



Traumatic Injuries

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Oral and maxillofacial injuries refer to injuries of the orofacial soft tissues, facial skeleton, teeth and associated specialized soft tissues within the head and neck region as a result of wounding or external violence. These injuries can lead to orofacial deformity and malfunction, greatly diminishing quality of life and worker productivity

Traumatic Injury to Teeth

Traumatic dental injuries of teeth occur frequently in children and young adults.

- Enamel infraction: An incomplete fracture (crack) of the enamel without loss of tooth substance.
- Enamel fracture (uncomplicated crown fracture): A fracture with loss of enamel only.
- Enamel–dentine fracture (uncomplicated crown fracture): A fracture with loss of enamel and dentine, but not involving the pulp.
- Complicated crown fracture: A fracture involving enamel and dentine, and exposing the pulp.
- Crown–root fracture: A fracture involving enamel, coronal and radicular dentine, and cementum.
- Root fracture: A fracture involving radicular dentine, cementum and the pulp.

Radiographic Evaluation

Radiographic evaluation of dentoalveolar injuries should include a panoramic radiograph and periapical radiograph of involved teeth. The radiographic examination reveals the stage of root formation and discloses injuries affecting root portion of the tooth and periodontal structures. Multiple periapical radiographs taken at different angles are useful to demonstrate the root fractures that are minimally displaced. Ideally three different radiographs from different angles should be obtained for each traumatized tooth.



Fractures of the Alveolar Process

Fractures of the alveolar process are found predominantly in the anterior teeth and the premolar region. These injuries may be isolated or may be seen in conjunction with traumatic injuries to teeth .

Radiographic Features

The fracture is readily identified in the intraoral periapical radiograph .

Lateral extraoral radiographs best demonstrate the location of the fracture if some bone displacement has occurred . More close the fracture to the alveolar crest, greater is the possibility of presence of root fractures. Usually two radiographs produced with different projecting angles are required for the accurate diagnosis.

