

Proximal Fifth Metatarsal Fracture

See also Metatarsal Fractures

Background

1. Most common site of midfoot fractures
2. Two types
 - Jones fractures
 - Pseudo-Jones fractures: "Ballet Dancer's Fracture"

Pathophysiology

1. Proximal fifth metatarsal comprised of three zones
 - Zone 1: most proximal area
 - Attachment of peroneus brevis
 - Lateral plantar aponeurosis
 - Articulation w/cuboid
 - Pseudo-Jones fracture seen in this zone
 - Proximal avulsion fracture
 - Associated w/lateral ankle sprain
 - Zone 2: metaphyseal diaphyseal junction
 - Jones fracture
 - Transverse fracture at base of 5th metatarsal
 - 1.5-3cm distal to tuberosity
 - Associated w/
 - Pivoting foot or cutting w/ankle plantar flexed (w/heel off ground)
 - Adduction force to forefoot
 - Zone 3: proximal diaphysis
 - Prone to stress fractures

Diagnostics

1. X-ray: AP, lateral, oblique
2. Jones Fracture Torg Classification System:
 - Type I
 - No intramedullary sclerosis
 - Well-delineated fracture line
 - Minimal cortical hypertrophy
 - Type II (delayed union)
 - Fracture line involves both cortices w/periosteal new bone
 - Widened fracture line
 - Intramedullary sclerosis
 - Type III (nonunion)
 - Wide fracture line w/periosteal new bone and radiolucency
 - Sclerotic bone
 - Obliterated medullary canal

Therapeutics

1. Pseudo-Jones fracture
 - Conservative/ symptomatic tx
 - Wt bearing as tolerated

- Most heal in 6-8 wks
- 2. Jones fracture
 - Type I
 - Non-wt bearing
 - Immobilized for 6-8 wks
 - Type II & III:
 - Operative tx w/bone graft or intramedullary screw fixation
 - Shown to reduce time to clinical union by 50%
 - Fitted w/well-padded splint/ cast
 - Wt bearing 7-10 days post-op

Prognosis

1. Return to play
 - Pseudo- Jones fracture
 - Gradual return to play (verify radiographic union)
 - Jones fracture
 - Start moderate aerobic work 2-3 wks post-op
 - 12 wks for sport-specific activities (verify radiographic union)
2. Complications
 - Sural nerve damage from intramedullary screw
 - Non-union
 - Refracture
 - Screw breakage

Patient Education

1. <http://orthopedics.about.com/cs/lowerfx/g/fifthmetatarsal.htm>

References

1. Dameron TB Jr. Fractures of the proximal fifth metatarsal: selecting the best treatment option. *J Am Acad Orthop Surg* 1995; 3:110-4.
2. Fetzer, GB, Wright RW. Metatarsal shaft fractures and fractures of the proximal fifth metatarsal. *Clin Sports Med* 2006; 25(1):139-50.
3. Holmes GB Jr. Treatment of delayed unions and nonunions of the proximal fifth metatarsal with pulsed electromagnetic fields. *Foot Ankle Int* 1994; 15:552-6.
4. Mologne TS, Lundeen JM, Clapper MF, O'Brien TJ. Early screw fixation *Med* 2005; 33:970-5.
5. Nunley JA. Fractures of the base of the fifth metatarsal: the Jones fracture. *Orthop Clin North Am* 2001; 32:171-80.
6. Quill GE Jr. Fractures of the proximal fifth metatarsal. *Orthop Clin North Am* 1995; 26:353-61.
7. Rooks YL, Corwell B. Common urgent musculoskeletal injuries in primary care. *Prim Care Clinic Office Pract* 2006; 33:751-777.
8. Wall J, Feller JF. Imaging of stress fractures in runners. *Clin Sports* 2006; 25(4):781-802.
9. Zenios M, Kim WY, Sampath J, Muddu BN. Functional treatment of acute metatarsal fractures: a prospective randomised comparison of management in a cast versus elasticated support bandage. *Injury* 2005; 36:832-5.

Evidence-based Inquiry

1. What is the most effective management of acute fractures of the base of the fifth metatarsal?

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