

Abstract Number: 18088

Subluxation of the middle facet of the subtalar joint as a marker of adult acquired flatfoot deformity peritalar subluxation: a case-control study

Alexandre Leme Godoy-Santos¹, Cesar de Cesar Netto², Scott Ellis², Martin O'Malley², Francois Lintz³, Jonathan Deland²

1. Instituto de Ortopedia e Traumatologia, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.

2. Hospital for Special Surgery, New York City, USA.

3. Clinique de L'Union in Toulouse, Toulouse, France.

ABSTRACT

Introduction: Progressive peritalar subluxation (PTS) occurs in patients with adult acquired flatfoot deformity (AAFD) and is usually assessed in coronal plane images of the subtalar joint (SJ) posterior facet (PF). In this case control study, we investigated the use of the middle facet (MF) as an indicator of PTS using weightbearing computed tomography (WBCT). We hypothesized that significantly increased joint uncoverage and incongruence would be noted in patients with AAFD.

Objective: To assess the amount of subluxation of the middle facet of the subtalar joint as a marker of PTS in patients with symptomatic AAFD when compared to controls using coronal plane WBCT images.

Methods: We included 30 patients with stage II AAFD (20 females/10 males), aged 57.4 (range, 24 to 78) years, and 30 matched-pair controls (20 females/10 males), with a mean age of 51.8 (range, 19 to 81) years, who underwent WBCT. Two independent and blinded fellowship-trained foot and ankle surgeons measured the amount of subluxation (percentage of uncoverage) and the incongruence angle of the MF at the midpoint of its longitudinal length, using coronal WB CBCT images. Intra- and interobserver reliability were assessed by the intraclass correlation coefficient (ICC). A comparison was performed using the paired Student's T-test or for each pair the Wilcoxon test. P-values lower than 0.05 were considered significant.

Results: Substantial to almost perfect intra- and interobserver reliability was observed for both measurements. The MF demonstrated significantly increased PTS in patients with AAFD, with a mean value for joint uncoverage of 45.3% (95% CI, 40.5% to 50.1%), as compared to 4.8% (95% CI, 0% to 9.6%) in controls ($p < 0.0001$). Significant differences were also found for the incongruence angle, with a mean value of 17.3 degrees (95% CI, 15.5 to 19.1) in AAFD patients and 0.3 degrees (95% CI, -1.5 to 2.1) in controls ($p < 0.0001$). A joint incongruence angle of more than 8.4 degrees was found to be diagnostic for symptomatic stage II AAFD.

Conclusion: We described the use of the subtalar joint middle facet as a marker for PTS in patients with AAFD. Significant differences in the percentage of joint uncoverage and incongruence were found compared with the controls.

Keywords: Flatfoot; Subtalar joint; Weightbearing computed tomography.