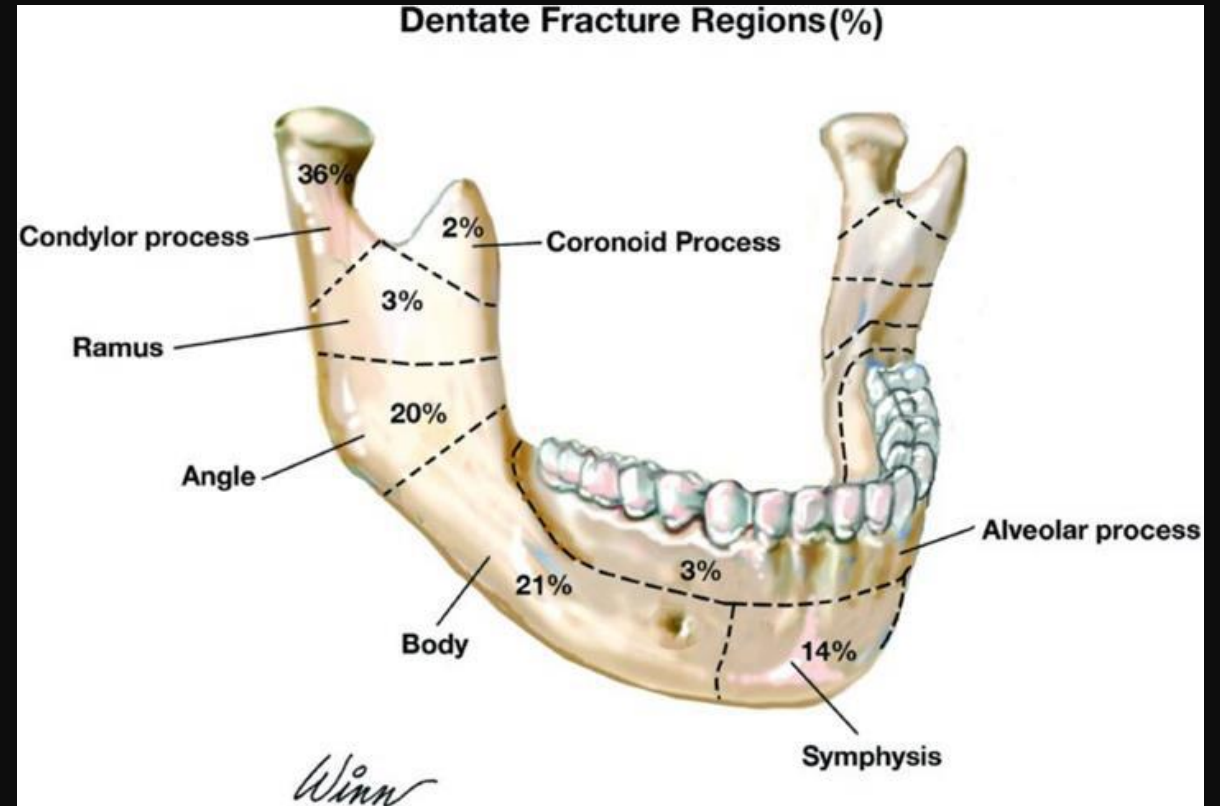
Fracture of the Mandible

Despite the fact that the mandible is the largest and strongest facial bone, by virtue of its position on the face and its prominence, it is commonly fractured when maxillofacial trauma has been sustained

According to the anatomical site

The fractures can be classified according to the site of fracture and its incidence as follows:

- Symphyseal fractures and parasymphyseal fractures .
- Body fractures .
- Gonial area or angle fractures .
- Condylar fractures (intracapsular) and subcondylar fractures
- Coronoid process fracture
- Dentoalveolar fractures





The radiographic examination of a suspected mandibular fracture may include intraoral or occlusal views, intraoral periapical radiograph, panoramic view, posteroinferior or submentovertex plain radiograph, reverse Towne view, lateral oblique radiograph and CT.



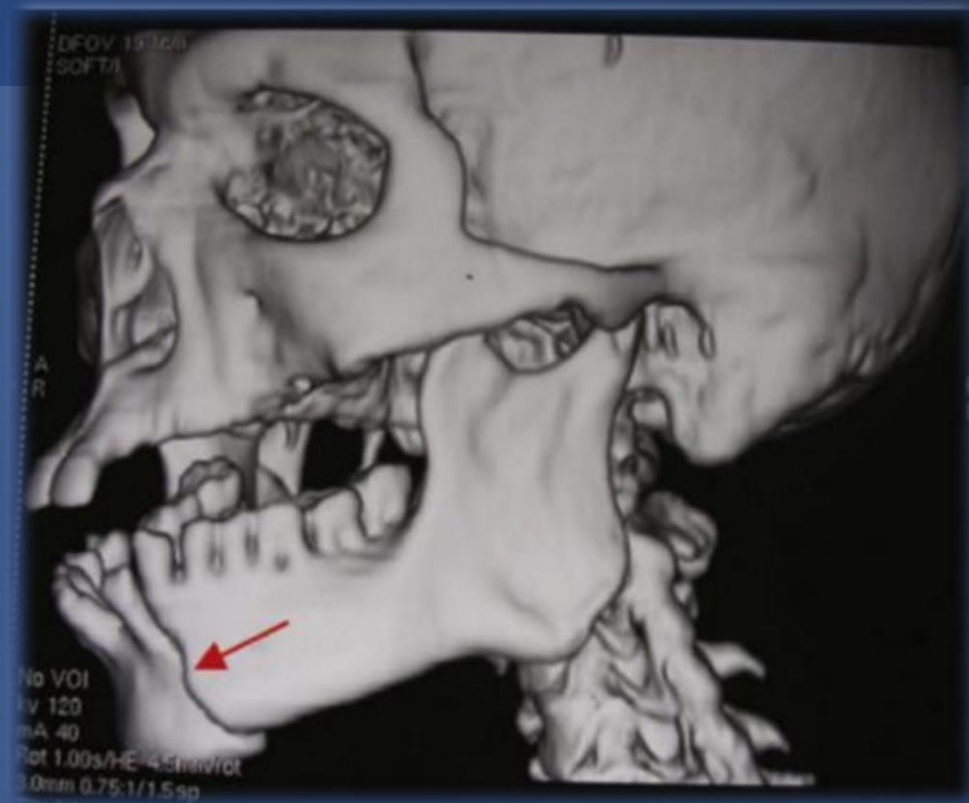
The margins of the fractures usually appear as sharply defined radiolucent lines of separation that are confined to the structure of the mandible. The lateral oblique view of the mandible can be of help in the diagnosis of ramus, angle and posterior body fractures.



