Ankle Morphology and Juvenile Osteochondritis Dissecans (JOCD) of the Talus: Is There an Association? An MRI Study

Abstract

Purpose: Factors that contribute to the development of juvenile osteochondritis dissecans (JOCD) of the talus are poorly understood. Some authors suggest that a higher loading of the affected zone may be a cofactor in osteochondral lesions. Therefore, the purpose of the study is to evaluate any association between ankle morphology and talus JOCD using morphologic parameters from magnetic resonance images. Our hypothesis is that ankles with JOCD lesions would have differences in the anatomy compared with age and sex-matched unaffected ankles.

Methods: We evaluated a total of 75 extremities. There were 22 patients (25 ankles) with talus JOCD lesions, and 50 patients (50 ankles) sex and age-matched individuals with healthy ankles served as controls. Two examiners conducted independent measurements of 8 magnetic resonance images parameters: tibial anterior surface angle, tibial shaft both malleoli angle (TBM), tibial axis-medial malleolus angle, anterior opening angle of the talus, malleolar width, tibial lateral surface angle, Maximal tibial thickness, length of trochlea tali arc, and height of trochlea tali arc. Measurement reliability was assessed using intraclass correlation coefficients. Differences in parameters between JOCD patients and controls were evaluated using independent t test. The level of significance was taken to be $P<0.05$.

Results: Intraclass correlation coefficients demonstrated good to excellent consistency for all measurements. Sagittal parameters demonstrated a significant length of trochlea tali arc increase in ankles with JOCD lesions compared with normal ankles (P=0.015). There was no statistical difference in any of the axial or coronal parameters.

Conclusions: Ankle morphology may have a relationship with JOCD lesions. Future larger studies will be useful for further clarifying our findings, and detecting other potential predisposing factors with clinical relevance and how they can be modified.

Study design: Cross-sectional study (Level of evidence III).

Full text: https://pubmed.ncbi.nlm.nih.gov/33229961/