MANAGEMENT OF FRACTURE

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(seminar 2)
Management of fracture

- **Subjects:**
  - General management of fractures & Orthopedic patient evaluation
  - Closed and open fractures management (Conservative, Operative)
  - Common fractures management
General fracture management and orthopedic patient evaluation

- Learning objectives:
  - Discuss the general principles of the management of fractures
  - Identify the general signs and symptoms of fracture
  - Describe the role of radiography in the management of fractures
Facts

- Fracture incidence is 3.6 fractures per 100 people per year.
- Lifetime fracture prevalence exceeds 50% in middle-aged men, and 40% in women over the age of 75 years.
- Although, that is our concerns through the management of bone fractures are about improving the life quality and reduce the morbidity rate, it's important to know that some types of fractures have high mortality rate (e.g.: A hip fracture in the elderly, with a mortality of 10% at one month and 30% at one year) so ....
Patient with suspected fracture need urgent and sometimes emergency evaluation to determine if:

- serous complicated condition exist eg: neurovascular injury often require immediate surgical interruption

- uncomplicated fractures and can be managed effectively in a nonsurgical sitting
The acute management of uncomplicated fractures

Steps:
1) Initial clinical assessment
2) Radiographic assessment
3) Immobilization
4) Pain management
5) Patient education and follow-up care
For any patient who has significant trauma we must begin assessment by looking for life- or limb-threatening injuries using the advance trauma life support approach (ATLS).

**ATLS:**
- **Primary survey**: ABCDE
- **Diagnosis of life- or limb-threatening injuries**
- **Reassessment of patient status**
- **Secondary survey**: ample history, head to toe examination, Glasgow coma scale
Table 4. “AMPLE” History

- **A** – Allergies
- **M** – Medications
- **P** – Past medical history
- **L** – Last meal (what time)
- **E** – Events surrounding the time of injury

**Glasgow Coma Scale**

- **Eye opening (E)**
  - Spontaneous: 4
  - To speech: 3
  - To pain: 2
  - None: 1

- **Best motor response (M)**
  - Obey commands: 6
  - Localizes pain: 5
  - Normal flexion (withdrawal): 4
  - Abnormal flexion (decorticate): 3
  - Extension: 2
  - None (flaccid): 1

- **Verbal response (V)**
  - Oriented: 5
  - Confused conversation: 4
  - Inappropriate words: 3
  - Incomprehensible sounds: 2
  - None: 1
patient without life or limb-threatening injury who appear appropriate for office management

- History: the history should generally include
  1) Mechanism of injury
  2) Localization and character of symptoms and any dysfunction in the affected area
  3) Past injuries of surgeries in the site of injury
  4) Did you injure any other part of your body
  5) Chronic medical conditions or medications
  6) Allergies and last meal
Examination: while patient's history and mechanism of injury guide the examination general assessment of the involved region should always be preformed.

In any case, x-ray diagnosis is more reliable.

1) Look: Swelling, bruising and deformity may be obvious, but the important point is whether the skin is intact, stretched skin over a projection??
2) Feel: palpated for localized tenderness, Vascular (pulses, capillary refill) and peripheral nerve (motor function, sensation, two point discrimination). Abnormalities should be tested for both before and after treatment.

3) Move: Crepitus and abnormal movement should be tested for only in unconscious patients. Usually it is more important to ask if the patient can move the joints distal to the injury.

**The general rule of immobilization is “splint it where it lies “**
Radiographic assessment
Imaging

- **X-ray examination is mandatory.**
- **The Rule of twos:**
  - **Two views.** A fracture or a dislocation may not be seen on a single x-ray film; at least two views (anteroposterior and lateral) must be obtained.
  - **Two joints.** The joint above and the joint below the fracture must be included on the x-ray films; they may be dislocated or fractured.
  - **Two limbs.** In children, the appearance of immature epiphyses may confuse the diagnosis of a fracture; x-rays of the uninjured limb are needed for comparison.
  - **Two injuries.** Severe force often causes injuries at more than one level. Thus, with fractures of the calcaneum or femur, it is important also to x-ray the pelvis and spine.
  - **Two occasions.** Some fractures are notoriously difficult to detect soon after injury, but another x-ray examination a week or two later may show the lesion. Common examples are undisplaced fractures of the distal end of the clavicle, the scaphoid, the femoral neck and the lateral malleolus, and also stress fractures and physeal injuries wherever they occur.
imaging

- **Special imaging;**
- **CT:** elective, sometimes mandatory. (fractures in difficult sites such as the calcaneum or acetabulum).
- **MRI:** may be the only way to determine compression of spinal cord or line of femur neck fracture.
- **Bone scan:** stress or nondisplaced fractures
Diagnosing a fracture is not enough; the surgeon should picture it (and describe it) with its properties:

- Is it open or closed?
- Which bone is broken, and where?
- Has it involved a joint surface?
- What is the shape of the break?
- Is it stable or unstable?
- Is it a high-energy or a low-energy injury?
- And last but not least who is the person with the injury?
Fracture description mnemonic

- OLD ACIDS;
- O – open or closed
- L - Location
- D – Degree (complete vs incomplete)
- A – Articular involvement
- C – comminuted/type
- I – Intrinsic bone quality
- D – Displacement, angulation, rotation
- S – Soft tissue injury