BSSH The British Society for Surgery of the Hand

Scaphoid fractures

These standards are for acute scaphoid fractures in patients over 16 years of age.

Initial management

1. Scaphoid fractures commonly occur in young men, although they can occur at any age and in either sex. A scaphoid fracture should be suspected if there is a:

    - forced hyperextension injury to the wrist (fall on outstretched hand, football save), punching injury or major wrist trauma

    AND any one of the following signs:

    - scaphoid tenderness (anatomical snuffbox (ASB), proximal pole, tuberosity), ASB pain on active ulnar deviation of the wrist[1], or pain on axial loading [2]

2. If a scaphoid fracture is suspected, request at least 4 radiographs - posteroanterior, lateral, semi-prone and an elongated scaphoid view[3].
3. If radiographs confirm a scaphoid fracture, apply a below elbow plaster backslab and refer to a specialist clinic. This appointment should occur within 7-14 days of presentation.
4. Patients with fractures displaced >2mm should be assessed carefully to exclude a perilunate injury and referred for an urgent specialist opinion.
5. If a scaphoid fracture is clinically suspected but no fracture is visible on radiographs, immobilise the wrist in a splint, inform the patient that they may have a significant fracture which may need further imaging and refer to a specialist clinic or directly for MRI[4,5], if locally available.

Specialist management

6. If referrals are reviewed in a virtual clinic, patients may be referred directly for MRI for a suspected scaphoid fracture (if considered high risk) or CT for a definite fracture. Other patients with a suspected fracture should receive an appointment within 1 week for clinical assessment. Alternatively, patients may receive an information leaflet and patient-initiated follow-up, if a local policy for this exists.
7. A definitive management plan for patients with a suspected scaphoid fracture should be in place within 2 weeks of presentation. This should include MRI or CT to exclude a fracture unless there is a clear alternative diagnosis (eg arthritis, distal radial fracture). MRI is the recommended imaging modality [4,5].
8. If a scaphoid fracture is visible on plain radiographs, CT scan should be performed to measure displacement accurately. Reconstructions should be performed in the sagittal and coronal planes with respect to the long axis of the scaphoid.
9. Scaphoid waist fractures with <2mm displacement or distal pole fractures can be treated by immobilisation in a below elbow cast with the thumb excluded.
10. Scaphoid tuberosity avulsion fractures can be treated with immobilisation for 4-6 weeks as required for symptom control.

11. The following are indications for acute surgical fixation, which should be ideally performed within 2 weeks of injury:
    a) Fractures of the scaphoid waist with >2mm displacement[6]
    b) Fractures associated with an unstable carpal injury or displaced distal radial fracture
    c) Fractures of the proximal pole with any displacement[7]
12. Patients with a delay in immobilisation of more than 4 weeks for a minimally displaced waist fracture should be referred for CT to assess union and be considered for surgical fixation if there is no evidence of union[8].
13. Patients managed non-operatively should have radiographs (out of cast) or CT scan by 6-8 weeks post injury. Patients who have scaphoid tenderness and no progression of union on radiographs at 6 weeks or who develop cystic change at any stage should be investigated by CT. If this demonstrates a clear fracture gap and no evidence of union, consider surgical fixation +/-bone grafting within 2 weeks. If there are early signs of union, continue wrist immobilisation and review at 12 weeks with plain radiographs and CT if radiographs are equivocal. Patients with any evidence of non-union at this time should be offered surgery, if treatment is appropriate.
14. Patients should only be discharged once union is confirmed on CT (>50% of the fracture cross-sectional area[9]) or by delayed radiographs at 6 months. All patients should be advised of the small ongoing risk of non-union and that they must return for further assessment if symptoms develop.

References

1) Duckworth AD et al. Predictors of fracture following suspected injury to the scaphoid. J Bone Joint Surg Br 2012 Jul;94(7):961-8. doi: 10.1302/0301-620X.94B7.28704.
2) Parvizi J et al. Combining the clinical signs improves diagnosis of scaphoid fractures: a prospective study with follow-up. J Hand Surg [Br] 1998;23:324–327.
3) Ziter FM Jr. A modified view of the carpal navicular. Radiology 1973;108:706–7.
4) NICE guideline (NG38) Fractures (non-complex): assessment and management. https://www.nice.org.uk/guidance/ng38
5) Sahu et al. Prospective comparison of magnetic resonance imaging and computed tomography in diagnosing occult scaphoid fractures. Acta Radiol. 2023 Jan;64(1):201-207.
6) Dias et al. Surgery versus cast immobilisation for adults with a bicortical fracture of the scaphoid waist (SWIFFT): a pragmatic, multicentre, open-label, randomised superiority trial. Lancet 2020; 396: 390–401 doi:10.1016/S0140-6736(20)30931-4
7) Eastley N, Singh H and Dias JJ. Union rates after proximal scaphoid fractures; meta-analyses and review of available evidence. Journal Hand Surg (Eur) 2012; 38(8) p888-897
8) Langhoff O and Andersen JL. Consequences of late immobilization of scaphoid fractures. 1988. J Hand Surg 13B p77-79
9) Singh et al. Partial union of acute scaphoid fractures. Journal of Hand Surgery (British and European Volume, 2005) 30B: 5: 440–445