April Case Study : Right ankle fracture with syndesmotic disruption

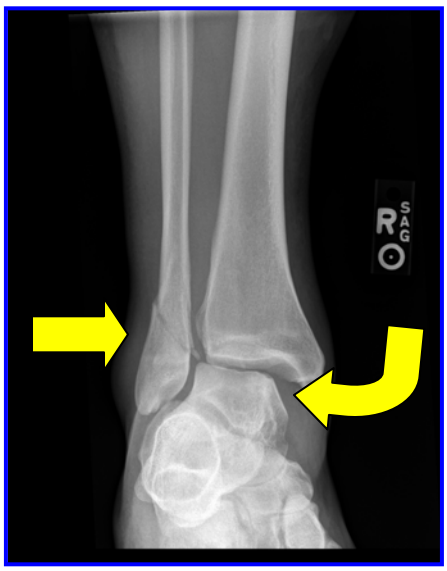
Miki Patterson, PhD, NP, ONP-C

History of Present Illness: JM is a 45 year-old male who works in construction who is referred to orthopedic emergency room (ER) follow-up clinic for his ankle injury. He presents in a posterior short leg splint and he is unable to bear weight on his right foot (using crutches). He gives a history of jumping out of his pickup truck several days ago and landing on a twisted ankle on a loose pebbled surface. He felt and heard a pop, and had pain and swelling almost immediately after the fall. He said "it hurt" but he "had played football for years and had twisted his ankle before an it always gets better in a few days" He also knew he should see someone about it because it was so swollen he could not get his work boot on and so he presented that day to the emergency room.

Past medical history: JM has no allergies, takes no medication, has had no surgeries, smokes 1 ppd/cigarettes, admits to imbiding an average of a 12-pack of beer a week.

Physical Examination: JM is a robust, fit gentleman in obvious discomfort in his right ankle. He walks with his right foot off the ground (antalgic gait). On exam of his right lower extremity JM has a large amount of swelling and ecchymosis on the medial aspect of his ankle and foot. He has good sensation all toes, brisk capillary refill 5/5 EHL and attempts at dorsiflexion are limited by pain. He has 2+ dorsalis pedis and posterior tibial pulses. He has tenderness both medial and lateral aspects of his ankle. His ankle feels stable to anterior draw. He has pain at his ankle and laterally at mid-calf with this squeeze test and his calf is supple. He has full pain free knee flexion and extension. He lifts off the exam table (in pain) when attempting external rotation of his foot.

Radiographs: AP, Lateral and Mortise view of the right ankle were performed. There is an apparent distal fibular fracture at or above the level of the ankle joint (tibial plafond). Stress views of the ankle (with dorsiflexion and external rotation) in the Mortise view, revealed widening on the medial side of the tibiotalar joint. This tibiotalar widening, with or without a fracture, lends itself to the probability that the syndesmosis ligament has been disrupted by the mechanism of injury.



Case Study Surgery: Based on the history, exam and radiographic findings JM was informed of the risks benefits and alternatives to open reduction internal fixation of his ankle and chose to consent to surgical repair.

Note the long thin screw that originates in the fibular and crossed the syndesmosis into the tibia. This is called a syndesmotic screw and it is designed to hold position of the ankle joint while the torn syndesmotic ligament heals in approximately 12 weeks.

JM was placed on in a short leg posterior splint, on crutches non-weight bearing and scheduled for a follow-up appointment in 2 weeks. At this time his wound was inspected, and sutures were removed. He was placed in a short leg cast and remained non-weight bearing for 10 weeks.

He then returned for syndesmotic screw removal. At this time some orthopedic surgeons prefer to remove the long syndesmotic screw while others allow full weight-bearing, telling their patients that the screw should break. The reason the screw is expected to break is that the ligament is expected to have motion and walking causes repetitive bending mid-screw, resulting in metal fatigue causing the screw to break. That particular broken screw it is not usually problematic. Notice the ghost track after screw removal. JM was allowed full weight-bearing in an aircast pneumatic boot begun on physical therapy and returned to regular activities in three weeks.