

## Soft tissue injuries & General Orthopaedics

### 2.1 Local Anaesthesia

- 1 Field block. This is infiltration of local anaesthetic around the wound and ideal choice is 1% Lignocaine, without adrenaline.
- 2 Bilateral digital nerve block. Ideal for manipulation of fractures or dislocations in the finger or for suturing. Achieved by anaesthetising the digital nerves via the dorsum of the hand through the web space on either side of the digit, again use 1% lignocaine. NEVER USE LA WITH ADRENALINE FOR DIGITAL BLOCKS.
- 3 Intravenous regional anaesthetic (IVRA). (See "Bier's block").
- 4 Local infiltration of 10ml 1% Lignocaine into fracture site ("haematoma block").
- 5 Local nerve blocks (e.g. femoral, plantar, median, ulna), or supra clavicular block for dislocated shoulder.

### 2.2 Bier's Block procedure

- 1 Assess the patient's weight.
- 2 Use a cannula in each hand (a flexible cannula is necessary in the "normal" limb)
- 3 Draw up 40mls of 0.5% prilocaine ("Citanest") for a 70Kg adult. Reduce the volume accordingly if the weight is less than 70Kg. Do not exceed 40mls.
- 4 Check the systolic blood pressure.
- 5 Elevate the limb to be anaesthetised and inflate the cuff to 250mm Hg or 50mm Hg above the systolic if this is higher)
- 6 Inject the prilocaine into this limb over 2 minutes.
- 7 Start the clock.
- 8 A doctor and a trained nurse should now stay with the patient, and the cuff should not be deflated UNDER ANY CIRCUMSTANCES for 20 minutes.
- 9 Diazemuls or midazolam must be readily available.
- 10 Anaesthesia will begin at 5 minutes and will last until the cuff is released (max time 60 mins).
- 11 Perform the check X ray in the plaster room to enable re-manipulation if necessary.

### 2.3 Nerve injury

- Like tendon injury, suspect it in all palmar hand/wrist injuries.
- When examining, look for quality of sensation rather than absolute presence of sensation. Therefore don't test with a pin, but stroke the skin and ask if it feels normal. If definitely feels different compared to the other side refer Hands St James's.
- Tendon or nerve injuries are best treated primarily. Therefore, look for them, and if in doubt consult the senior on call in the department.
- If not sure, either refer to A&E senior immediately or bring back to A&E RC in 2 days.

## 2.4 Sports injuries

Some patients present special problems, and they may need specific advice on duration of symptoms, period of rest, complications etc. Send to returns if specific help is needed though most GPs are able to deal with many simple problems.

## 2.5 Stress fracture

- Common sites are the 2nd metatarsal (March fracture), and fractures into bone cysts
- If sure of diagnosis, immobilize in a POP, and refer to A&E RC in 2 weeks
- If not sure, treat according to pain, consult with a senior and bring back to A&E RC in 1 week. Xrays may take many weeks to identify definitely, and sometimes bone scans are necessary.

## 2.6 Suturing

- Generally, take care to use a no-touch technique.
- Sutures: Catgut for scalps and finger-tips. Nylon (Ethilon / Novafil) for the rest.
- Use 4.0 for most areas, 5.0 on the face, and occasionally 3.0 on the extensor aspects of the limbs.
- Arrange for facial sutures to be removed on the 4/5th day (own GP), other areas on the 7th day, though areas subject to stretch may be left 10 days.
- Severe scalp and facial lacerations may require to be sutured by the plastic surgical team; ask a senior to see the problem first if possible.
- If the patient is a child of under 5 years, sedation will almost certainly be required, and we routinely prescribe Midazolam syrup for this purpose. Don't land the student with a screaming kicking infant! You should suture such a child yourself (or ask a senior to do it).
- Consider using histo-acryl glue. Penetrating wounds:
- If a knife wound (or a wound with glass) think about deep structures. Ask a senior A&E Dr. to see if there is any doubt in your mind regarding an abdominal, chest, neck or groin wound.

## 2.7 Foreign bodies:

- Always think about the possibility of retained foreign bodies.
- Glass is usually radio-opaque.
- Never hunt for foreign bodies under local anaesthesia unless you can feel them through the skin. If you can't, a tourniquet (and therefore a G.A. or regional anaesthesia) is required and you should probably ask a senior member of staff to help.
- Always X-ray if a deep wound has been caused by glass, using a metal skin marker to highlight the wound.
- Do not waste X-rays on wood/thorn injuries, but keep such patients under follow up if they feel there is a retained FB; they are almost always right!

