CONTINUED... Table I. Summary of wrist pain

<table>
<thead>
<tr>
<th>Condition</th>
<th>Presentation</th>
<th>Diagnosis</th>
<th>Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scaphoid tubercle injury</td>
<td>Fracture or bone bruise of scaphoid tubercle</td>
<td>Uncommon. Usually following a direct fall</td>
<td>X-ray</td>
</tr>
<tr>
<td>Volar ulna</td>
<td>Acute calcific tendinosis of FCU tendon. Acute</td>
<td>Can mimic infection</td>
<td>X-ray</td>
</tr>
<tr>
<td>Flexor carpi ulnaris tenosynovitis (uncommon)</td>
<td>severe pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamate fracture</td>
<td>Always after golf, baseball, cricket Occasionally due to fall</td>
<td>Pain on resisted flexion of little and ring fingers in ulna deviation at wrist</td>
<td>CT scan</td>
</tr>
<tr>
<td>Pisiform/triquetrum osteoarthritis</td>
<td>A not uncommon osteoarthritis between the pisiform of triquetrum bones</td>
<td>Elderly patients</td>
<td>X-ray</td>
</tr>
<tr>
<td>Ulna TFC</td>
<td>The triangular fibrocartilage complex of the wrist is a critical and often injured anatomical structure</td>
<td>Acute, severe pain on loading and rotating the wrist</td>
<td>X-ray &amp; MRI arthrogram</td>
</tr>
<tr>
<td>Distal radio-ulnar joint pathology</td>
<td>The distal radio-ulna joint can be an important cause of pain</td>
<td>Nil</td>
<td>X-ray</td>
</tr>
<tr>
<td>Ulna impaction syndrome</td>
<td>In patients with a positive ulna variance, the ulna can impact against the lunate causing pain</td>
<td>Complex and uncommon injury</td>
<td>X-ray &amp; MRI</td>
</tr>
<tr>
<td>Lunato triquetral ligament tear</td>
<td>Lunato triquetral ligament is the 2nd most common ligament instability after the scapho-lunate ligament</td>
<td>Might be associated with avulsion fracture of triquetrum</td>
<td>X-ray</td>
</tr>
<tr>
<td>Radiotriquetral ligament tear</td>
<td>Common injury after fall onto outstretched hand</td>
<td>Point tender over dorsal triquetrum</td>
<td>X-ray</td>
</tr>
</tbody>
</table>

Fact that the wrist is packed with multiple anatomical structures, has the potential to make the clinical diagnosis of wrist pain difficult. Luckily, more than 90% of all wrist pain presentations fit into clear ‘pattern recognition’ entities. The diagnosis, as always, is facilitated by a pertinent history, a focused examination, and the judicious use of special investigations.

**History**
- Where is the pain?
- What exacerbates the pain (i.e. what specific actions and/or postures or time of day worsens the pain)?

These two questions are by far the clearest pointers to the possible problem. The clinician must make a note of where the patient points. The wrist is divided into discrete zones: dorsal, dorso-radial, radial, volar-radial, volar, volar-ulna, ulna and dorso-ulna. Each of these zones has a few common clinical entities that have specific pain presentations (Table I).

**Other relevant questions**
- Sports/hobbies?
- How long has the pain been there?
- Any history of trauma or so-called ‘sprained wrist’?
- Is an infant being nursed?

**Examination**
Following standard orthopaedic practice, the wrist is examined in the following order: look, feel, move. Swelling can sometimes be seen with ganglions or de Quervain’s tendonitis. Palpation reveals the area of maximum tenderness, which is important for some conditions but notoriously unreliable for others (Table I). Active and passive range of motion should be noted, specifically looking for pain at the end ranges:
- Pain on end flexion: occult ganglion
- Pain on end extension: occult ganglion, Kienböck disease, flexor carpi radialis (FCR) tendinitis
- Pain on end pronation and/or supination: triangular fibrocartilage complex tear
- Pain on end ulna deviation: de Quervain’s
- Pain on end radial deviation: scapho-trapezial-trapezoid (STT) arthritis

**Special investigations (Table I)**
- These are commonly over-requested.
- Standard posteroanterior (PA) and lateral radiographs are usually sufficient for screening.
- An ultrasound scan can be done for tendinitis/occult ganglion.
- An MRI scan may be done for intrinsic pathology on specialist request.

**Summary**
- Wrist injury is a common cause of upper limb pain.
- It usually occurs after a fall.
- Ninety per cent fit into pattern recognition entities.
- Divide the wrist into distinct zones.
- There are very specific pathologies in each zone.
- If in doubt about diagnosis, then immobilise and repeat the examination in one week.

**Common hand conditions**

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Other than hand injuries and infections, the general practitioner and those involved in primary health care should be able to correctly diagnose, manage and treat where appropriate the common conditions affecting the hand. Many systemic diseases such as diabetes, rheumatoid arthritis and gout can, and often do, present with secondary hand involvement. This article focuses on five common primary hand conditions. These five pathologies cover more than 90% of all patients presenting with hand-related symptoms.

