

Webinar on

OSTEOPOROSIS, ARTHRITIS AND MUSCULOSKELETAL DISORDERS

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Evaluation of the local scaphoid fracture pathway

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Aims: Identify clinical examination findings, initial imaging findings and stabilisation method in the emergency department for suspected scaphoid fractures.

Review the follow-up, repeat imaging and further investigations for these patients.

Identify the waiting time for further investigations / imaging.

Introduction: Scaphoid fractures are the most common carpal fracture and account for 2% to 7% of all fractures¹. These fractures are commonly missed through clinical and radiographic examination; it has been reported that up to 40% of scaphoid fractures are missed on initial presentation.

There are three clinical findings that can indicate a potential scaphoid fracture; anatomical snuffbox tenderness (AST), scaphoid tubercle tenderness (STT) and telescoping tenderness (TT). AST, STT and TT all have 100% sensitivity but, in one study, specificities were 9%, 30% and 48% respectively. However, when these tests are combined, multiple studies have illustrated that the specificity does increase²⁻³.

Current National Institute for Health and Clinical Excellence (NICE) guidance advises that MRI directly from the emergency department should be considered for suspected scaphoid fractures. Studies have shown that a minority of trauma centres currently offer further imaging from the emergency department⁴.

Misdiagnosis can increase patient morbidity; non-union, arthritis, deformity and instability. Early definitive diagnosis will not only prevent a missed scaphoid injury but can avert overtreatment for those without a scaphoid fracture and subsection to extended immobilization. A report by the NHSLA has highlighted the litigation cost of negligent scaphoid fracture management in the UK; 0.01% of all orthopaedic-related litigation were attributed to mismanagement of scaphoid fractures and the largest costs ascribed to a combination of failed diagnosis and delay in initiating appropriate management⁵.

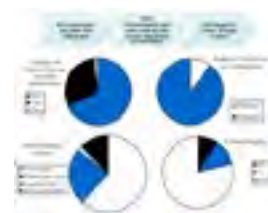
Methods: This is a retrospective study of all patients identified on eTrauma (clinical platform for centralised orthopaedic trauma coordination) as referrals for a suspected scaphoid fracture from 01/04/21 – 01/08/21 at the Lister hospital. The following data was collected:

- Clinical presentation (anatomical snuffbox tenderness, scaphoid tubercle tenderness and telescoping tenderness)
- Initial plain film radiograph, method of immobilization and total time immobilised
- Follow-up and repeat plain film radiograph
- Further imaging modality and time from initial referral to further imaging.

Current local practice and pathway

Results and discussion: I. 131 patients identified in this study

II. Total number of clinical findings on physical examination: 62% had 1 finding, 28% had 2 findings, 1.5% had 3 findings and 8.5% had none



III. Number of patient injuries immobilised, length of time and method of immobilisation: 115 (88%) patients had an immobilisation method. 81 in Futuro splint, 31 in thumb spina splint and 3 in scaphoid POP; more than 90% had a stabilisation method in place for at least two weeks

IV. Scaphoid fracture on initial radiograph at presentation: 6% confirmatory / high suspicion, 88% negative and 6% identified other bony injuries

V. Scaphoid fracture on repeat radiograph at two weeks: 68 patients had a repeat radiograph at two weeks; 5 (7%) confirmed a scaphoid fracture, 63 (93%) negative for scaphoid fracture

VI. Further imaging modalities and waiting time: 28 patients had further imaging requested; 16 for CT and 12 for MRI. The average waiting time from fracture clinic referral to CT and MRI were 5 weeks and 8 weeks respectively

Conclusion: 1) The most common reason for referral was from 1 clinical sign

2) 11% of patients had a scaphoid fracture identified on radiograph (on presentation AND at two weeks)

3) 21% of patients in had further imaging modalities requested (CT / MRI)

The gold standard investigation tool for identifying scaphoid fractures is MRI and, ideally, all patients with a query diagnosis of scaphoid fracture should have this imaging modality. However, the question remains; are the fracture clinic referrals appropriate with the low efficacy of reduced clinical findings?

A multi-pronged approach will be needed to decrease inappropriate referrals, increase the number of patients having further imaging and to reduce the time from presentation to CT / MRI:

1) Diagnostic algorithm education for emergency department

2) Review current pathway to incorporate MRI within 3-5 days from Presentation 6

3) Alternative dedicated imaging (cone-beam computed tomography)⁷

Further research is needed to fully investigate the facilitators and barriers to the implementation of NICE guidance

Biography

Abdirahman Osman is currently working at Lister Hospital, Trauma and Orthopaedic Department, East and North Hertfordshire Trust, Stevenage, United Kingdom. His research interests include Trauma and Orthopaedic, Surgery.

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