The Anterior Extensile Approach for Talar Neck Fractures – a Cadaveric and Clinical Study

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Summary: An anterior extensile approach offers superior visualisation of the talar neck in comparison to other approaches for anatomical articular restoration.

Talar neck fractures occur infrequently and are associated with high complication rates. Anatomical restoration of articular congruity is important. Adequate exposure and stable internal fixation of these fractures are challenging.

We investigate the use of an anterior extensile approach for exposure of these fractures and their fixation by screws introduced through the talo-navicular articulation. We also compare the quality and quantity of exposure of the talar neck obtained by this approach with the commonly described combined medial / lateral approaches.

An anterior approach to the talus was performed on 5 fresh frozen cadaveric ankles. The surface area of talar neck accessible was measured using an Immersion Digital Microscribe and analysed with Rhinoceros 3D graphics package. Standard antero-medial and antero–lateral approaches were also performed on the same ankles, and similar measurements taken. Seven patients with talar neck fractures (4 Hawkins Type II and 3 Hawkins Type III) were followed and the clinical radiological outcomes were recorded.

3D mapping demonstrated that talar surface area visible by the anterior approach (mean 1200sqmm) is consistently superior to that of the medial or lateral approaches in isolation or in combination (mean medial 350sqmm, mean lateral 600sqmm), or with a medial malleolar osteotomy. 5 male and 2 female patients (mean age - 32) were reviewed at a mean follow up period of 6 months. All had anatomical articular restoration, and no wound problems. None developed non union or AVN, nor any symptoms referable to the talo-navicular joints.

The anterior extensile approach offers superior visualisation of the talar neck in comparison to other approaches for anatomical articular restoration. Surgical morbidity with this approach is low, and introduction of screws through the talo-navicular joint allows stable fixation of talar neck fractures. This approach is safe, adequate and has the potential to cause the least vascular disruption.