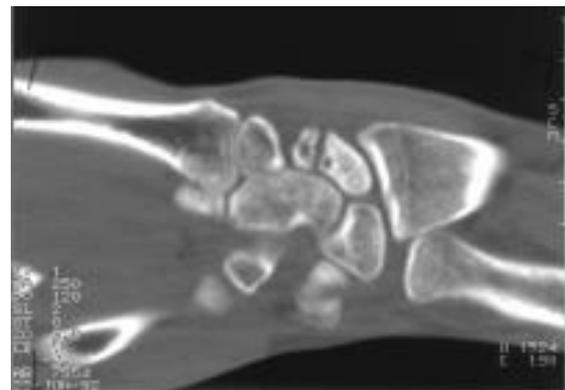


CLINICAL PRACTICE GUIDELINE

Scaphoid and Other Wrist Injuries in the Emergency Department

SCOPE (Area): Emergency Department and Fracture Clinic
SCOPE (Staff): Medical, Nursing, Patient Service Assistants



BACKGROUND/RATIONALE

Clinical examination and plain radiographs are known to be poor at identifying scaphoid fractures immediately after the injury. Retrospective studies suggest that 10-33% of patients with a proven fractured scaphoid had no fracture visible on the initial plain films. In patients with clinical findings suggestive of fractured scaphoid, and normal scaphoid views, current practice is to immobilise in plaster for ten days before a repeat clinical examination and plain x-ray in the fracture clinic.

It is also known that relatively few 7-20% of patients immobilised will subsequently be shown to have a fracture. Therefore approximately 90% of such patients do not need such immobilisation which incurs a significant cost to the individual and community, in terms of lost working days.

DESIRED OUTCOME/OBJECTIVE

- To minimise the risk of long-term morbidity associated with missed fracture of scaphoid: osteoarthritis of the wrist, long-term functional disability and chronic pain.
- To standardise the documentation of clinical findings in wrist injuries with an emphasis on findings known to assist in the diagnosis of scaphoid fractures.
- Appropriate ordering of scaphoid x-rays and advanced imaging with appropriate standardised follow-up according to a clinical pathway.

INDICATIONS

For Plain x-rays

- Majority of patients with wrist injuries need an x-ray of the wrist (have low threshold).
- Patients with tenderness in anatomical snuff box also need scaphoid x-rays.
- All scaphoid x-rays to be ordered using the appropriate yellow radiology request form.

For early CT

- Patients with clinical scaphoid fracture need CT if they meet definition below.
- All scaphoid CT to be ordered using the appropriate blue radiology request form.

DEFINITIONS: patients with clinical scaphoid fracture are eligible for early CT to diagnose scaphoid and other fracture

Inclusion Criteria

A clinical scaphoid fracture will be defined as patients with:

- the presence of “snuffbox tenderness”.
- mechanism of injury consistent with scaphoid trauma.
- normal initial x-rays.
- patients over the age of 14 years.

Exclusion Criteria

- Patients under 14 years of age.
- Patients who are known to be pregnant.
- Patients who are unable to give informed consent.
- Patients/guardians who do not consent.



ISSUES TO CONSIDER

Background on Advanced Imaging

Bone scan (MBS \$302)

Early (day four) radioisotope bone scans are very sensitive, meaning that they are useful in ruling out scaphoid fracture¹, but unfortunately significantly over-diagnoses fractures. Radioisotope bone scans involve a significant radiation dose, and are expensive, costing \$300 in Australia.²

CT (MBS \$220)

Several small studies have advocated the role of CT in suspected scaphoid injuries³⁻⁹. This includes a research project at BHS⁶, which demonstrated that early CT scans are reliable, accessible, cost effective alternative. For any fracture (both scaphoid and other carpal fractures, early CT had a 97% negative predictive value and 100% positive predictive value. Further research implementing early CT into a CPG at Ballarat Health Services confirmed that patients are satisfied with a guideline using early CT, and that a normal CT reduces immobilisation without missing fracture.

MRI (MBS \$440)

MRI is more specific than bone scan¹⁰ in detecting occult fractures of the scaphoid and other bones in the wrist, particularly in diagnosing soft tissue injuries like scapho-lunate ligament ruptures and triangular fibrocartilage tears. A number of studies have shown promising results¹¹⁻¹⁴ MRI should be regarded as the gold standard¹⁵, MR scans are expensive and difficult to obtain, can only be ordered by a specialist (as defined by HIC). Patients being considered for MRI in Ballarat would need the MRI authorised/ordered by a specialist orthopaedic surgeon or Emergency Physician.

MRI in Ballarat should be reserved for patients who are unable to have a CT, or if a patient with normal CT has significant ongoing symptoms and/or reduced function, in particular if this interferes with work or activities of daily living.

PROCEDURE

Stickers to improve medical documentation.

