Does the preoperative arthrogram have value in the diagnosis of a painful total knee arthroplasty?

Sean Sequeira, Brian Patrick McCormick, Thomas Milleret Ring, Mark David Hasenauer, Frank R Ebert¹

INTRODUCTION:

Loosening or instability of components following a primary total knee arthroplasty (TKA) is not only a devastating complication, but one that is difficult to diagnose. Although radiographs, computed tomography (CT) scans, and other imaging modalities have been utilized to diagnose this postoperative complication, they have their respective limitations. The purpose of our study was to evaluate the accuracy of knee arthrograms in the diagnosis of loosening, instability, and malposition of a painful TKA.

METHODS:

With IRB approval, a retrospective cohort study was performed to evaluate the accuracy of knee arthrograms to predict intraoperatively confirmed loose prosthetic components. Knee arthrograms were performed by the senior author under sterile technique by injecting 10 cc of radiopaque dye into the knee joint and assessing anteroposterior (AP) and lateral views for coronal and sagittal malalignment and laxity under dynamic stress views, as well as patellar tracking. RESULTS:

45 patients were identified who underwent revision knee arthroplasty and prior arthrogram were included for analysis. There were 27 patients who had a correctly predicted diagnosis of a loose prosthesis from arthrogram results when compared to intraoperative evaluation. Sensitivity was 93%, specificity was 75%, positive predictive value (PPV) was 87%, and negative predictive value (NPV) was 86%.

DISCUSSION AND CONCLUSION: Knee arthrogram results demonstrated high accuracy and predictive value of loose, unstable components when compared to intraoperative evaluation. Although this accuracy is in part attributable to a surgeon's familiarity with the procedure, arthrograms are a valuable modality to dynamically evaluate a painful TKA components.