



POSNA

The Core Curriculum

Dislocations of the foot

Objectives

1. Describe the mechanism of injury for subtalar (peritalar) dislocation, and a treatment plan for management
2. Discuss imaging studies useful for the evaluation of peritalar dislocation, and for a tarsometatarsal dislocation
3. Describe (draw) the anatomy of the tarsometatarsal joints
4. Discuss direct and indirect injuring forces to the tarsometatarsal joints
5. Describe a simple classification system for tarsometatarsal dislocation
6. Describe a treatment approach for tarsometatarsal dislocations
7. Discuss outcome of tarsometatarsal dislocations for children and adults

Discussion points

1. What anatomic feature renders the second metatarsal particularly vulnerable to dislocation?
2. What is the significance of a cuboid fracture combined with a fracture of the base of the second metatarsal?
3. What are indications for internal fixation of tarsometatarsal dislocations?
4. What physical signs suggest an acute tarsometatarsal dislocation? A chronic dislocation?

Discussion

The two major dislocations affecting the foot are subtalar (peritalar) and tarsometatarsal. Subtalar dislocations are unusual, but a series of 5 such dislocations in children have been reported. Medial dislocations are by far most common, and result from a plantarflexion-inversion injuring force. Associated injuries are common, and can result in a worsening of the prognosis, a delay in diagnosis, or both. CT scanning is probably useful to define associated intra-articular fractures, and the completeness of the reduction. If CT scanning is not available, multiple views of the foot are indicated to search for associated fractures. Reduction has been impeded by interposition of the posteromedial tendons and the neurovascular bundle. The prognosis is diminished in the presence of associated intra-articular fractures; in the adult anatomic fixation is recommended, and these guidelines would seem reasonable for older children as well.

Tarsometatarsal dislocations are probably more common. Wiley reported 18 such injuries in children less than age 16. He has also written clearly on the anatomy and mechanism of injury. The tarsometatarsal joints are firmly held by strong ligaments with one exception - the connection between the base of the first and second metatarsal. Direct injuries result from a falling object; indirect injuries result from violent plantarflexion or abduction forces, either alone or in

combination. Ten (10) of Wiley's patients were injured in the "tip-toe" position. Myerson and Hardcastle have proposed classification systems for tarsometatarsal dislocations, the Hardcastle system is simple in that it denotes either partial or complete instability of the Lisfranc joint. The injury can be suspected by the presence of swelling, tenderness or midfoot ecchymosis. Minimally displaced dislocations in children can be managed with immobilization, but in older children anatomic reduction is preferred. This can often be accomplished with Chinese finger traps on the toes under general anesthesia, and the medial or lateral rays can be pinned percutaneously. Open reduction is indicated if this method is unsuccessful. Inadequate reduction and/or fixation of the first metatarsal is associated with poor results. Delay in diagnosis, which is not rare, also is associated with a worse prognosis.

References

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