labral tears, chondral delamination, subpisc impingement, cam lesions, pincer lesions, and mixed-type FAI. Global acetabular retroversion was assessed on AP view using three radiographic signs: ischial spine, posterior wall, and crossover signs. Other radiographic measures included alpha angle measured on three view (AP, Dunn, 90° Dunn) on the lateral center angle edge (LCEA), and Tomnis grade. RESULTS: We identified 124 primary hip arthroscopy patients who had minimum 5-year follow-up with adequate imaging and complete 5-year PROs. Preoperative X-rays demonstrated presence of ischial spine sign in 65 patients (52.4%), posterior wall sign in 61 patients (49.2%), and crossover sign in 75 patients (60.5%). Mean alpha angle was highest on AP view (62.2°), followed by 45° Dunn view (55.9°) and 90° Dunn view (50.9°) and mean LCEA was 38.5°. A baseline comparison demonstrated no significant differences between groups in age, sex, BMI, preoperative symptom length, Tomnis grade, Outerbridge grade, and preoperative mHHS or NAHS (p = 0.05). At 5-year follow-up, patients reported significant improvement in both mHHS (mean 50.4 to 82.7, p < 0.001) and NAHS (49.4 to 85.5, p < 0.001). Achievement rates were high for MCID (90.3%), SCB (80.7%), and PASS (79.0%) for the mHHS. Three-way frequency comparison of acetabular retroversion signs found that all three signs tended to be present together (40 patients, 32.3%) or absent together (31 patients, 25.0%). Pairwise comparisons with tetrachoric correlation testing found all three signs to be significantly correlated with one another: ischial spine sign versus posterior wall (ret = 0.65, corrected p = 0.001), ischial spine sign versus crossover sign (ret = 0.74, corrected p = 0.001), and posterior wall sign versus crossover sign (ret = 0.51, corrected p = 0.001). Multivariable analysis did not find any of the three signs to be significantly independent predictors of 5-year improvement in mHHS or NAHS (p > 0.05). Posterior wall sign was associated with lower odds of achieving the MCID (OR = 0.25, 95% CI [0.06 to 1.09]) but this did not achieve significance (x² = 3.39, p = 0.07). Overall, achievement rates for MCID, SCB, and PASS did not significantly differ between the cohorts with respect to each sign (p > 0.05). CONCLUSIONS: Clinical outcomes and achievement rates at 5-year follow-up demonstrated no significant differences among patients with respect to each sign of acetabular retroversion based on mHHS, NAHS, MCID, SCB and PASS. Surgeons should be reassured that these patients regain function at a rate similar to the greater FAI population.

Category: Hip/Groin/Thigh

Ten-Year Survivorship and Patient-Reported Outcomes in Patients Aged 40 And Over Following Primary Hip Arthroplasty for Femoro-Acetabular Impingement: A Propensity-Matched Analysis With A Benchmark Control Group

Abstract ID# 21447
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Summary: This study collected survivorship and patient-reported outcome scores (PROs) at minimum ten-year follow-up in patients aged ≥ 40 years following primary hip arthroplasty with a labral repair.

Data: Background: Arthroscopic labral repair has been shown to result in favorable short- and mid-term outcomes. Yet, the durability of outcomes in older patients remains controversial. Purpose: To report prospectively collected survivorship and patient-reported outcome scores (PROs) at minimum ten-year follow-up in patients aged ≥ 40 years following primary hip arthroplasty with labral repair. (2) To perform a sub-analysis comparing survivorship and outcomes for patients aged ≥ 40 years and patients aged < 40 years. Methods: Data were prospectively collected and retrospectively reviewed on all patients who underwent primary hip arthroplasty between February 2008 and December 2011. Patients aged ≥ 40 years who underwent labral repair were included. Preoperative and minimum ten-year follow-up for the modified Harris Hip Score (mHHS), Non-Arthritic Hip Score (NAHS), Hip Outcome Score-Sports Specific Subscale (HOS-SSS), and Visual Analog Scale (VAS) for pain were collected. Exclusion criteria were prior ipsilateral hip surgery/conditions, Tomnis grade > 1, hip dysplasia, or worker’s compensation. Propensity-score matching was utilized to compare patients aged ≥ 40 years to patients < 40. Rates of achieving the minimal clinically important difference (MCID), patient acceptable symptomatic state (PASS) and hip joint survival from conversion to total hip arthroplasty (THA) were reported. Results: Of the 113 hips eligible for analysis, 91 hips (80.5%) had minimum ten-year follow-up. There were 64 females (70.3%) and 27 males (29.7%) with mean age and BMI of 47.8 years and 25.8 kg/m², respectively. The ten-year survivorship for patients aged ≥ 40 years was 75.8%, and there was significant improvement in all PROs and VAS from baseline to minimum ten-year follow-up. Patients achieved MCID/PASS at high rates for all PROs and VAS. Sixty-nine patients aged ≥ 40 years were propensity matched to 107 patients < 40 years. Patients aged ≥ 40 years demonstrated lower survivorship (78.3% vs. 91.6%), but higher rates of secondary hip arthroplasty (2.9% vs. 14.0%). Conclusion: Patients aged ≥ 40 years who underwent primary hip arthroplasty with labral repair demonstrated a survivorship of 75.8%, significant improvement in PROs, and achieved MCID/PASS at high rates at minimum ten-year follow-up. Sub-analysis revealed comparable PROs, but patients aged ≥ 40 years demonstrated lower survivorship and lower rates of secondary hip arthroplasty compared to patients < 40 years.