**Carpal tunnel syndrome**
- There is median nerve compression at the wrist level.
- It is the most common form of nerve entrapment.
- It commonly occurs in middle-aged
women and in the last trimester of pregnancy.
- It is occasionally associated with rheumatoid arthritis (RA), hypothyroidism, diabetes or gout.
- The carpal tunnel is a fibro-osseous tunnel comprised of U-shaped bones bridged by the transverse carpal ligament.
- The contents of the carpal tunnel includes all the long flexors and the median nerve.
- The tunnel is either too tight for the contents or the contents are too large for the tunnel.

**History**
- Classic nocturnal waking with burning paraesthesia
- Need to shake/hang hands out
- Recovers after 20 minutes
- Sometimes exacerbated by driving and prolonged holding of objects in hand.

**Examination**
- Abnormal light touch and pin-prick sensibility in median nerve distribution (thumb, index, middle and half of ring fingers)
- Weakness/wasting of thenar muscles, especially the abductor pollicis brevis (APB)
- Tinel test – firm tap over wrist crease elicits 'electric shock-like' symptoms
- Phalen's test – full flexion of wrist and held for up to 60 seconds results in symptoms.

**Special investigations**
- History and examination usually classic and diagnostic
- If presentation is atypical consider nerve conduction studies by neurologist
- Fasting blood glucose and thyroid function tests if suspicious.

**Differential diagnosis**
- Cervical spine pathology
- Many others, but all very rare.

**Treatment**
- Can try night splints and injection into carpal tunnel with steroid (Fig. 1)
- Especially useful when reversible cause, such as pregnancy
- Unfortunately only 10 - 15% long-term response to these modalities
- Most patients will require surgical decompression of the transverse carpal ligament

**De Quervain's tendonitis**
- Very common wrist condition
- Compartment of abductor pollicis longus (APL) and extensor pollicis brevis (EPB) becomes thickened and tight
- Severe pain on radial side of the wrist and base of the thumb
- More common in women 30 - 50 years old and in mothers with young infants.

**Examination**
- Local tenderness and swelling over radial styloid might/might not be present
- Finkelstein test always positive
  - hold thumb in palm
  - forced ulnar deviation associated with pain compared with other side
- test can be uncomfortable on normal side; therefore do this side first to establish ‘normal’.

**Treatment**
- Direct infiltration with cortisone injection 70% effective
- Technique: Patient to gently extend thumb. Identify gap between APL and APB distal to radial styloid. Inject 1 ml lignocaine + 1 ml cortisone into sheath from distal to proxima (Fig. 2)
- Combine injection with dorsal thumb splint
- If this fails or recurs then simple release under local/regional anaesthetic.

**Ganglions**
Ganglions are the most common soft-tissue swelling of the hand.

**Pathology**
- Ganglions are mucinous-filled cysts arising from a joint capsule or tendon sheath.
- Ganglions consist of an outer fibrous coat and an inner synovial lining and contain a clear, colourless, gelatinous fluid.
- They are more common in young women.

**History**
- Painless swelling on dorsum (80%) and palmar (20%) aspect of wrist
- Can vary in size
- Can follow traumatic event such as fall on outstretched wrist
- Pain on loaded wrist in extended position, such as pushing out of swimming pool or bath.

**Examination**
- Firm smooth mass – can feel like ‘extra bone’
- Can be tender to palpation
- Usually fixed to deep structure, i.e. not mobile
- Usually not fluctuant
- Transilluminates.
Treatment
- Worth attempting aspiration with a 16G needle despite high recurrence rate (90%)
- Surgery indicated for symptomatic ganglions.

Osteoarthrosis of the thumb
Pathology
- Part of primary generalised osteoarthrosis (OA) with Heberden's nodes of DIP joints
- First carpometacarpal (CMC) joint is involved with loss of cartilage
- Results in bone-on-bone deformity
- Very common problem
- Affects 1 in 4 postmenopausal women.

Current concepts in rotator cuff management
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This article will look at two aspects of the current management of the rotator cuff tear. The first will be the most recent evidence-based approach and the second will be the experimental biological approach.

The risks, outcomes and the ability to undertake treatment by either the conservative or the surgical route need to be understood by the patient and treating physician.

Conservative treatment comes with the concern that we may miss the boat in terms of tendon healing. Several studies have shown that the longer the tear has been present the more likely it is that there will be irreversible changes. These changes include rotator cuff muscle atrophy and fatty changes (Figs 1 and 2), as well as changes in collagen fibre composition, which do not reverse with successful repair. The tear may progress with time and larger tears have been shown to have higher failure rates with surgery. Therefore it is preferable to intervene prior to these changes occurring.

The concern in the surgical group is the morbidity of the surgery and the long rehabilitation required for tendon healing. This requires 6 weeks in a shoulder immobiliser followed by another 6 weeks to regain range of motion before starting the strengthening programme that allows them to return to full function at 6 months after surgery. For the elderly or those at anaesthetic risk, the questions that need to be asked are whether the surgery is necessary and whether the patients can safely be treated conservatively.

Evidence-based medicine
The American Academy of Orthopaedic Surgeons' review of the best evidence-based...