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TITLE: Radiographic and clinical outcomes after direct anterior vs. mini posterior total hip arthroplasty

Introduction: Direct anterior approach (DAA) and posterior approach (PA) total hip arthroplasty (THA) can lead to differences in implant sizing, implant position, radiographic findings, and clinical outcomes - most notably dislocation and femoral fracture. To this end, we evaluated these radiographic and clinical outcomes comparing DAA and PA THA.

Methods: In this retrospective cohort study, 198 DA THA patients were matched to 198 patients who underwent PA THA between 3 fellowship-trained orthopedic surgeons. We measured preoperative and postoperative femoral offset and leg length discrepancy (LLD), cup anteversion, cup abduction, and femoral stem coronal alignment. We recorded implant characteristics and clinical outcomes including reoperation, dislocation, acute and chronic infection, wound complication, and fracture. Statistical analysis was performed to compare radiographic and clinical outcomes in the two groups. Surgeons in both groups used either intraoperative fluoroscopy, flat plate imaging, or both. All surgeons used 36mm heads unless cup size required a 32mm head or spine pathology led to a dual mobility articulation.

Results: No differences existed in the following (DAA, PA): Dislocation (0.51%, 0.0%), acute infection (2.02%, 0.51%), chronic infection (0.0%, 0.0%), wound complication (1.52%, 0.51%), periprosthetic fracture (0.51%, 1.01%), or cup inclination (43.4 deg, 43.0 deg). DAA THA had a longer operative time (117 vs. 79 mins, $P<001$). DAA THA trended towards an increase in discharges to home (96.46% vs. 92.93%, $P=0.11$). PA THA had a higher increase in femoral offset compared to the contralateral limb (2.76mm vs. 1.01mm, $P<.01$). PA THA had a significantly higher cup anteversion (26.17 deg vs. 23.44 deg, $P<.001$).

Conclusion: Both DAA and PA THA lead to acceptable clinical and radiographic outcomes, with some differences in operative time, cup position, and postoperative limb alignment.