Posttraumatic Avascular Necrosis in Talar Neck Fractures with Extension Into the Talar Body

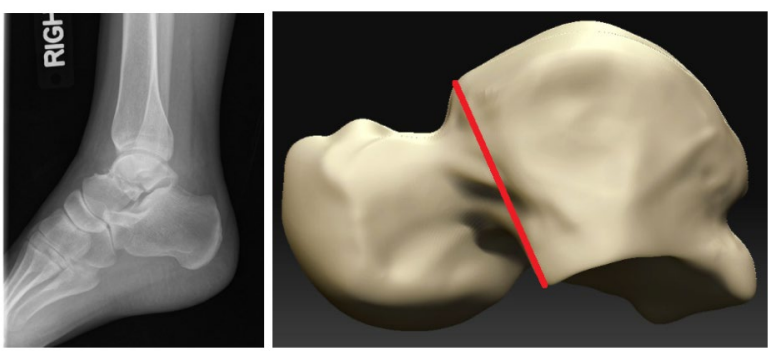
***Charles Mechas, MD**; Gordon Lents, BS; Cale Jacobs, PhD; Richard Zackary Unger, MD; Kevin A. Murr, MD; Arjun Srinath, MD; Eric Scott Moghadamian, MD; Arun Aneja, MD*
University of Kentucky, Lexington, KY, United States

Purpose: The significance of a talar neck fracture with proximal extension into the body has not been well described. The purpose of this study was to determine if a talar neck fracture with a fracture line extending proximal into the talar body is associated with increased rates of avascular necrosis (AVN).

Methods: Retrospective review of 138 fractures in 129 patients from 2008 to 2016 was performed. Fractures were characterized as isolated talar neck fractures (TN) or talar neck fracture with proximal extension into the body (TNPE). We identified a line from the anterior aspect of the talar body to the anterior aspect of the lateral talar process defining the neck-body junction. Fractures that originated on the talar neck and extended proximal to this line were characterized as having proximal extension (see figure). Fractures were classified according to the Hawkins classification as modified by Canale and Kelly, and Vallier for analysis. Patient demographics and follow-up radiographs were analyzed for the presence of union/nonunion, AVN, and collapse. Secondary outcomes were to determine if time to reduction, time to surgery, age, sex, open versus closed fracture, patient smoking, or diabetes affected rates of AVN.

Results: There were 82 fractures in the TN group and 56 in the TNPE group with a mean follow up of 14.5 months (median, 9.5 mo). 43 fractures developed AVN (31.2%). 27 fractures in the TNPE group (48%) were found to have AVN, which was found to be significant (P = 0.0007) when compared to 16 (19.5%) from the TN group. Additionally, proximal extension into the body was statistically significant for subsequent collapse after AVN as 8 of 11 patients in this study with AVN and collapse had proximal extension into the body (P = 0.05).

Conclusion: Talar neck fractures with proximal extension into the talar body are at a higher risk of AVN and AVN with subsequent collapse compared to isolated fractures of the talar neck.



A. Lateral XR depicting a talar neck fracture with proximal extension
B. Schematic demonstrating the line defining proximal extension; subtending from the anterior aspect of the talar body to the anterior aspect of the lateral talar process