Negligence in Hand Surgery

Harry Belcher
Litigation trends

New claims reported (all members)

Number of new claims:
- Clinical: 6,652, 8,655, 9,143, 10,129, 11,945
- Non-clinical: 4,074, 4,346, 4,618, 4,632, 4,802

Financial year:

New clinical claims rose by 17.9% from 2012/13 to 2013/14
Litigation trends

Value of clinical negligence claims received in 2013/14 by specialty

- Orthopaedic surgery: 35%
- Casualty / A&E: 21%
- General surgery: 10%
- Obstetrics: 6%
- Gynaecology: 6%
- General medicine: 5%
- Radiology: 3%
- Urology: 3%
- Paediatrics: 2%
- Psychiatry / mental health: 2%
- Other (aggregated specialties): 3%
Litigation patterns

Litigation patterns

Negligence claims (UK)

- Wrist fracture
- Cuts
- Finger/metacarpal fracture
- Carpal fracture
- Carpal tunnel syndrome
- Ganglion
- Other

Litigation patterns

Negligence instructions (HJCRB)

- Fractured Wrist/Scaphoid
- Fractured finger
- Laceration
- Carpal tunnel surgery
- Cannula problems
- Other

Cases I have been involved with over the last two years.
Trauma

Twenty percent of patients attending Accident and Emergency Departments in the UK have hand injuries
Scaphoid fractures

Fall onto outstretched hand “FOOSH”
2% to 7% of all fractures
Most common of all carpal bone fractures
Most commonly undiagnosed fracture

Case 1

PC: painful left wrist

HPC: 2pm yesterday riding motorbike in competition. Front wheel got caught. Patient went over front of handlebars. Put left hand out to break fall. Also hit head. Painful and swollen wrist ever since

OE: swollen left wrist. Unable to flex or extend. Grip reduced. Unable to oppose thumb and little finger. Sensation normal

X-ray: no obvious fracture

Diagnosis: soft tissue issue

Plan: regular Paracetamol and Ibuprofen. Ice, elevate, will take several weeks to heal. Discharge
3 months later
Issues

Examination
Radiography
Follow-up
SCAPHOID TESTS
Why snuff-box tenderness leaves you unimpressed
<table>
<thead>
<tr>
<th>Clinical sign % (&lt;72hr from injury)</th>
<th>No fracture</th>
<th>Fracture</th>
<th>Stats</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASB tenderness</td>
<td>96</td>
<td>98</td>
<td>NS</td>
</tr>
<tr>
<td>Pain on thumb-index finger pinch</td>
<td>56</td>
<td>79</td>
<td>0.002</td>
</tr>
<tr>
<td>Scaphoid tubercle tenderness</td>
<td>62</td>
<td>82</td>
<td>0.005</td>
</tr>
<tr>
<td>Pain on compression of thumb</td>
<td>67</td>
<td>66</td>
<td>NS</td>
</tr>
<tr>
<td>Decreased thumb movement</td>
<td>62</td>
<td>65</td>
<td>NS</td>
</tr>
<tr>
<td>ASB pain on ulnar deviation</td>
<td>55</td>
<td>100</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>ASB pain on radial deviation</td>
<td>58</td>
<td>90</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Indicators

Male
Sports injury
ASB pain on ulnar deviation of the wrist
Pain on thumb-index finger pinch
Persistent scaphoid tubercle tenderness

Scaphoid is difficult to x-ray because of its obliquity and mobility.
Protocols and views obtained vary from hospital to hospital.