The posteroanterior (PA) view demonstrates any medial or lateral displacement of the fractures of ramus, angle, body or symphysis. The mandibular occlusal view demonstrates displacement in the lateral or medial direction of the body fractures and also shows the anterior or posterior displacement of the symphyseal fracture.

Radiographic Features





Trauma to temporomandibular joint region

The complexity of the TMJ, as well as its anatomical proximity to other craniofacial structures, makes diagnosis and treatment specifically challenging.

Classification of TMJ Region Fracture

Relationship of condylar fragment with mandibular fragment:

- Non-displaced
- Deviated
- Displacement with medial or lateral overlap
- Displacement with anterior or posterior overlaps
- No contact between the fractured segments
- Relationship between condylar head and glenoid fossa:
 - Non-displaced
 - Displacement
 - Dislocation

Radiographic Features

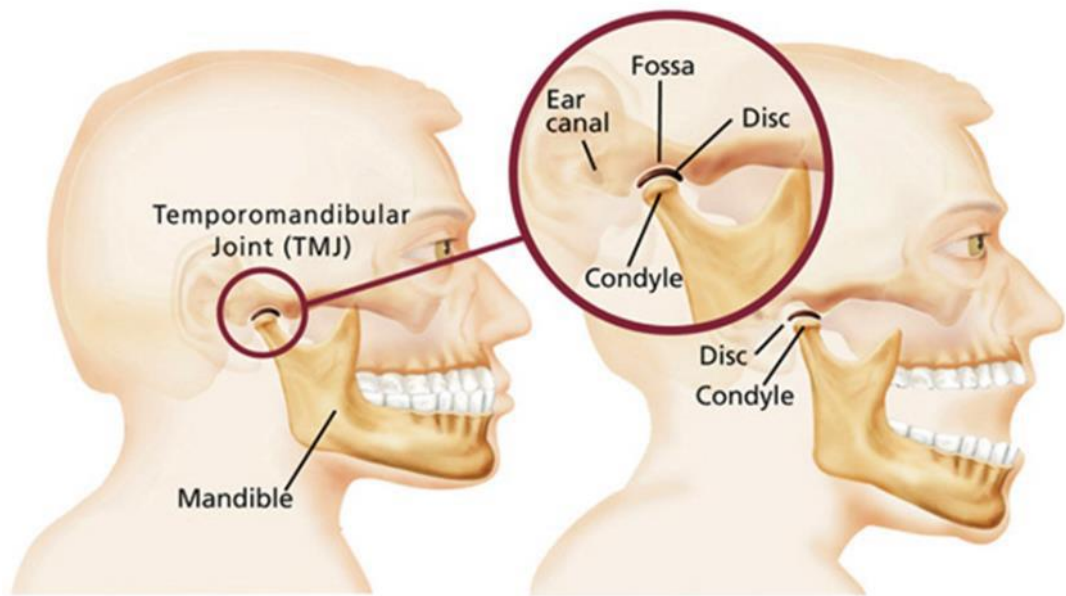
At least two radiographs must be obtained at right angle to each other to adequately evaluate the TMJ region. **Orthopantomography (OPG) and lateral oblique view of mandible**

Panoramic radiograph contains higher accuracy in detecting all the mandibular fractures. If OPG facilities are not available, lateral oblique view is more informative

Reverse Towne view and PA mandible: It shows condylar head much better than more conventional PA or AP view of mandible in which these structures tend to be superimposed by base of the skull.

Transcranial and transorbital view of TMJ: This view may occasionally be helpful in defining the relationship of the condylar proximal fragment to the glenoid fossa.

CT scan: In difficult cases, CT scan has been demonstrated to show changes in the relationship of the condyle to the mandibular fossa more precisely than the conventional radiographic examination.



Middle third fracture of face

Fracture of Maxilla

Middle third consists of maxilla, zygomatic bones and zygomatic process of temporal bones, palatine bone, nasal bone, lacrimal bone, inferior conchae, pterygoid plates, sphenoid, vomer and ethmoid. Fractures of the midface, often classification owing to the severity of the force

and the multidirectional source of the trauma.

Classification: According to Rene Le Fort

Le Fort I

It is also known as low-level fracture/horizontal fracture of maxilla/Guerin fracture/floating fracture/horizontal fracture above the level of nasal floor.

Radiographic Features

Le Fort I this type of fracture is identified on PA, lateral skull and Water projections. Both maxillary sinuses are cloudy and may show air-filled level.

