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Summary:
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 population. 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 previ0ous 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 12 months or 0-6 months, >6-12 months, >12-24 months, and >24 months. 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 difference (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: 0.33-72.4). 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<.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<.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<.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 variable. Keywords Adolescents; FAI; timing; onset

Category: Hip/Groin/Thigh

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

Abstract ID# 22345
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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 (OHSs); 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 MarketScan 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 labral 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 utilization trends over time. Multivariable modeling determined differences in IPR, POPE, and SR between ASCs and OHSs. 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 labral 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 $3,310 (28.8%, p<.001) and POPE by $47 (6.2%, p<.001) 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 labral repair (p<.005 for all cohorts). When IPR for FAI surgery was analyzed, ASCs saved costs on implants ($10, p=.04), anesthesia services ($84, p<.01), operating room facility ($940, p<.01), and other facility fees ($2,577, p<.01). Conclusion: This study shows that ASC utilization 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 2019 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 provides 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 conclusion, this study demonstrates that ASCs effectively reduce the economic burden of HA by a significant amount on a per case basis but overall ASC utilization for HA remains low.

Category: Hip/Groin/Thigh

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

Abstract ID# 23429
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Summary:
The aim of this study was to determine (1) how pregnancy planning affected patients’ decisions to pursue hip arthroscopy, (2) whether undergoing hip arthroscopy affected hip pain before anfrer pregnancy, and (3) whether hip arthroscopy was associated with any pregnancy-related complications. Data:
Purpose: Women of reproductive age are among the most frequent recipients of hip arthroscopic procedures. Anatomical changes during pregnancy may exacerbate existing hip pathologies such as femoroacetabular impingement (FAI) and labral tears, potentially leading to greater pain and risk of pregnancy complications. However, the impact of hip pain and arthroscopy on pregnancy-related decision-making and outcomes is poorly understood. The aims of this study were to determine (1) how pregnancy planning affected patients’ decisions to pursue hip arthroscopy, (2) whether undergoing hip arthroscopy affected hip pain before and after pregnancy, and (3) whether hip arthroscopy was associated with any pregnancy-related complications. Methods: We retrospectively studied female patients aged 18-45 years who underwent hip arthroscopy for the treatment of FAI and/or labral tears at our center from 2010-2021. Eligible subjects were administered an electronic survey that assessed obstetrical history, concerns about how their hip pain and/or the process of undergoing hip arthroscopy could affect future pregnancies, location and intensity of hip pain at various time points, and pregnancy complications. Hip pain intensity was reported on a Visual Analog Scale (VAS). Subjects also completed the modified Harris Hip Score (mHHS). Continuous variables were compared within groups with Wilcoxon signed rank test and between groups with Kruskal-Wallis test. Fisher’s exact test was used to compare categorical variables between groups. Results: A total of 86 patients completed the survey. Mean age at surgery was 32.3 ± 6.4 years, mean

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BMI was 24.5 ± 4.7, and mean follow-up time was 52.0 ± 34.3 months. Half of the cohort reported moderate or high concern that hip pain would worsen during future pregnancy, while a slight majority felt that hip surgery would not raise their risk of pregnancy complications (56.0%) or impair hip function after pregnancy (51.2%). 27 patients (31.4%) had become pregnant after hip surgery at an average of 6.3 ± 1.4 months postoperative, of whom 13 (48.2%) cited hip pain as a factor in getting surgery before pregnancy and 9 (33.3%) reported delaying a planned pregnancy to undergo surgery. Patients who became pregnant after surgery experienced a significant increase in VAS pain during pregnancy (p = 0.02), though pain resolved after pregnancy in most (19 of 27, 70.4%). Of the 39 nulligravid patients, 28 (71.2%) were considering future pregnancy and 32 (84.2%) did not consider hip pain to be a factor in their nulligravid status. No significant difference in mHHS was found at latest follow-up between nulligravid patients, patients who had not been pregnant since hip surgery, and patients who got pregnant after hip surgery (mean 79.6 vs 80.0 vs 79.6, p = 0.94). Conclusions: Most female hip arthroscopy patients were not concerned that their surgery would have a negative impact on their pregnancy outcomes or hip function after pregnancy. Although hip pain was exacerbated during pregnancy, most patients experienced a resolution of pain following delivery. Pregnancy-related complications did not occur more frequently in the hip arthroscopy cohort compared to the wider U.S. population. Outcomes were comparable between nulligravid women and those who had only been pregnant prior to surgery.

