Low threshold for obtaining CT imaging in carpometacarpal joint (CMCJ) fracture dislocations:: Review of subtle findings

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Purpose

• Dislocation injuries of the carpometacarpal joints (CMCs) are rare.
  → less than 1% only of all hand injuries.
• However, they are extremely debilitating.
• A malunited fracture or a chronic dislocation/subluxation may lead to chronic morbidity and ulnar pain.
  This can be avoided with early diagnosis and surgical intervention.
• CMCJ fracture dislocations can be occult on radiographs (routine AP and oblique) and may be missed.
• CT imaging is more accurate than plain radiography.
• Early CT use can improve surgical planning and overall outcome

Methods & Materials

• In this pictorial review, we will present illustrative presentations of CMC joint fracture dislocations from our institution.
• We will highlight subtle plain radiograph findings and corresponding CT images confirming fracture.

Results:

•Clinicians should maintain a high index of suspicion in patients with tenderness over the ulnar aspect of the hand, especially at the level of CMC joints.
• There may be subtle signs such as a tiny fragments or minimal loss of alignment.
• However even in the absence of these findings, if there is high clinical suspicion on examination
  → CT imaging should be obtained to further evaluate for bony injury.

Illustrative findings

• Subtle CMC joint fracture on the AP and lateral plain films
  • Hx: 2weeks ago injured Rt hand when punched a wall. Has tenderness & swelling over 4th & 5th MC bone.
  • Report: No acute bone injury.
• CT images reveal clear extent of injury 1 week later – given on going pain
  • There is a fracture through the hamate involving the 4th and 5th and carpometacarpal joints and a second fracture involving the radial aspect of the small 4th metacarpal.
  • There is posterior subluxation of the 4th and 5th metacarpals.

Conclusions:

• We should have a low threshold for obtaining CT imaging to avoid occult fractures that may lead to significant patient morbidity
• It is likely that these significant bony injuries to the CMC joint fracture dislocations may have subtle or no findings on conventional radiographs.
• The reporting radiologist should take a lead in advising a CT, if there is any occult/subtle sign.