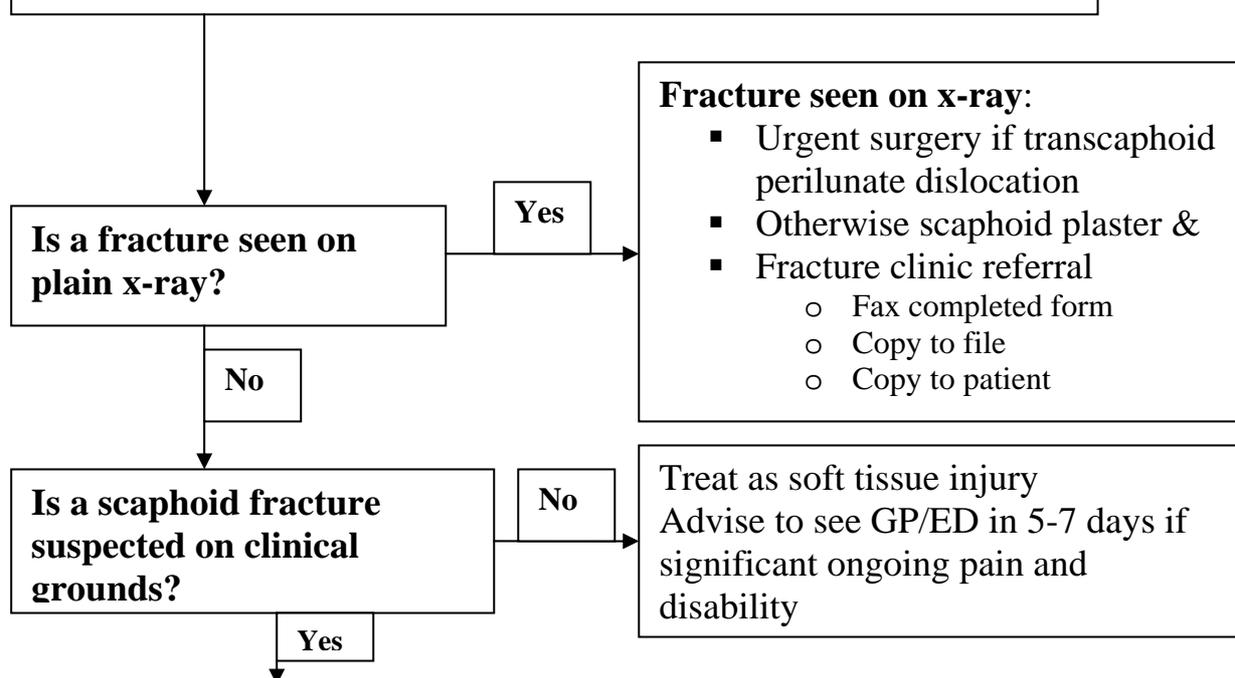
To assist with minimum clinical information required, use the 'easy to use' stickers on the chart.

All medical staff are expected to have completed meditate on wrist injuries at www.meditute.org

Minimum Documentation required:

- Mechanism of injury
- Presence and site/s of any tenderness, swelling or deformity
- Presence or absence of
 - snuffbox tenderness
 - AP compression tenderness
 - Thumb axial compression tenderness

Order x-ray with appropriate clinical details noted on form



1. Offer eligible patient opportunity to have early CT.
 - a. If patient declines, treat in plaster for 10 days and refer to fracture clinic, with repeat x-ray slip.
2. CT same day or via ED [8.00 a.m. next working day]
3. ED physician review CT, avoid unnecessary wait for results
 - a. Scaphoid fracture displaced = refer orthopaedic registrar
 - b. Scaphoid fracture nondisplaced = referral fracture clinic for review in ten days, scaphoid plaster for six weeks.
 - c. Other radius/carpal fracture, refer to fracture clinic, as clinicoradiological review is of benefit if the clinical findings are disconcertant with the radiologist report.
 - d. If no fracture seen, treat as soft tissue injury and discharge home, with advice to attend ED for review if they have significant ongoing symptoms
4. All patients to have discharge letter to GP & patient info sheet.

NOTES / PRECAUTIONS

- The majority of patients with a normal CT will have no time off work, with prompt resolution of symptoms. However, 10-20% of patients will experience ongoing pain and may require time off work. Return to the Emergency Department for review if persistent pain.
- **Why are patients with subtle fracture referred to fracture clinic?** This allows review of the patient, CT images, and CT report. The findings of fracture in CT in this group of patients may be subtle, and while interobserver reliability for scaphoid fracture is excellent, disagreement on other fractures is possible, and therefore clinicoradiological review is of benefit if the clinical findings are discordant with the radiologist report.
- MRI can only be ordered by specialists as defined by the Health Insurance Commission.
- Scaphoid fracture is uncommon in children. CT has not been proven to be beneficial in children aged <14. Treat in plaster for ten days, and reserve MRI for those with ongoing symptoms.
- Scapholunate dissociation requires urgent orthopaedic referral.
- This CPG is the subject of ongoing clinical audit.

RELATED DOCUMENTS

- Patient information sheets on “Diagnosis of scaphoid fractures”
- Meditute – www.meditute.org
- www.scaphoidfracture.com.au

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