Category: Hip/Groin/Thigh

Low Rates of Five-Year Secondary Surgery and Postoperative Complications after Primary Hip Arthroplasty in over 30,000 Patients

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Summary: In this large national study of primary hip arthroplasty, 90-day adverse events were low at 1.28%, and the five-year secondary surgery rate was 4.9%; age less than 20 years, female sex, and obesity were risk factors for secondary surgery, suggesting the need for increased surveillance in these patient groups.

Data: Background: Hip arthroscopy is frequently used to treat femoroacetabular impingement (FAI) and labral tears. However, large cross-sectional studies documenting rates and predictors of revision surgery at mid-term follow-up after primary hip arthroplasty are lacking. Purpose: To evaluate 90-day complications, five-year secondary surgery rates, and risk factors for secondary surgery following primary hip arthroplasty performed for FAI and/or labral tears using a large national database. Methods: A retrospective analysis was conducted using the PearlDiver Mariner151 database. Patients with International Classification of Diseases (ICD)-10 diagnosis codes for FAI and/or labral tear undergoing primary hip arthroplasty with femoroplasty, acetabuloplasty, and/or labral repair between 2015 and 2021 were identified. Those with concomitant ICD-10 codes for infection, neoplasm, or fracture were excluded, as were patients with a history of prior hip arthroplasty or total hip arthroplasty (THA), or age > 70 years. Rates of complications within 90 days of surgery were assessed. Five-year rates of secondary surgery—revision hip arthroplasty or conversion to THA—were determined by Kaplan-Meier analysis, and risk factors for secondary surgery were identified by multivariate logistic regression. Results: A total of 31,623 patients underwent primary hip arthroplasty from October 2015-April 2021, with annual volumes ranging from 5,340 to 6,343 surgeries per year. Femoroplasty was the most frequent surgical procedure (performed in 81.1% of surgical encounters), followed by labral repair (72.6%) and acetabuloplasty (33.0%). Ninety-day postoperative complication rates were low, with 1.28% of patients experiencing any complication. The five-year secondary surgery rate was 4.9% (N = 915 patients). Multivariate logistic regression identified age < 20 years (OR, 1.50; P < 0.001), female sex (OR, 1.33; P < 0.001), class I obesity (BMI 30-34.9 kg/m²; OR, 1.30; P = 0.04), and class II/III obesity (BMI ≥ 35.0 kg/m²; OR, 1.29; P = 0.02) as independent predictors of secondary surgery. Conclusion: In this study of primary hip arthroplasty, 90-day adverse events were low at 1.28%, and the five-year secondary surgery rate was 4.9%. Age less than 20 years, female sex, and obesity were risk factors for secondary surgery, suggesting the need for increased surveillance in these patient groups.

Category: Hip/Groin/Thigh

Timing From Symptom Onset to Hip Arthroscopy for Treatment of Femoroacetabular Impingement in Adolescent Patients

Abstract ID# 22087
All Authors:
Methods: This retrospective cohort study utilized the U.S. 2013-2017 IBM Mar-
trends, 2) cost savings associated with ASCs for HA, and 3) effects of ASCs on
hip arthroscopy (HA) is unknown. This study characterizes 1) ASC utilization
Introduction: Hip arthroscopy (HA) is a minimally invasive procedure that has
remains low.

Summary:
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Ambulatory Surgery Centers versus Outpatient Hospitals
Hip Arthroscopy: Trends in Utilization and Cost Savings Associated with

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The purpose of this study was to evaluate symptom duration and its relationship
to patient reported outcomes and survivorship following hip arthroscopy for
treatment of femoroacetabular impingement (FAI) in adolescents.