Category: Hip/Groin/Thigh

Comparison of Anterior Inferior Iliac Spine Morphology Between Femoroacetabular Impingement and Developmental Dysplasia of the Hip: A Cohort Study in Symptomatic Patients

Abstract ID# 23531
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Summary:
Comparison of AIIS between FAI and DDH

Data:
Background: Anterior inferior iliac spine (AIIS) morphology has been defined as one of the common causes of extra-articular hip impingement and failed hip arthroscopy for femoroacetabular impingement (FAI). Thus, the AIIS classification by Hetsroni is popular in clinical practice, and surgeons should pay attention to extra-articular hip impingement in cases of type 3. Many previous studies have shown the AIIS morphology in patients with FAI, patients with labral tears or asymptomatic populations. However, there are a few studies about AIIS morphology in developmental dysplasia of the hip (DDH). Purpose: The purpose of this study was to compare the AIIS morphology between FAI and DDH. Methods: Four hundred twenty-three hips of 374 patients who underwent primary hip arthroscopic surgery from January 2015 to March 2019 were retrospectively reviewed. The inclusion criteria in this study were labral tears with FAI or DDH. Finally, 359 hips of 310 patients were included in this study. Preoperative demographics and imaging variables of patients in the FAI and DDH groups were compared. For demographic evaluation, age at surgery, sex, and body mass index (BMI) were assessed. For imaging evaluation, LCE angle, sharp angle, vertical center anterior (VCA) angle, alpha angle, Tonnis angle and AIIS were assessed. AIIS morphology was classified according to the Hetsroni’s classification. Statistical analysis was performed to compare the AIIS morphology between the FAI and DDH groups. Results: Of 359 hips in 310 patients, FAI cases involved 241 hips (148 males, 93 females), and DDH cases involved 118 hips (34 males, 84 females) in this study. In FAI group, AIIS type 1 included 45 hips (18.7%), type 2 included 286 hips (77.2%), and type 3 included 10 hips (4.1%). In the DDH group, AIIS type 1 included 4 hips (3.4%), type 2 included 93 hips (78.8%), and type 3 included 21 hips (17.8%). The proportion of AIIS type 3 in the DDH group was significantly higher than that in the FAI group (chi-squared test, p < 0.001). In the FAI group, there were no significant differences in demographic and radiographic parameters between AIIS type 1 and 2 and type 3. In the DDH group, there were significant differences in LCE, VCA and Tonnis angle between AIIS type 1 and 2 and type 3. The LCE angle was 19.0 ± 4.0 in type 1 or 2 and 13.0 ± 6.0 in type 3 (Mann-Whitney U test, p = 0.003). The VCA angle was 29.0 ± 13.1 in type 1 or 2 and 11.1 ± 10.0 in type 3 (Mann-Whitney U test, p = 0.011). The Tonnis angle was 12.5 ± 5.1 in type 1 or 2 and 16.8 ± 6.3 in type 3 (Mann-Whitney U test, p = 0.014). These results indicated that DDH with AIIS type 3 tends to be more severe dysplasia than that with type 1 or 2. Conclusions: AIIS type 3 was more common in DDH than FAI. In DDH, AIIS type 3 tends to be more severe dysplasia than AIIS type 1 or 2.

Category: Hip/Groin/Thigh

Primary Hip Arthroscopy For Femoroacetabular Impingement Syndrome In Adolescents Improves Outcomes And Clinical Benefit Achievement Rates At Short-Term Follow-Up. A Multi-Center Analysis

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