Lateral view shows slight posterior displaced fragments.



Le Fort I

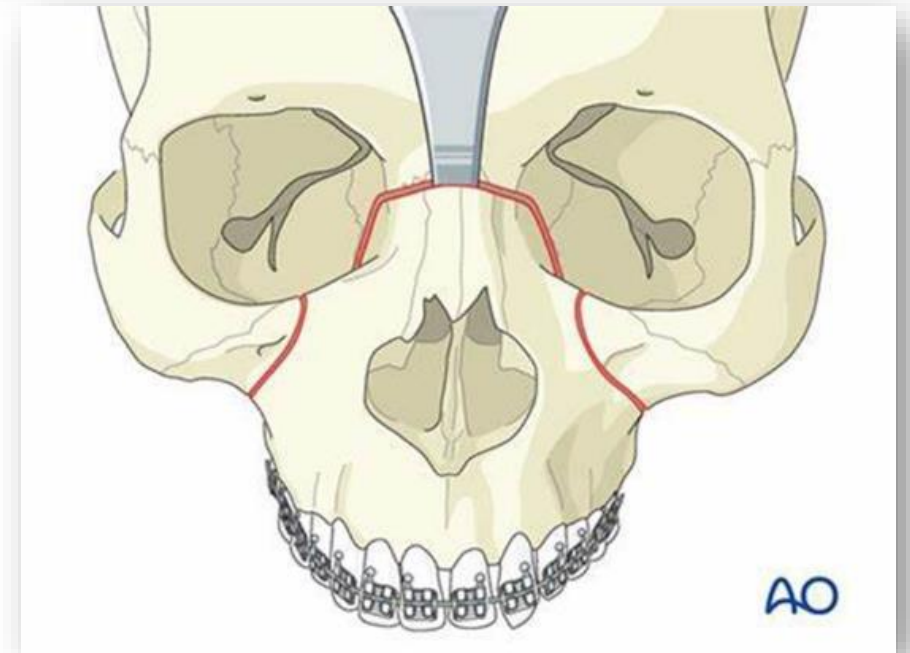
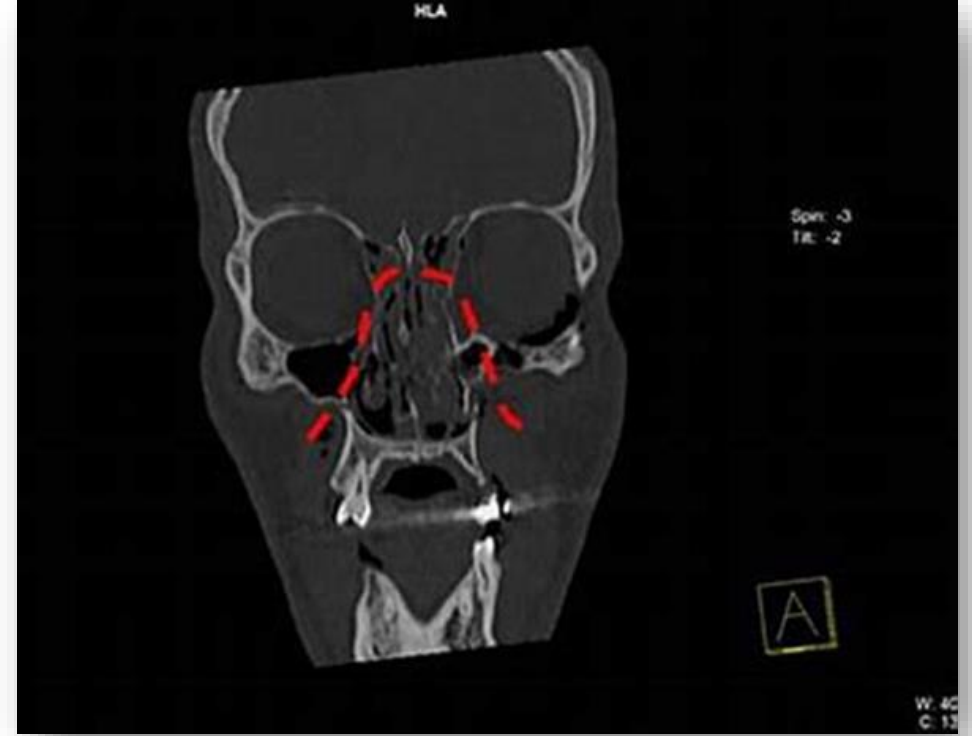
Le Fort II

Le Fort II fracture is also known as pyramidal/subzygomatic fracture.

