Objectives

- Identify Common Fractures
- Discuss initial treatment of fractures
- Discuss definitive treatment of common fractures and expected outcomes

Common Fractures

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Statistics

- About 18.5 million visits to physicians per year are for fractures
- The majority of these occur in the outpatient setting
- MSK injuries result in loss of function and negatively impact our economy
- Our aging population will result in increased fracture – especially fragility fractures – with even more loss of function

Most Common Fractures

- Clavicle
- Ankle
- Pediatric Forearm Fractures
- Wrist
- Hip
## Initial Evaluation
- Identify injured extremity
- Is there deformity?
- Neurovascular Evaluation
- Skin integrity
- Radiographs

## Radiographic Principles
- Image the injured bone
- Obtain radiographs of the joint ABOVE and BELOW the injured bone

## Initial Treatment
- Immobilize with splint
- Elevate injured extremity to lessen swelling
- Ice
- Anti-inflammatory medication for pain/swelling
- Opioids for severe pain
- Refer for definitive management

## General Treatment Principles
- Non-displaced and stable fractures can be treated with non-operative management
- Displaced, open and unstable fractures should be treated surgically
- Encourage early range of motion when able
- Weight bearing is limited for minimal necessary time
- Immobilization may be necessary for appropriate healing
Clavicle Fractures

- Common in falls onto an extremity
- Non-operative management with sling has been the traditional approach
- A large number can still be treated non-operatively

- Recent research points more towards operative management for severely displaced fractures
Regardless of treatments – patients are treated in a sling for 6-8 weeks
- Weight bearing as tolerated
- Range of motion above shoulder level is restricted for 4-6 weeks
- Full weight bearing and strengthening is permitted after about 3 months

Ankle Fracture

Twisting injury leads to predictable injury pattern
- Fibula fractures alone can often be treated non-operatively – decision depends on stability of the ankle joint
- Bimalleolar and Trimalleolar fractures often require operative fixation
Stress View
Radiograph

- Stable fractures can be treated without surgery
- Early weight bearing
- Edema Control
- RICE
- RANGE OF MOTION
- Bone healing takes 6-8 weeks, but full recovery can be 3-6 months
• Unstable injuries require operative fixation
• Non-weight bearing after operative fixation for 6-12 weeks depending on the severity of the injury
• Encourage ROM after early immobilization period
• Full recovery can be 6-12 months

**Special Populations**

- Diabetic patients require more aggressive treatment and longer non-weight bearing
- Obese patients should be considered for longer non-weight bearing
- Skin condition in geriatric patients should be carefully monitored

**Pediatric Forearm/Wrist Fractures**

- Pediatric forearm and wrist fractures are among the most common fractures in children under 14
- These fractures are often caused by a fall from a height – monkeybars and trampolines
- Open physes allow for non-operative management of these fractures in most circumstances
- Closed reduction and casting is the most common method of treatment
• 6-8 weeks of cast treatment followed by removable splint for an additional 4-6 weeks
• After cast removal – encourage range of motion and slow return to activity
• Open physes allow for remodeling of fractures and differing acceptable angles of reduction depending on patient age
• Older patients require more perfect reductions and may require surgical fixation

Fragility Fractures

• 8.9 million fractures worldwide related to osteoporosis
• Hip, wrist and vertebral fractures occur in nearly equal numbers
• 1:3 women over 50 incur fractures
• 1:5 men over 50 incur fractures
• These numbers are expected to increase dramatically as our population ages

Distal Radius Fracture

• Often caused by fall on outstretched hand
• Early treatment includes reduction and splinting
• Non-surgical treatment can be acceptable in cases of appropriate alignment after reduction and splinting with transition to casting
• Surgical treatment is indicated for younger, active patients and in those with unacceptable reduction
<table>
<thead>
<tr>
<th><strong>In non-operative management, cast for 6-8 weeks, followed by brace wear and focus on wrist range of motion</strong></th>
<th><strong>Operative fixation allows for early range of motion</strong></th>
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<tr>
<td>• Even with significant deformity – function can be appropriately regained in low demand individuals</td>
<td>• Bone healing can take 6-8 weeks</td>
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<td>• Return to function is expected with appropriate treatment</td>
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## Hip Fracture

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<td><strong>75%</strong> hip fractures occur in women</td>
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<td><strong>10-20%</strong> of patients who were community ambulators prior to their injury lose their ability to function independently</td>
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<td>Current incidence around 1.6 million/year – expected to increase to as much as 6 million/year by 2050</td>
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<td><strong>20-25%</strong> of patients die within one year after sustaining a hip fracture</td>
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### Research Focus

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<td>Much research is focused on improving outcomes after hip fracture</td>
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<td>Identification of at-risk patients and measures to protect bone health</td>
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<td>Earliest possible treatment of appropriately risk stratified patients may lead to improved mortality and preservation of pre-injury functional status</td>
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<td>This is a subject of ongoing research at OSU participating in an international study</td>
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### Patient Care

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<td>Patients are treated in a fashion similar to acute coronary patients with dedicated teams and surgical fixation of their fractures in an expedited fashion</td>
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### Risk/Benefit Analyses

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<td>Risk/benefit analyses are always necessary when considering surgical procedures and not every patient should undergo emergent procedures.</td>
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<td>Some patients with acute medical conditions benefit from medical optimization prior to surgery.</td>
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<td>A minority of patients are not surgical candidates and palliative measures should be discussed with the patient and family.</td>
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• Patients who have never undergone osteoporosis workup should have workup initiated by hospital medical/orthopaedic personnel
  • Laboratory workup for secondary osteoporosis
  • DEXA
  • Geriatric Consultation
  • Endocrine evaluation
• Follow-up after hospitalization should be arranged with appropriate personnel to initiate appropriate treatment

• Goals of surgical treatment are to mobilize patients quickly with full weight bearing
  • Options are fixation of the fracture or arthroplasty procedure
  • Fixation is reserved for non-displaced or younger patients with displaced fractures
  • Partial arthroplasty is indicated in low demand individuals
  • Total hip arthroplasty is indicated in younger, more active individuals