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Medial Subtalar Dislocation: A Case Report

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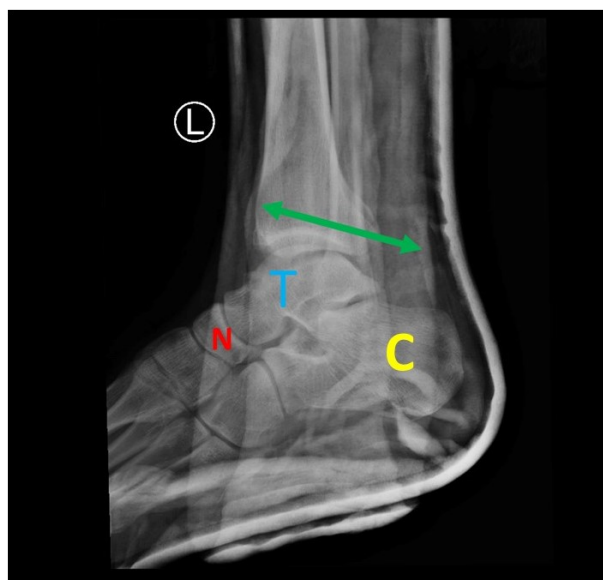
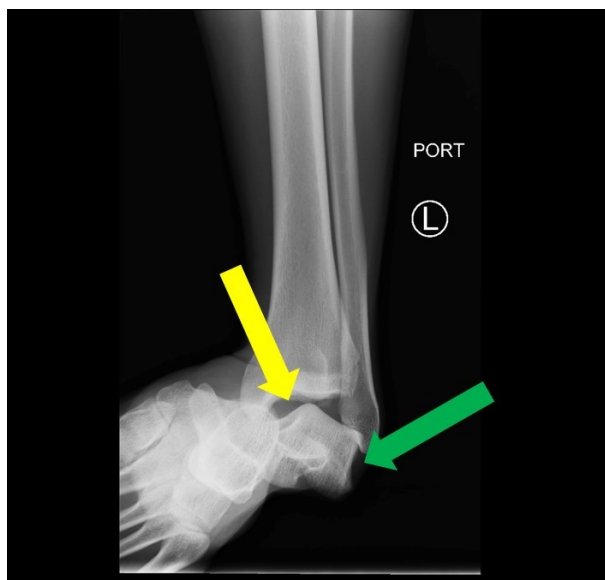
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ABSTRACT:

Subtalar dislocation is an unusual form of joint injury from high-energy trauma or athletic injuries. This case report describes a 22-year-old male who presented to the emergency department with left ankle pain after falling from his bicycle. Examination revealed significant deformity of the left foot and ankle. The foot pointed medially, and the bottom portions of the tibia and fibula were visible with the overlying skin intact. Radiographs confirmed left medial subtalar dislocation. There was no neurovascular compromise of the foot. The dislocation was successfully reduced under procedural sedation and the patient's left leg was placed in a splint. He underwent post-reduction imaging and was instructed to remain non-weight-bearing and to follow up with orthopedics to discuss further management. The purpose of this report is to describe a case of a closed, medial subtalar dislocation and the approach to management.

Topics: Subtalar dislocation, ankle dislocation, bicycle accident, x-ray.



Introduction: Subtalar dislocations of the ankle are a rare type of joint dislocation that can occur in any direction and produce severe deformity of the affected foot. They are commonly associated with osteochondral fractures, and the keystones of treatment involve closed reduction and immobilization.¹ Pre- and post-radiographic imaging should always be performed to confirm the diagnosis and post-reduction alignment.¹ In this case, the patient presented with a medial subtalar dislocation that was isolated without any associated fractures seen on initial x-ray. Furthermore, it was a closed ankle injury with the overlying skin intact. Here we discuss the presentation, diagnosis, and management of a subtalar dislocation.

Presenting concerns and clinical findings: A 22-year-old male presented to the emergency department with left ankle pain and deformity after falling from his bicycle. He described a sharp pain of moderate severity in his left ankle that worsened with movement and palpation. He noted obvious deformity. The patient denied any associated head trauma, loss of consciousness, or other traumatic injuries. His medical, family, and social history were non-contributory.

Significant findings: On examination, the patient had a significant deformity to his left foot and ankle. His left foot was pointed medially. His distal left tibia and fibula were visible and palpable upon inspection, with the overlying skin completely intact. There was no neurovascular compromise of the foot. X-ray demonstrated a subtalar dislocation of the left ankle (green arrow) and significant widening of the tibiotalar joint space (yellow arrow). There was associated soft tissue swelling but no acute displaced fractures were identified.

Patient course: The orthopedist confirmed the diagnosis of subtalar dislocation. The orthopedist and emergency physician performed a reduction of the dislocated left subtalar joint with procedural sedation. The ankle was subsequently splinted in a posterior slab with a stirrup. After reduction, the patient was fully sensate with palpable dorsalis pedis and posterior tibial pulses on the left side. There were no adverse or unanticipated events. His post-reduction radiograph confirmed anatomic alignment of the talus (blue T) in relation to the navicular (red N), the calcaneus (yellow C), and the tibia and fibula (green arrow). A computerized tomography (CT) scan was requested by the orthopedist to evaluate for additional injuries. The CT revealed a tiny, acute chip fracture of the anterior aspect of the distal tibia not seen on pre- or post-radiographs. The patient was instructed to remain immobilized and follow-up with orthopedics in the next week to discuss operative versus non-operative management. Follow-up and long-term outcomes were not monitored by our emergency department team.

Discussion: Subtalar dislocation is an unusual orthopedic injury.^{1,2} They constitute only 1%-2% of all dislocations.² The mechanism of injury involves simultaneous dislocation of the talocalcaneal and talonavicular joints and is most commonly the result of high-energy trauma.³ The subtalar joint can be dislocated in any direction, with medial dislocation being most common followed by lateral, anterior, and posterior dislocations.¹ Inversion of the foot typically causes medial dislocation while eversion causes lateral dislocation. Additionally, these injuries tend to be associated with fractures of the malleolus, talus, calcaneus, or fifth metatarsal.³ The most important step in management is rapid reduction.¹ Reduction is performed with a flexed knee, traction and pressure opposite to the mechanism of injury.² Reduction should be closed when possible and followed by immediate immobilization in a splint. Post-reduction CT scans are recommended due to the high incidence of associated articular fractures which may require longer immobilization and be indicative of poorer prognosis.^{1,7} In isolated dislocations, the leg should remain immobilized for one month followed by progressive weight-bearing and range-of-motion exercises.^{1,3}

Long-term outcomes after subtalar dislocation are affected by many factors including type of dislocation, severity of injury, associated fractures, and period of immobilization.⁴ Evidence suggests that lateral dislocations do worse than medial ones in the long-term, perhaps due to the greater complexity of anatomic damage.⁴ Some examples of late complications may include arthritis, avascular necrosis, and joint stiffness. Patients may experience pain, joint instability, and limp.⁵ According to most literature on the topic, 50%-80% of subtalar dislocation cases have post-reduction arthritis and decreased joint function.² Open injuries have demonstrated high prevalence of post-traumatic osteoarthritis as well as osteonecrosis of the talus.⁶ Thus, lateral and open subtalar dislocations as well as those with associated fractures or neurovascular injury have shown to have a poorer prognosis than medial and closed dislocations. The best method to reduce the chances of developing such complications is immediate closed reduction, or open if necessary, under appropriate anesthesia. Reduction should be followed by a 4-6-week period of immobilization and then physical therapy.⁷

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