Widely recognised that x-rays can fail to detect fractures.
Case 2

10 days: # Clinic
Case 2

14 days: # Clinic
Case 2

17 days: MRI
## Alternative imaging


<table>
<thead>
<tr>
<th>Technique</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ray (follow up)</td>
<td>91.1%</td>
<td>99.8%</td>
</tr>
<tr>
<td>Bone scan</td>
<td>97.8%</td>
<td>93.5%</td>
</tr>
<tr>
<td>MRI</td>
<td>97.7%</td>
<td>99.8%</td>
</tr>
<tr>
<td>CT</td>
<td>85.2%</td>
<td>99.5%</td>
</tr>
</tbody>
</table>
## Time factor

<table>
<thead>
<tr>
<th>Treatment delay</th>
<th>Delayed Union</th>
<th>Non-Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>0-2 weeks</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>2-4 weeks</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>&gt; 4 weeks</td>
<td>45%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Typical pathway

History & examination suggest scaphoid injury

- Screening x-rays ± Scaphoid views
  - Scaphoid fracture
    - Completion of treatment
    - Splint wrist
    - Fracture clinic
    - Other injury
      - Scaphoid fracture
      - Further imaging XR, CT, MRI, etc.
  - No fracture
    - Splint wrist
    - 2 weeks review
    - Symptoms & signs not settling
      - Fracture clinic review
    - Symptoms & signs settling
      - Discharge with safety-net advice
Litigation

Poor primary assessment
Unsatisfactory follow-up arrangements
Failure to consider alternative diagnosis in face of “normal” x-rays
Lacerations

"AND I SUPPOSE YOU WANT ME TO DO SOMETHING ABOUT IT!"
Lacerations

3.2% of hand injuries seen in a plastic surgery unit were originally missed.

Glass is the most common traumatic material for missed injuries.

Assessment

Anatomical knowledge
Technical knowledge
Systematic
Well documented
Aphorisms

To observe a patient making a fist and then extending their fingers and thumb does not exclude a tendon injury.

Looking into a wound and seeing an intact tendon does not exclude a tendon injury.

Tendon testing
Sensation

Failure to assess 2-point discrimination when examining sensation in the injured hand is unacceptable.

If normal 2PD (4–6mm) cannot be verified, surgical exploration or at least early review of the patient is mandatory.
AE: 1cm laceration to proximal phalanx palmar surface.
Neurovascular ✓ FROM ✓ No bony tenderness.
Plan: Suture
Case 1

**GP:** Thank you very much for seeing this 33 year old right-handed carpenter who lacerated his hand **three weeks ago.** Since then, he has been unable to move his right little finger
Case 1

Outcome
- Two-stage tendon repair
- Prolonged recovery
- Moderate outcome
Case 2

HPC: Cut hand on glass
OE: Index finger swollen+
Laceration to finger
Bony tenderness to palpation
Unable to make full fist
Sensation ✓ Circulation ✓
XR: No # seen. No FB(!)
Rx: Bandage
Case 2

Returns 5/7 after injury.

Wound healed well. No infection. Swelling ✓

Able to make fist

Steristrips replaced.

See in clinic on Weds

To return if further problem with wound or sensation
Case 2

Outcome
Infection
Admission, drainage, removal of glass
Secondary nerve reconstruction
Elective

Cataract
Minor skin lesions
Cancelled procedures
Knee arthroscopy
Knees
Wisdom teeth
Inguinal umbilical & femoral hernias
Carpal tunnel release
Primary hip replacement
D+C and hysteroscopy
Tonsillectomy
Grommets
Hysterectomy
Hip and knee revisions
Spinal (lower back) surgery
Anal procedures
Circumcision
Female genital prolapse
Incisional and ventral hernias
Knee arthroscopy – diagnostic
Ganglions
Other joint prosthetics
Dupuytren’s surgery
Trigger finger release
Aesthetic surgery - Ophthalmology
Vasectomy
Other hernia
Adenoid
Aesthetic surgery - Breast
Aesthetic surgery - ENT

Four hand operations amongst the 30 most frequently performed elective operations in the South East
Carpal tunnel release

One of the most common and rewarding operations performed on the hand but complication rates of 3% to 19% in large series, requiring re-exploration in up to 12%.
Litigation & CTR

