Rehabilitation of An Ankle Injury In A Collegiate Baseball Player

Mattacola, CG, Higgins, C, Mair, SD: Division of Athletic Training, Division of Orthopaedics, University of Kentucky, Lexington, KY

Personal Data/ Medical History

A 20-year old, 6'2", 210 pound male Division I collegiate baseball player presented with deformity, immobility, and significant edema in his left ankle following a slide into home plate. The injury was acute and the athlete was unable to ambulate following the injury.

Physical signs and symptoms

Upon examination, the athlete presented with deformity, immobility, and edema within the left ankle. No range of motion assessments or stress tests were performed.

Differential Diagnosis

Osteochondral fracture, Severe Syndesmotic Ankle Sprain, Osteochondritis Dissecans, Subtalar Dislocation

Results of Diagnostic Testing

Roentgenograms confirmed a displaced talus fracture, a surgical emergency due to the risk of avascular necrosis.

Clinical Course

Athlete was transported to the local emergency room where he underwent an open reduction, internal fixation with two screws inserted into the talus longitudinally. The athlete was immobilized in a hard cast for eight weeks, followed by further immobilization in a soft cast for four more weeks. In the next four weeks, the athlete was placed in a walking boot; and weight bearing began at this time. The athlete began rehabilitation to help decrease severe range of motion deficits. At 16 weeks post-surgery, the athlete presented with 27 degrees plantar flexion, 8 degrees dorsiflexion, 4 degrees inversion and 3 degrees eversion. Strength measurements were taken at 16 weeks using a hand-held dynamometer. Athlete presented with a 31% deficit in dorsiflexion, a 18% deficit in inversion, and a 24% deficit in eversion. At 20 weeks, the athlete presented with 38 degrees plantar flexion, 13 degrees dorsiflexion, 24 degrees inversion, and 23 degrees eversion. Strength measurements were also assessed, and the athlete presented with a 13% in dorsiflexion, a 14% deficit in inversion, and a 16% deficit in eversion. At 22 weeks the athlete regained full range of motion when compared bilaterally. At 24 weeks the athlete presented with a 5% deficit in dorsiflexion, a 10% deficit in inversion, and a 9% deficit in eversion. At 28 weeks, the athlete presented with similar deficits in strength, but was cleared for full participation in intercollegiate sports. Presently, the athlete is participating in team conditioning drills as well as individual hitting and fielding workouts without the aid of a brace and is asymptomatic. Regular x-rays were taken (every 4 weeks) to rule out avascular necrosis. The athlete also underwent MRI and a bone scan to further rule out this condition. When the athlete was cleared for participation, the athlete was instructed to return for x-rays 12 weeks from that time.

Deviation from the expected

Acute talar fractures are a rare injury in collegiate athletics. A conservative treatment protocol is suggested to ensure proper healing and to prevent the onset of avascular necrosis. Subtalar joint mobilization techniques were effective for improving ROM due to early immobilization, and use of a hand-held dynamometer allowed documentation and of strength gains for future comparison. Also, regular, follow-up diagnostic testing is not common with ankle injuries in athletics. Due to the severity of avascular necrosis and lack of vascularization to the talus bone, when treating a talar fracture it is necessary to continually assess the integrity of the talus prior to advancing rehabilitation techniques, incorporating weight bearing exercises, and following return to competition.