Association of Femoral Collar Overhang with Iliopsoas Tendonitis in Total Hip Arthroplasty

Alexander J. Volkmar, Halimatu Sadiyya Ingawa, Nikhil Vallabhaneni, Kayla Gates, Brenna Blackburn, Michael J Archibeck, Christopher Earl Pelt

INTRODUCTION:
Iliopsoas tendonitis (IT) is a recognized cause of groin pain following total hip arthroplasty (THA), often attributed to anterior acetabular cup overhang. Collared cementless hip stems may present an additional source of anterior hip pain and IT. This study investigates whether femoral stem collar overhang is associated with postoperative hip pain in patients undergoing primary THA.
METHODS:
This retrospective cohort study evaluated 340 patients undergoing primary THA with collared femoral stems. Collar overhang was measured on radiographs at 6 weeks and 1 year postoperatively, both continuously and categorically (≤3mm vs. >3mm). Anterior cup overhang was also measured. Surrogate objective indicators suggesting pain were an iliopsoas sheath corticosteroid injection or an early postoperative metal suppression MRI. Linear and logistic regression, adjusted for age, BMI, and sex, assessed the relationship between overhang and pain.
RESULTS: Of 340 patients, 67 (19.7%) had findings suggestive of pain. Demographics were similar in both groups. The majority were performed via an anterior approach (92.4%). Mean collar overhang was significantly higher in the pain group (1.23mm, SD=2.41 vs. 0.56mm, SD=0.97, p=0.0277). Categorically, 12% of the pain group had overhang >3 mm compared to 3% in the no pain group (p=0.0036). Logistic regression revealed that overhang >3 mm increased odds of pain by 4.63 (95% CI: 1.66–12.87, p=0.0033), while each additional millimeter of overhang raised pain odds by 41% (OR=1.41, 1.12–1.77, p=0.0034). Given the minimal cup overhang in either group (mean 1.54mm pain vs 1.7mm no pain, p=0.7), cup overhang did not appear to correlate with pain.
DISCUSSION AND CONCLUSION: Increased femoral collar overhang following THA appears to be associated with postoperative pain, suggesting a possible role of the collar in anterior groin pain and IT. Further research is needed to validate these results and explore strategies to reduce the risk of collar overhang and IT.