23% of all UK claims
48% of surgical claims
Litigation rate of $\approx 1/3000$ operations

### Causes of litigation

<table>
<thead>
<tr>
<th>Cause</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median nerve injury</td>
<td>28</td>
</tr>
<tr>
<td>Ulnar nerve injury</td>
<td>1</td>
</tr>
<tr>
<td>Incomplete decompression</td>
<td>6</td>
</tr>
<tr>
<td>Surgery unnecessary</td>
<td>1</td>
</tr>
</tbody>
</table>

### Complications

<table>
<thead>
<tr>
<th>Complications in 186 operations</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete release</td>
<td>12</td>
</tr>
<tr>
<td>Damage of palmar cutaneous branch</td>
<td>11</td>
</tr>
<tr>
<td>Sympathetic dystrophy</td>
<td>4</td>
</tr>
<tr>
<td>Hypertrophic scar</td>
<td>2</td>
</tr>
<tr>
<td>Palmar haematoma</td>
<td>2</td>
</tr>
<tr>
<td>Bowstringing of the flexor tendons</td>
<td>2</td>
</tr>
<tr>
<td>Adherence of flexor tendons</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total number of complications</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

Surgical objectives

Adequate exposure
Safe approach
Complete release
Palmar nerves

No safe ‘internervous’ zone

Median cutaneous nerve

Arises 3-6cm proximal to the wrist
Usually runs down the ulnar side of the FCR tendon
Supplies the skin over thenar eminence
Five variations in its course
Incision in line with ring finger recommended to avoid it

Nerve damage
Median cutaneous n. injury
Incomplete release

Conceptually, a simple well-defined ligament but
Flexor retinaculum

but

in reality, a complex structure comprising three components with varying dimensions and anatomy.

Case

RE-RELEASE CARPAL TUNNEL
Extended incision….proximal band of flexor retinaculum crossing nerve
## Cannula problems

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug reaction</td>
<td>Rash, anaphylaxis, death</td>
</tr>
<tr>
<td>Skin injury</td>
<td>Laceration, ulceration</td>
</tr>
<tr>
<td>Infection</td>
<td>Abscess, cellulitis, ulceration</td>
</tr>
<tr>
<td>Vessel injury</td>
<td>Thrombosis, gangrene</td>
</tr>
<tr>
<td></td>
<td>Bruising, haematoma</td>
</tr>
<tr>
<td>Nerve injury</td>
<td>Numbness</td>
</tr>
<tr>
<td></td>
<td>Chronic pain</td>
</tr>
<tr>
<td>Extravasation</td>
<td>Drug toxicity</td>
</tr>
<tr>
<td></td>
<td>Compartment syndrome</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Haemorrhage, air embolus</td>
</tr>
</tbody>
</table>
Intra-arterial cannula

Radial most commonly used for monitoring

Check collateral circulation (Allen test)

Never use for drug administration
Intra-arterial cannula

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Intra-arterial cannula

Radial most commonly used for monitoring
Check collateral circulation (Allen test)
Never use for drug administration
Extravasation

Generic measures

Stop the infusion and disconnect
Aspirate drug before removing the cannula.
Elevate the limb
Mark and monitor
Analgesia and compresses
Contact plastic surgeon (if necessary)
Management

Tissue damage

- Volume infused
- Acidity/Alkalinity
- Osmolarity
- Pre-morbidities
- Pharmacological action
Management

Specific measures

Antidotes
Hyaluronidase injection
Saline wash-out
Liposuction
Excision
Cytotoxic extravasation

Potential breaches
Delayed recognition
Delayed referral
Poor management
Conclusions

Litigation usually occurs in relation to commonly treated conditions not esoteric or complex problems
Emergency issues

Inadequate assessment
Pathway or protocol failure
Training and supervision issues
Elective issues

- Poor consent process
- Inappropriate delegation to junior staff
- Failure to react to problems
- Failure to ask for advice