Trauma Intervention Guidance for Emergency Reference

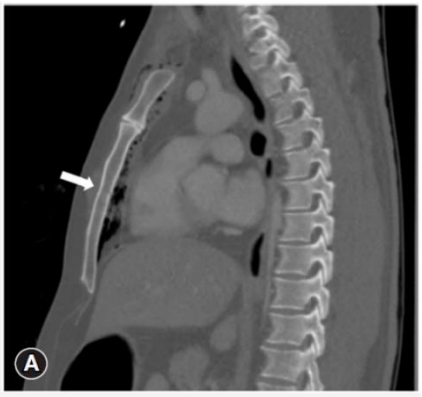
T.I.G.E.R #11

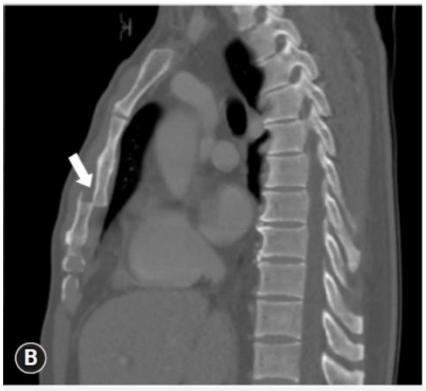
Sternal Fractures (Adult)

Demographics: Most commonly from blunt anterior chest wall trauma or deceleration injuries in RTC; 8% of all thoracic trauma
Complications: Risk of myocardial or great vessel injury; cardiovascular complication in 1 in 100 patients.
Interventions: Operative management rarely required for complicated fractures
Admission: In most cases, other injuries will be more significant and admission location should be dictated by these as per usual guidelines.

Assessment

- A-E assessment
- Cardiac monitoring
- ECG
- Troponin level (3 hrs post-injury, repeat 5 hrs post-injury if abnormal)
- CT chest with contrast (including other appropriate imaging)
- Prescribe appropriate analgesia





Uncomplicated sternal fractures

- Isolated sternal fracture with no displacement or retrosternal haematoma
- Absence of other thoracic injuries
- Normal ECG and troponin
- Minimal pain controlled with simple analgesia

Complicated sternal fracture

- Retrosternal haematoma
- Displaced fractures
- Moderate to severe pain
- Patients with significant risk factors for delayed union (osteoporosis, long term steroid use, >65yrs, diabetes)
- Other associated thoracic injuries:
  - Rib fractures (56%)
  - Lung contusions (31%)
  - Haemothorax (22%)

Blunt cardiac injury

- New ECG abnormality
- Arrhythmia
- Rising cardiac enzymes (20% delta rise over 2 hrs)
- Pericardial effusion
- Other new abnormal echo findings

V 1.0 Review date: 11/2028

Management

Discharge from ED

If ALL criteria below are met:

- Isolated undisplaced sternal fracture
- Absence of sternal haematoma
- Normal initial ECG (or no new abnormalities or dynamic changes) with normal initial troponin
- Minimal pain/pain well managed with simple oral analgesia to be able to cough strongly and effectively
- No other associated chest wall injuries
- Back to baseline mobility

Discharge with TTA analgesia and advice leaflet.

Admit locally

- Sternal fracture WITHOUT evidence of blunt cardiac injury or displacement.

- Admit surgeons.
- Medical review within 24hrs if >65yrs.
- Prescribe appropriate analgesia.
- Consider alternative forms of analgesia via your pain and anaesthetic teams.
- Early referral to ward physiotherapist for respiratory assessment.
- Serial troponins.
- Early echocardiogram.

Refer to MTC

- Evidence of blunt cardiac injury
- Displaced sternal fracture

Refer to TTL at MTC:
Complete referapatient referral and call MTC TTL on 0203 519 7165

Suggested Admission Drug Chart

Regular
Ibuprofen 400mg TDS or
Dihydrocodeine 30 mg QDS (if <65yrs and/or not contraindicated)
Lansoprazole 30mg
Appropriate laxative

PRN
Oramorph 5mg PO hourly
Ondansetron 4mg IV QDS
Cyclizine 50mg IV TDS

VTE prophylaxis

Regional block

Consider early regional block via pain and/or anaesthetic teams

OR

Patient Controlled Analgesia

PCA Morphine
initially 1mg/5mins

or

PCA Fentanyl
10-30mcg/5mins
if Morphine contraindicated (e.g renal impairment)

Oral opioid analgesia

Oral morphine IR
Normal renal function:
<70yrs age:
10mg PO QDS plus 5-20mg PRN every 2 hrs
>70yrs age:
5mg QDS PO plus 5-10mg PRN every 2 hrs

With renal impairment (eGFR<60)
Oxycodone IR 1.25-2.5mg (age related) PO QDS plus 1.25-2.5mg PRN oxycodone

Please ensure all patients are told the importance of regular deep breathing to allow for lung expansion. Encourage full lung inspiration, breathing and cough exercises at least once each hour when awake or as advised by the physiotherapist.

All referrals into the Major Trauma Centre should come via www.referapatient.org

Use the QR code for direct access.
There are 4 key *referapatient* workstreams. Please review carefully to ensure you refer to the correct clinical team.

for clinical emergencies call the MTC ED consultant on 020 3519 7165