

## The EM Educator Series

The EM Educator Series: Maxillofacial Trauma

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**Case 1: A 30-year-old male presents after an MMA fight with nasal and a left eye injury.**

**Case 2: A 25-year-old female presents to the ED after a physical assault at home. She has bruising of the head and neck.**

**Case 3: A 46-year-old male is brought in by EMS after a high-speed MVC with epistaxis and facial deformity.**

### Questions for Learners:

1. What is the initial approach to evaluating the patient with significant facial injury? What is necessary when evaluating the need for airway intervention?
2. What should be considered with facial bony injuries?
3. What should be considered with ocular injuries?
4. What should be considered with nasal injuries?
5. What should be considered with ear injuries?
6. What should be considered with mandible / tooth injuries?
7. Who needs a maxillofacial CT?
8. Which patient should be evaluated by the facial specialist in the ED?
9. What suggests intimate partner violence, elder abuse, or non-accidental trauma in the pediatric patient?

### Suggested Resources:

- Articles
  - [Core EM – Facial Fractures](#)
  - [Core EM – Ocular Trauma](#)
  - [emDocs – Dental Trauma](#)
  - [emDocs – HEENT Tips](#)
  - [emDocs – Mandibular Fractures](#)
  - [emDocs – Sphincter series – Scary Airway](#)
  - [Emergency Medicine Cases – Ocular Trauma](#)
  - [Rebel EM – Auricular Hematoma](#)
  - [Taming the SRU – Antibiotics for facial fractures](#)

## Answers for Learners:

### 1. What is the initial approach to evaluating the patient with significant facial injury? What is necessary when evaluating the need for airway intervention?

Evaluation of patients with possible facial fractures begins with airway management. **Mandibular fractures often cause distracting deformities, but they can also lead to substantial bleeding and/or swelling that can quickly progress to airway compromise.** Anterior mandibular fractures, as well as bilateral mandibular fractures, can create significant bony instability that leads to soft tissue swelling and prolapse of oral structures, which may result in marked airway obstruction.

**Having suction readily available is the first important step**, as heavy bleeding is common in open fractures. Allow the patient to sit in the position most amenable to airway protection, in an attempt to avoid aspiration. Traditional physical maneuvers (e.g. jaw thrust) are less likely to be effective, and bag-valve mask ventilation may be ineffective. These problems are even more pronounced in bilateral mandibular fractures. If the fracture is severe enough to cause an obstruction, or if the patient necessitates intubation for other reasons, initiating your “difficult airway” algorithm is paramount. Use video laryngoscopy, if available. Have a backup plan if this fails, which may include the use of a bougie and other adjuncts (fiberoptics). Have materials ready for cricothyrotomy, in case your first attempts fail.

### 2. What should be considered with facial bony injuries?

- Frontal Bone Fracture
- Orbital Bone Fractures
- Zygoma Fractures
- Midface (*Le Fort*) Fractures
- Mandibular Fractures

### 3. What should be considered with ocular injuries?

- Globe Rupture (Open Globe)
- Hyphema
- Retrobulbar hematoma → Orbital compartment syndrome
- Retinal detachment
- Corneal abrasion/ulceration

### 4. What should be considered with nasal injuries?

- Epistaxis management
- Nasal bridge fracture reduction
- Nasal septal hematoma

### 5. What should be considered with ear injuries?

- Auricular lacerations
- Auricular hematomas

## **6. What should be considered with mandible / tooth injuries?**

- Fracture / Subluxation / Luxation / Intrusion / Complete Avulsion
- Bleeding socket
- Mandible dislocation / fractures

## **7. Who needs a maxillofacial CT?**

Consider in patients with significant trauma, significant swelling or tenderness. Usually a panoramic radiograph is adequate for a simple, isolated mandible fracture. Panorex and plain films both can help define concurrent alveolar or root injury. CT scan may be required for the following situations: fractures of the mandible, suspected midface fracture, possible fracture of orbit, suspected skull fracture, and possible cervical spine injury.

## **8. Which patient should be evaluated by the facial specialist in the ED?**

The following injuries need emergency surgical consultation

- Mandible fractures (oral surgery)
- Frontal bone posterior table fractures (neurosurgery)
- Orbital fractures with entrapment (plastic surgery)
- Zygoma fractures with change in vision
- Midface fractures

## **9. What suggests intimate partner violence, elder abuse, or non-accidental trauma in the pediatric patient?**

Child abuse should be suspected if significant dental injuries are present without an explanation. Many physical child abuse incidents involve the oral-facial region. More common fracture types include condylar fractures and greenstick fractures.