Data:
Purpose Earlier surgical intervention for symptomatic femoroacetabular
impingement (FAI) has been associated with superior outcomes in adults. There
is lack of literature on optimal timing of hip arthroscopy in the adolescent pop-
ulation. The purpose of this study was to evaluate symptom duration and its
relationship to patient reported outcomes and survivorship following hip
arthroscopy for treatment of FAI in adolescents. Methods Patients 18 years of age
or younger at time of primary hip arthroscopy for FAI between January 2011 and
September 2018 were included. Exclusion criteria consisted of history of previ-
ous ipsilateral hip surgery, presence of osteoarthritis or dysplasia on preoperative
radiographs, previous hip fracture, or history of slipped capital femoral epiphysis
or Legg-Calve-Perthes disease. Symptom duration was categorized as less than or
equal to 2 years (range, 0-24 months), 2-4 years (range, 24-48 months), and
>4 years. Minimum 2-year patient-reported outcomes (modified Harris Hip
Score (mHHS), Hip Outcome Score (HOS)Activities of Daily Living (ADL), HOS-
Sport Scale (SSS), Short Forms 12 (SF-12)), minimum clinically significant dif-
ference (MCID) and patient acceptable symptom state (PASS) rates, and revision
surgery rates, were compared based on symptom duration. Results Two-year
minimal follow-up was obtained for 111 patients (134 hips) (80%), including 74
females and 37 males with mean age of 16.4±1.1 (range: 13.0-18.0). The mean
symptom duration was 17.2±15.2 months (range: 0.3-72.4). Ten patients (11
hips), 6 females (7 hips) and 4 males, required revision surgery at an average of
2.3±1.0 years (range, 0.9 to 4.3 years). At a mean follow-up of 4.8±2.2 years
(range, 2 to 10 years), there were statistically significant improvements in all
PROs (p<0.05 for all). There were no significant differences in the rates of revision,
post-operative scores, or patient satisfaction between the 12 month and
>12 month groups (p>0.05 for all). Symptom duration was treated as a continuous variable and showed no significant correlation to post-operative
scores (correlation coefficient range: -0.162 to -0.078, p>0.05 for all). Conclusion
In an adolescent cohort of symptomatic FAI patients who underwent hip
arthroscopy, there is no difference in patient reported outcome measures when
analyzing symptom duration by arbitrary time intervals or as a continuous var-
iable. Keywords Adolescents; FAI; timing; onset

Category: Hip/Groin/Thigh

The Impact of Hip Arthroscopy on Pregnancy-Related Decision-Making and Outcomes Among Female Patients: A Single Surgeon’s Experience

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Summary:
The aims of this study were to determine (1) how pregnancy planning and/or

Category: Hip/Groin/Thigh

Hip Arthroscopy: Trends in Utilization and Cost Savings Associated with
Ambulatory Surgery Centers versus Outpatient Hospitals

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Summary:
Ambulatory surgery centers (ASCs) provide significant cost savings to the U.S.
healthcare system for hip arthroscopy (HA). However, utilization of ASCs for HA
remains low.

Data:
Introduction: Hip arthroscopy (HA) is a minimally invasive procedure that has
seen significant growth in its utilization. Ambulatory surgery centers (ASCs) have
been shown to decrease costs while providing a quality of care comparable to
that of outpatient hospitals (OHS); however, ASC cost savings and utilization for
hip arthroscopy (HA) is unknown. This study characterizes 1) ASC utilization
trends, 2) cost savings associated with ASCs for HA, and 3) effects of ASCs on
patient out-of-pocket expenditures (POPE) and surgeon reimbursement (SR).
Methods: This retrospective cohort study utilized the U.S. 2013-2017 IBM Mar-
etScan Commercial database to identify adult patients who underwent
outpatient HA at OH or ASC. We identified three sub-cohorts: 1) isolated
debridement, 2) femoral acetabular impingement (FAI) surgery, and 3) isolated
lateral repair. Immediate procedure reimbursement (IPR), POPE, and SR were
calculated per patient. IPR for FAI surgery, the largest cohort, was subdivided
into implant, anesthesia services, peripheral nerve block, operating room facility,
SR, and other facility fees. A Cochran-Armitage Trend Test assessed ASC utili-
zation trends over time. Multivariable modeling determined differences in IPR,
POPE, and SR between ASCs and OHS. Results: A total of 20,335 patients were
identified with 3,739 in the debridement cohort, 14,583 in the FAI surgery
cohort, and 2,013 in the lateral repair cohort. From 2013-2017, ASC utilization
for the full cohort increased by 5% but was only 32.1% in 2017; multivariable
analysis found that ASCs significantly reduced IPR by $3310 (28.8%, p<0.01)
and POPE by $47 (6.2%, p<0.01) with no significant reduction in SR. Analysis of
cohorts revealed that increases in ASC utilization over the study period ranged
from 4% in FAI surgery up to 12% in lateral repair (p<0.05 for all cohorts). When
IPR for FAI surgery was analyzed, ASCs saved costs on implants ($10, p=0.04),
anesthesia services ($84, p<0.01), operating room facility ($940, p<0.01), and
other facility fees ($2,577, p<0.01) Conclusion: This study shows that ASC uti-
лизation for HA is increasing; however, absolute utilization is still low. A potential
reason for low rates of ASC utilization could be surgeon comfort with performing
HA in the ASC setting due to concern about complications and long procedural
times, especially for FAI surgery. However, a 2017 study on 3,821 patients found
no significant differences in complication rates for HA between the OH and ASC
setting. This suggests significant room for improvement in utilization of ASCs as
ASCs provide significant cost savings of $3310 per HA, and the bulk of these cost
savings come from facility-related fees such as operating room facility fees.
Furthermore, patient out-of-pocket expenditure is less when HA is performed at
an ASC although patients are not realizing the majority of cost savings. In

Category: Hip/Groin/Thigh

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