Ankle sprains are some of the most common injuries seen in both the primary care setting and the emergency department. Ankle sprains can be categorized as lateral, medial or syndesmotic sprains. Lateral ankle sprains are by far the most common, accounting for over three-quarters of the ligamentous injuries. Medial ankle sprains occur approximately a quarter of the time. Syndesmotic injuries are the rarest, occurring approximately 1% of the time. Because they are so rare, they are often missed. Syndesmotic ankle sprains should not be overlooked because of their potential to cause long-term morbidity.

The ankle syndesmosis is the ligamentous connection between the tibia and fibula, extending between the knee and the ankle joint. It is composed of three ligaments: the posterior inferior tibiofibular ligament, the anterior inferior tibiofibular ligament and the interosseous ligament. These ligaments, along with the deltoid ligament medially, are responsible for maintaining the ankle mortise. They prevent lateral translation of the talus under the tibia. Maintenance of the ankle mortise is crucial to the biomechanics of the ankle joint. Studies have shown that the first millimeter of lateral talus translation increases the contact pressure between the tibia and the talus by 42% (Ramsey et al, JBJS, 1976).

The ankle syndesmosis is most commonly injured with an external rotation mechanism. Examine the ankle systematically. Palpate the medial and lateral ligamentous complex. They are often injured concomitantly with the syndesmosis. Examination of the syndesmosis consists of inspection for swelling between the tibia and fibula. Proximal tenderness between the tibia and fibula at the knee may be present. Tenderness to palpation between the tibia and fibula, over the ligaments, is a syndesmotic injury until proven otherwise. The most diagnostic test is the squeeze test. Squeezing the mid to distal end of the calf, around the tibia and fibula, will illicit pain between the tibia and fibula and can cause a shooting pain down to the ankle.

Syndesmotic injuries are classified as latent or frank injuries. Frank injuries show widening of the syndesmosis on standard X-rays. This can be in isolation or in conjunction with medial and/or lateral ligamentous or bony injuries. Latent injuries can only be demonstrated on stress views.

Standard radiographic evaluation includes A/P, lateral and mortise views. A medial clear space on the standard mortise view (space between the medial malleolus and the talus) should be six millimeters or less. A space larger than six millimeters suggests a syndesmotic injury. If there is a suggestion of a latent syndesmotic injury a stress mortise view should be obtained (figure 1 and 2). A stress mortise view is a standard mortise view with the technician providing an external rotation stress while the X-ray is taken. CT scans can also be helpful if standard radiographs are not diagnostic. A CT scan may be slightly more sensitive in picking up more subtle injuries involving less than three millimeters of separation between the tibia and the fibula.

The treatment of syndesmotic injuries is either operative or non-operative, depending on the severity of the injury. Patients with pain over the syndesmosis, a positive squeeze test, but no separation of the syndesmosis on stress X-rays can be treated with four weeks of non-weight bearing in a cast. Patients with frank injuries or latent injuries with displacement of the talus with stress X-rays should be treated with reduction of the syndesmosis and placement of screws. These screws are removed after the ligamentous complex has healed. Patients are typically allowed to return to full activity at three months.