

RIB FRACTURES & FLAIL CHEST

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RIB FRACTURES

CAUSES:

- Blunt force trauma
- Road traffic accidents
- Fall from a height
- Crushing injuries to the chest

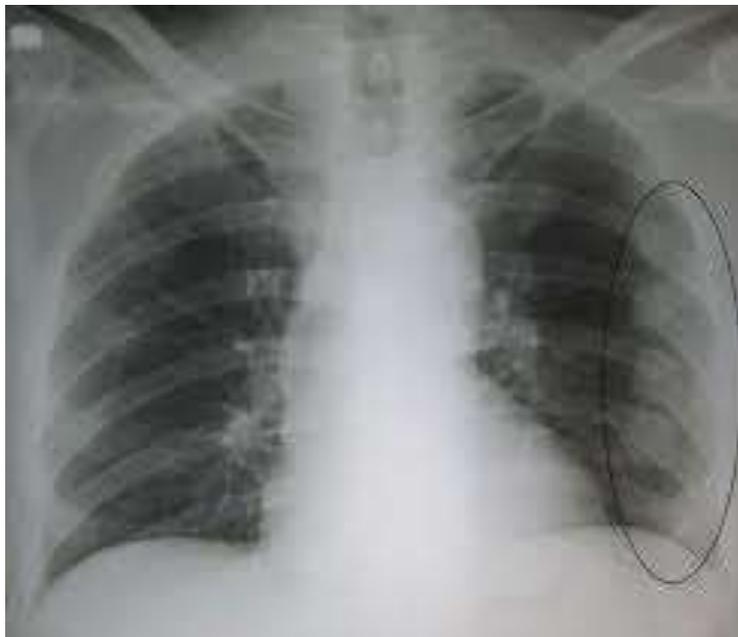
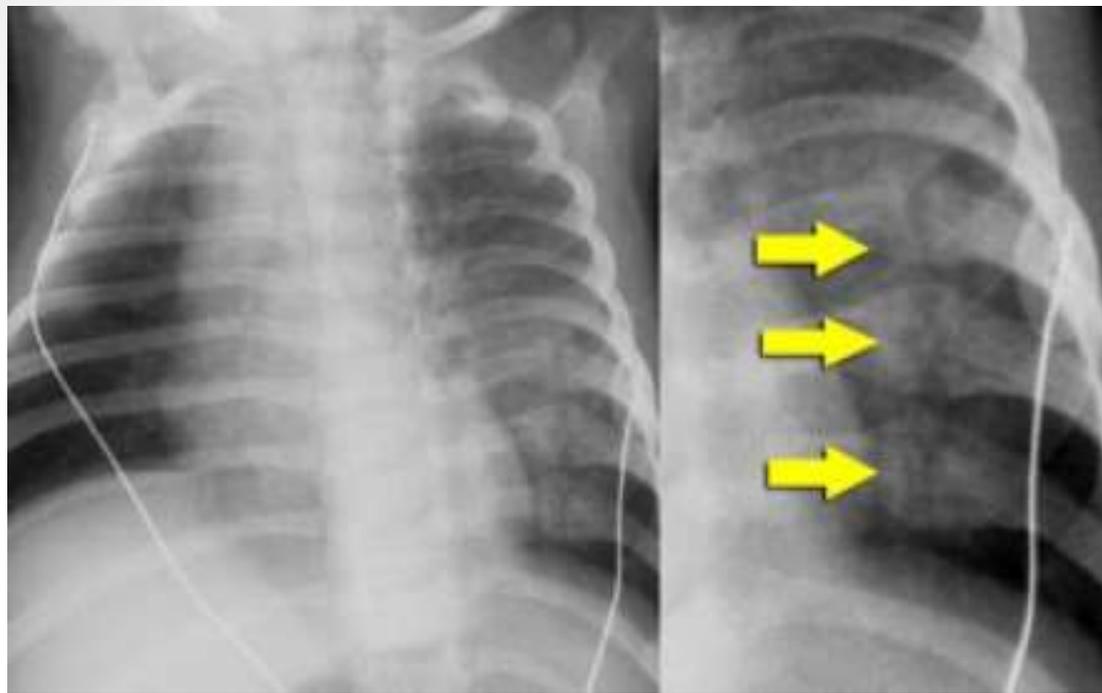
RISK FACTORS

- Contact sports
- History of bone or joint disease
- Poor nutrition
- Ribs 4-9 are the most commonly affected

SIGNS AND SYMPTOMS

Rib fractures can be single or multiple.

- Single rib fractures may occur due to direct injury or excessive flexion
- Most common site is at the costal angle or the middle of the shaft
- Patient will show pain and tenderness at the site of injury.
- Pain on breathing deeply, coughing and on palpitation.
- Swelling or bruising may be present over the fracture site



MANAGEMENT

- Analgesics and intercostal nerve block for pain.
- Strapping is occasionally necessary in young adults
- Chest x-ray to rule out pneumothorax and hemothorax
- Intermittent use of velcro belt rib support.
- For complicated multiple rib fractures, early rib plating surgery can be considered for realignment.

COMPLICATIONS

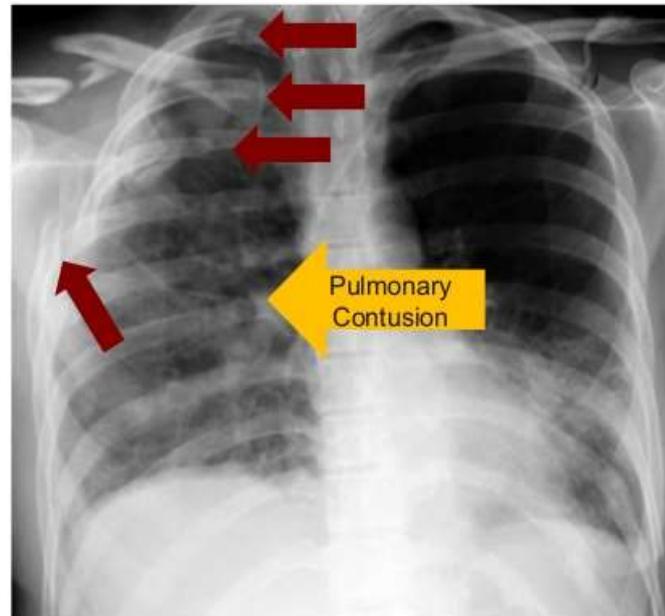
- Hemothorax
- Pneumothorax
- Pleural effusion
- Damage to underlying visceral organs

FLAIL CHEST

- Results from severe chest injuries with multiple rib fractures.
- It is defined as the fracture of three or more ribs at two or more places.
- Fractures occur anteriorly and posteriorly, so that fractured segments have no attachment to the chest wall.
- These ribs become indrawn due to intrathoracic pressure as patient inhales and driven outwards when exhaled. This is known as “paradoxical respiration”.
- It can result in hypoventilation, carbon dioxide retention and respiratory failure.

- Flail chest is of three types: anterior, posterior and lateral.
- Anterior: fracture of the costochondral junction on both sides of the sternum.
- Posterior: fracture ribs of the posterior rib wall
- Lateral : fracture of shaft of the ribs

Flail Chest



MANAGEMENT

- Chest wall stabilization, reduction of respiratory dead space, management of pulmonary contusion and pain control. Epidural analgesia is used for pain management, or intercostal nerve blocks
- Physiologic stabilization with intubation and positive pressure ventilation must be done before hypoxia develops.
- Seagull shaped prosthesis is used to stabilize the flail segments in anterior flail chest.