## 2.8 Dislocations

- They are always painful until reduced.
- If obvious dislocation causing distal vascular compromise or threatening the skin the reduce immediately
- Most can be reduced using local anaesthetic blocks.
- Shoulder dislocations are more difficult. Use the Milch (least traumatic) technique, under midazolam sedation if appropriate. A GA may be required, so keep starved from the outset.
- Pre and post reduction films should always be obtained.

## 2.9 Soft tissue infection (see also Abscesses)

Cellulitis is a common cause of presentation in A&E.

### History & Examination

- There may be history of minor injury or sting or bite followed by swelling pain and erythema to a limb.
- General features of sepsis should be elicited e.g rigors, sweating etc. It is important to know the past medical history particularly if the patient is diabetic, alcoholic or immunocompromised.
- Examination will show red, hot painful area most commonly on a distal aspect of a limb. The patient may be pyrexial and tachycardic. Look for lymphangitis or lymphadenopathy.
- If there is crepitus in the site suspect gas-forming organism. This is a serious sign.

### Treatment

Treatment should generally consist of **elevation** and oral antibiotics.

Those who require admission for i.v. therapy are patients who are:

- failing to improve on oral therapy, or
- those with a pyrexia  $>38.5$ , with ascending lymphangitis,
- those who have had a rigor, or
- Those who have difficult social circumstances.

### Discuss the patient with the CDU fellow

When starting antibiotics try and curb your enthusiasm, if the patient is going home we would suggest Flucloxacillin +/- Pen v, or oxytetracycline (or cephadrine elixir in children) if they are ? Penicillin sensitive. Second line treatment (on ward 1) should be with iv cefotaxime (if large doses of iv fluclo/benzylpen have failed) or iv clindomycin if they are penicillin sensitive. Do not treat abscesses with antibiotics, but use them if there is a significant cellulitic component.

### Key points

- **If the patient is septic discuss the case with a senior before admitting to CDU. Septic shock can occur rapidly**
- If there is evidence of abscess either drain or discuss with senior for referral to the RSO.
- Although rare, necrotising fasciitis can present as cellulitis. Be aware.

## 2.10 Gout

- Sometimes difficult to differentiate between gout and osteomyelitis
- Urate may not necessarily be raised
- The gold standard test is joint aspirate
- Best treated in the acute phase with a non-steroidal anti-inflammatory drug .
- If this is contraindicated use Colchicine - probably as effective as a non-steroidal but its use is limited by its toxicity in high doses, (diarrhoea). Its very useful for patients on anticoagulants. The dosing regime is 500microg tds for 5 days. This regime causes less diarrhoea than traditional ones.
- Do not start allopurinol in the acute phase as this may worsen the condition

## 2.11 Open fractures

This is when the fracture is open to the air via a skin wound.

All are at high risk of infection.

Treat as contaminated and orthopaedic emergencies

### **Classification-Gustillo:**

- Type I-the wound is less than 1 cm long and appears clean
- Type II- the wound is >1 cm long but is not associated with tissue loss or extensive damage
- Type IIIA either a open fracture with adequate soft tissue coverage of bone, despite extensive soft tissue damage or flap laceration or any fracture involving high energy trauma or bone shattering regardless of wound size.
- Type IIIB open fracture with extensive soft tissue loss, periosteal stripping or exposure of bone
- Type IIIC open fracture involving vascular injury requiring repair.

**Management:** Remember treat life threatening injuries before limb threatening ones.

**Use ATLS principles and start with A with C spine control, B, & C with haemorrhage control**

Open fractures require immediately

- adequate analgesia
- covering& splintage
- fluid replacement
- antibiotics (cefotaxime & metronidasole or flucox and Ben pen.)
- tetanus
- Record presence or absence of pulses and recheck often.

## 2.12 Acute Compartment syndrome

This can occur in any osteofascial compartment . The commonest is in the lower leg and the forearm but it also may occur in the foot ,hand ,buttock, upper leg etc.

Maintain a high index of suspicion. It can lead to irreversible muscle damage leading to excision or amputation. It may also lead to myoglobinuria and acute renal failure

The following is suggestive of compartment syndrome

- Increasing pain
  - Pain on passive stretching the muscles of that compartment
  - Parasthesia of the nerve from that compartment
- Tense swelling in the compartment.
- The presence of a pulse does not exclude compartment syndrome

**If you suspect compartment syndrome refer immediately to orthopaedics. This is an emergency**