Metatarsal Shaft Fractures
See also Metatarsal Fractures (Ortho)

Background
1. Acute vs. chronic (stress) fracture
2. Metatarsal stress fracture ("march fracture")
   - 2nd/3rd metatarsals most frequent involved
   - 25% of all stress fractures

Pathophysiology
1. First metatarsal
   - Bears one third of body wt through sesamoids
   - Rarely injured d/t size & strength
2. Risk factors
   - High-performance, recreational athletes, military recruits, ballet dancers, runners
   - Acute or repetitive trauma
3. Injury mechanism
   - Acute fractures
     - Direct: heavy object dropping of foot
     - Indirect: twisting when forefoot planted
   - Stress fractures
     - Sudden incr in activity intensity/ duration

Diagnostics
1. Edema may impair exact site of fracture
2. X-Ray
   - AP, lateral, oblique
   - Wt bearing films if tolerated
   - Often negative for metatarsal stress fractures
   - Serial radiographs, bone scan or MRI

Therapeutics
1. Acute treatment
   - First metatarsal fracture
     - Minimally displaced and isolated
       - Short leg cast, non wt bearing for 4-6 wks
     - Significant displacement/instability
       - Surgical referral
   - Lesser (second to fifth) metatarsal fracture
     - Non displaced
       - Post operative shoe
     - Most diaphyseal fractures can be reduced
       - Then short leg cast
       - But ensure adequate reduction
     - Significant displacement or failure of closed reduction
       - Surgical referral
   - Stress fracture
     - Relative rest
- Post-operative shoe may give some pain relief

2. Potential complications
   - Arterial injury
   - Compartment syndrome
   - Regional pain syndrome
   - Delayed healing and nonunion
   - Osteomyelitis (w/open fractures)

**Follow-Up**
1. Repeat X-rays 1 wk/ 4-6 wks after injury to ensure proper alignment/callus formation
2. Pt should follow-up sooner if paresthesias or incr pain occur

**Prognosis/ Return to Play**
1. Excellent overall prognosis w/proper tx

**Patient Education**

**References**

**Evidence-Based Inquiry**
1. What role does a tuning fork have in the diagnosis of stress fractures?

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