AITFL Sparing Osteotomy for Lateral Talar Dome Injuries

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Statement of Purpose

Traumatic insult to the talus is a common injury and poses challenges to surgeons as it often presents with multiple injuries in the absence of external trauma. The importance of the talus cannot be overstated as weight distribution and instability in the ankle joint is impacted by the elbow and knee. Injuries to the lateral talus are more common than their medial counterparts and can be readily addressed utilizing arthroscopy or a subtalar osteotomy. The lateral OLT can provide a challenge in perioperative planning, especially if the lesion occurs more posterior on the bone. We have found the technique described, to address these challenging OLTs. First and foremost, the native AITFL remains intact, which negates any instability secondary to attenuation which could occur if transected for access to the lateral talus. The design of the osteotomy provides some degree of inherent stability over a simple transverse osteotomy of the fibula.

Literature Review

An estimated 50% of ankle sprains have some degree of chondral insult associated.1 Lateral osteochondral lesions of the talus (OLT) occur less frequently than medial OLTs. Classically, these lesions are the resultant of a shearing mechanism which create shallow lesions that usually occur at the anterior portion of the talus dome. However, some studies have found the reliability of the lesion location does not always correlate with the mechanism of injury.2 While many OLTs go on to heal with non-operative care, there have been several factors identified as poor prognostic indicators for these lesions without surgical treatment: Lateral lesions, greater than 3cm, Grade 3 Berndt Hardy class lesions, and lesions >6 weeks old.3–4

Primary repair of OLTs is reserved for larger sized lesions (>1.0cm) and has been shown to have better clinical outcomes in acute injuries.5 The osteochondral autologous transfer (OAT) procedure has been well documented in the literature and has been substantiated in successful treatment outcomes in acute injuries.6 The fracture is often associated and later described employing a fibular osteotomy while still preserving the anterior inferior talo-fibular ligament (AITFL).7

Case Study

A 30-year-old male fell from a ladder and sustained an isolated Berndt Hardy Grade 4 OLT of the left ankle, 3 days prior. The fracture was located at the postero-lateral aspect of the talus, providing a challenge with respect to the surgical approach for treatment. Advanced computed tomography imaging (Fig 1) confirmed a displaced OLT measuring approximately 0.5cm x 1.8cm. The patient underwent open reduction with internal fixation utilizing an AITFL sparing fibular osteotomy to gain access to the osteochondral lesion. The patient underwent an unremarkable post-operative course. At the 1-year follow up, the patient remained pain free with full range of motion of the left ankle.

Surgical Technique

A curvilinear incision is created overlying the fibula extending approximately 2cm anterior and distal to tip of the fibula. (Fig 2) Using intraoperative fluoroscopy, a trapezoidal osteotomy of the anterior distal fibula is created. (Fig 3) The initial longitudinal cut is made 1cm anterior to the posterior cortex of the fibula, this cut spans 1.5-2.0cm in length. The distal arm of the osteotomy is created at a 60º angle making sure to avoid the inferior fibers of the AITFL. The proximal arm is also created at a 60º angle with care to avoid the inferior fibers of the AITFL. The proximal cut is made 1cm anterior to the posterior cortex of the fibula, this cut spans 1.5-2.0cm in length. The distal arm of the osteotomy is created at a 60º angle making sure to avoid the inferior fibers of the AITFL. The proximal cut is made 1cm anterior to the posterior cortex of the fibula, this cut spans 1.5-2.0cm in length. The distal arm of the osteotomy is created at a 60º angle making sure to avoid the inferior fibers of the AITFL. Once the osteotomy is opened anteriorly and a “window” to the talus and thus the OLT is created, the lesion is then reduced and fixedated with the surgeon’s choice of fixation, in this case a bioabsorbable dart and a thin layer of fibrin glue was used to repair the OLT. The fibular window is then closed and fixed with a simple lag screw from anterior-posterior at a slight obliquity.

References


Financial Disclosures: None