include assaults and falls.

LeFort I injuries involve a transverse fracture through the maxilla above the roots of the teeth. The injury may be unilateral or bilateral. Patients may have malocclusion. The clinician may detect motion in the maxilla when the upper teeth are grasped and rocked, while the forehead is held stationary with the other hand.

LeFort II injuries are typically bilateral and involve fractures that extend superiorly in the midface to include the nasal bridge, maxilla, lacrymal bones, orbital floor and rim. The fracture lines are shaped like a pyramid. When examined, the nasal complex moves as a unit with the maxilla when the teeth are grasped and rocked, while the forehead is held stationary.

LeFort III injuries involve fractures that result in a discontinuity between the skull and the face. The fractures begin at the bridge of the nose and extend posteriorly

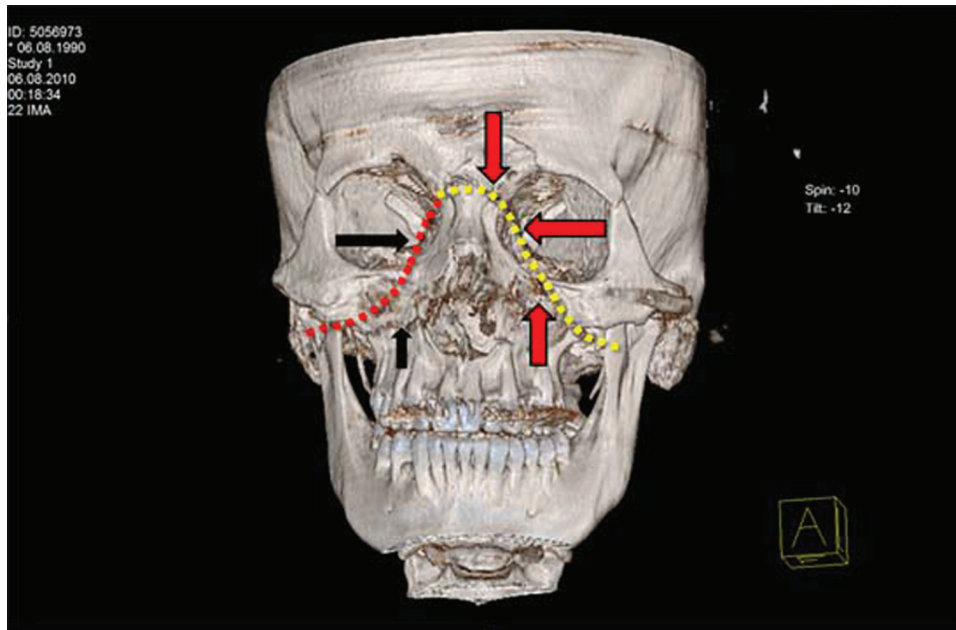


Figure 1 3D reconstructed CT of LeFort fracture. Yellow line: actual fracture lineage, Red line: full blown LeFort fracture lineage, Arrows: actual fractures.

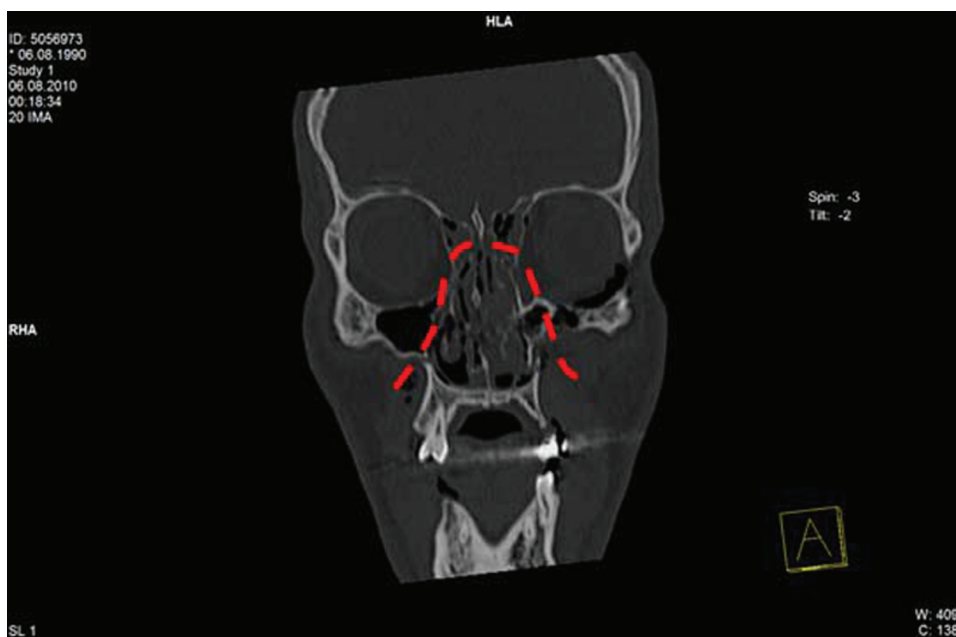


Figure 2 LeFort II fracture shown on a coronal slice of a CT.

along the medial wall of the orbit and the floor of the orbit, and then through the lateral orbital wall and the zygomatic arch. Intrasally, they extend through all the lesser bones to the base of the sphenoid and are frequently associated with a cerebrospinal fluid leak. According to the results of CT imaging studies that show the full extent of fracture comminution, true LeFort III injuries are rare.⁷

The choice of imaging for facial fractures depends upon the patient's haemodynamic stability, ability to cooperate and available resources. Visualisation of fractures among

the complex curves of the facial bones is best achieved using CT. CT scans of the face should include fine cuts and both coronal and sagittal reconstructions. Plain x-rays may be used to screen for a fracture if CT is unavailable or the patient is not likely to have sustained a midface or maxillary fracture. In such cases, evaluation may begin with a single occipitomental view (sometimes called Water's view).⁸⁻¹¹

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Learning points

- ▶ Although most sports-related facial injuries are minor, the potential for serious damage exists.
- ▶ Visualisation of fractures among the complex curves of facial bones is best achieved with CT.
- ▶ Plain x-rays may be used to screen for a fracture if CT is unavailable or the patient is not likely to have sustained a midface or maxillary fracture.

Competing interests None.

Patient consent Obtained.

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