This fracture runs from the thin middle area of the nasal bones down to either side crossing the frontal processes of maxilla into the medial wall of each orbit.

Radiographic Features

Le Fort II It will reveal fracture of the nasal bone and both frontal processes of maxilla and infraorbital rims on both sides or separation of zygomatic sutures on both sides.



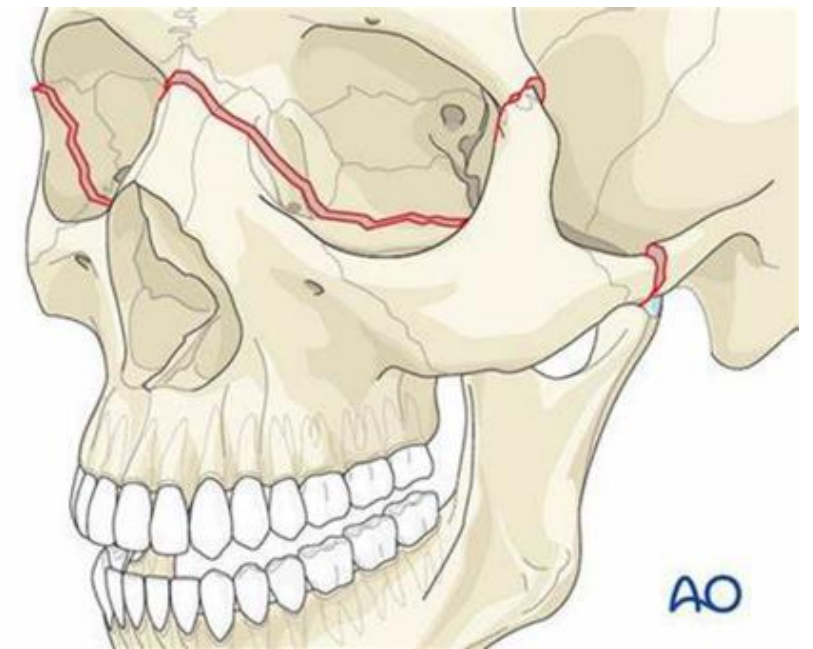
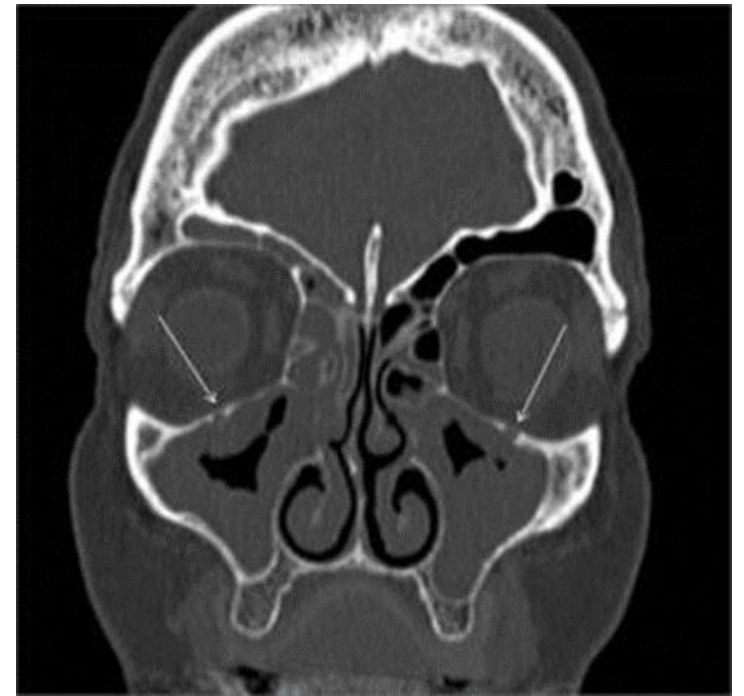
Le Fort III

Le Fort III fracture is also called high transverse/suprazygomatic fracture.

The fracture runs from near the frontonasal suture transversely, parallel with the base of the skull and involves the full depth of the ethmoid bone, including the cribriform plate

Radiographic Features

CT coronal and sagittal scans are the most useful imaging aids in determining the extent of the injuries.





Thank You