

Middle facet uncoverage changes after flexible progressive collapsing foot deformity reconstruction

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Introduction: Recent studies have associated the percentage of subtalar middle facet uncoverage with progressive collapsing foot deformity (PCFD). However, its postoperative behavior, relationship with conventional radiographic parameters, and impact on outcomes remain unclear. This study evaluated postoperative correction of middle facet uncoverage, its correlation with standard two-dimensional measures, and its association with minimum two-year patient-reported outcomes.

Methods: We performed a retrospective review of prospectively collected data from patients undergoing reconstruction for flexible deformity with pre- and postoperative weight-bearing computed tomography (WBCT) scans and baseline and minimum two-year PROMIS scores. Hindfoot fusions were excluded. Thirty-six patients met the criteria. Middle facet uncoverage and foot and ankle offset were measured on WBCT. Hindfoot moment arm and talar lateral incongruency angle were obtained from standard weight-bearing radiographs. PROMIS Physical Function, Pain Intensity, and Pain Interference were recorded at two years. Pre- and postoperative uncoverage were compared using t-tests. Spearman correlation with bootstrapped confidence intervals assessed associations among imaging parameters and outcomes.

Results: Mean uncoverage improved from 31.1 percent preoperatively to 22.5 percent postoperatively, demonstrating significant correction. Preoperative values moderately correlated with postoperative uncoverage, and higher baseline uncoverage was associated with greater improvement. No meaningful correlations were found between uncoverage and foot and ankle offset, hindfoot moment arm, or talar lateral incongruency angle. Postoperative uncoverage did not correlate with two-year PROMIS scores, and patients with corrections below 17.9% did not demonstrate superior outcomes.

Conclusion: Surgery improves middle facet uncoverage, but this parameter was not associated with radiographic alignment measures or patient-reported outcomes at two years.

Keywords: Weight-bearing; Flatfoot; Computed tomography.

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