

a questionnaire that included the modified Harris Hip score (MHHS), WOMAC, HOS ADL, HOS Sport, SF12 and patient satisfaction. This study was IRB approved. Patients were grouped based on their postoperative AA: $<55^\circ$ ($n=158$) and $>55^\circ$ ($n=56$)

Results: The average preoperative AA was 73° (range 50° to 105°) and the postoperative AA was 48° (range 30° to 100°). The post-operative AA did not correlate with any outcome measure. The average preoperative alpha angle in the $<55^\circ$ group was 72° and in $>55^\circ$ group the average was 76° ($p=0.024$). At average follow-up of 5.5 years (range 5 to 7) there were no significant differences in outcomes between groups. The average mHHS was $52(\pm 8)$ in the $<55^\circ$ and $53(\pm 6)$ in the $>55^\circ$ group; WOMAC was $10(\pm 11)$ in the $<55^\circ$ and $8(\pm 10)$ in the $>55^\circ$ group; HOS ADL was $90(\pm 13)$ in the $<55^\circ$ and $92(\pm 11)$ in the $>55^\circ$ group; HOS Sport was $78(\pm 25)$ in the $<55^\circ$ and $82(\pm 21)$ in the $>55^\circ$ group. Median patient satisfaction was 9 (range 1 to 10) in both groups.

Conclusion: There were no significant difference between any outcome score based on correction to 55° at 5 years. While alpha angle has been shown to be an excellent preoperative diagnostic tool, the postoperative angle does not correlate with midterm outcomes or the development of osteoarthritis.

The Economic Impact of Acetabular Labral Tears: A Cost-Effectiveness Analysis Comparing Hip Arthroscopy and Structured Rehabilitation Alone

SS-30

April 15, 1:35 PM

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Introduction: Hip arthroscopy is a successful procedure to manage acetabular labral tears and concurrent hip pathology, which if left untreated, may contribute to hip osteoarthritis (OA). It is essential to analyze the economic impact of this treatment option. This study assessed the cost-effectiveness of arthroscopic repair compared to structured rehabilitation alone for labral tears.

Methods: A cost-effectiveness analysis of hip arthroscopy compared to structured rehabilitation for symptomatic labral tears was performed using a Markov decision model over a lifetime horizon. Direct costs (in 2014 USD), utilities of health states (in quality-adjusted life years [QALYs] gained), and probabilities of transitioning between health states were estimated from a literature review. Costs were estimated using national averages of Medicare reimbursements, adjusted for all-payers in the US. Utilities were estimated from Harris Hip Scores. Cost-effectiveness was assessed using the incremental cost-effectiveness ratio (ICER). One-way and probabilistic sensitivity analyses were performed to determine the effect of uncertainty.

Results: For a cohort representative of hip arthroscopy patients at our facility, arthroscopy was more costly (additional \$2653) but generated more utility (additional 3.94 QALYs), compared to rehabilitation. The mean ICER was \$754/QALY, well below the conventional willingness-to-pay (WTP) threshold of \$50,000/QALY. Arthroscopy is expected to be cost-effective for 94.5% of patients. Although arthroscopy decreased in cost-effectiveness with increasing age, it remained cost-effective for patients in the second to seventh decades of life. Lifetime incidence of symptomatic hip OA was twice as high for patients treated for rehabilitation compared to arthroscopy. The preferred treatment was sensitive to the utility following successful hip arthroscopy, although the utility at which arthroscopy becomes less cost-effective than rehabilitation is far below our best estimate.

Conclusion: Hip arthroscopy is more cost-effective resulting in lower incidence of symptomatic OA than structured rehabilitation alone, when treating symptomatic labral tears of patients in the second to seventh decades of life.

Clinical Outcomes of Hip Arthroscopy: A Prospective Survival Analysis of Primary and Revision Surgeries in a Large Mixed Cohort

SS-31

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Introduction: Recent hip arthroscopy literature has focused on revision hip arthroscopies and conversion to total hip arthroplasty (THA) or hip resurfacing (HR). This study reports a survival analysis at minimum two-year follow-up after hip arthroscopy and compares clinical outcomes of primary versus revision hip arthroscopy.

Methods: From February 2008 to June 2012, data were prospectively collected on all primary and revision hip arthroscopies. Patients were assessed pre- and post-operatively with four patient-reported outcome (PRO) measures: modified Harris Hip Score (mHHS), Non-Arthritic Hip Score (NAHS), Hip Outcome Score-Activities of Daily Living (HOS-ADL), and Hip Outcome Score-Sport Specific Subscales (HOS-SSS). Pain was estimated on the visual analog scale (VAS). Patient satisfaction was measured on a scale from 0 to 10. Secondary procedures were recorded.

Results: Of 1000 primary arthroscopy patients and 117 revision arthroscopy patients treated, 931 (93.1%) and 107 (91.5%), respectively, were available for follow-up and included in our study. At two-year follow-up, mHHS, HOS-ADL, HOS-SSS, NAHS, and VAS were 79.4, 82.2, 65.6, 79.9, and 2.9, respectively for primary arthroscopy

patients and 71.0, 73.0, 54.5, 71.4, and 3.8, respectively for revision arthroscopy patients. All scores improved significantly compared to pre-operatively ($p < 0.001$) and were higher for the primary subgroup compared to the revision subgroup ($p < 0.05$). Satisfaction was 7.6 and 7.0 for primary and revision subgroups, respectively. Of primary and revision arthroscopy patients, 5.8% and 11.2% converted to THA/HR, respectively. The relative risk of a THA/HR was 1.93 after revision arthroscopy compared to primary arthroscopy. The overall complication rate was 5.3%.

Conclusion: Hip arthroscopy showed significant improvement in all PRO, VAS, and satisfaction scores at two years postoperatively. Primary arthroscopy patients showed significantly improved PRO scores and a trend towards improved VAS compared to the revision subgroup. Primary arthroscopy patients had a lower conversion rate to THA/HR of 5.8% compared to 11.2% of revision patients.

Outcomes of Endoscopic GM Repair in 34 Patients with Minimum Two-year Follow-up

SS-32

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Introduction: The study purpose is to provide an update on a previously published study of patients with a gluteus medius (GM) tear, including a larger cohort and minimum two-year follow-up.

Methods: Thirty-four patients were identified from April 2009 to April 2012 who had undergone an endoscopic GM repair with minimum two-year follow-up. Patients were excluded if they had revision surgeries and previous hip conditions. Patient reported outcome (PRO) measures collected included the modified Harris Hip Score, Non-Arthritic Hip Score, Hip Outcome Score Activities of Daily Living and Hip Outcome Score Sports Specific Subscales. The visual analog scale (VAS) and patient satisfaction were also recorded.

Results: The cohort consisted of two men and 32 women with a mean age of 57 years (range 20 years to 79 years). Ten patients had a full thickness tear and 24 patients had a partial thickness tear. Seventeen patients were treated with completion of the tear and suture bridge technique and 17 patients with the trans-tendinous technique. There was a significant improvement of all four PRO at three specified timepoints. The mean pain VAS decreased from 6.6 to 2.4 at two-year follow-up ($p < 0.05$). The mean satisfaction was 8.5 at two-years post-surgery. Twenty-six of 34 (76%) patients increased their abduction strength by at least one grade on manual muscle testing. Of 26 patients who had

a gait deviation pre-operatively, 15 (58%) regained a completely normal gait. There was no significant difference in PRO measures between patients when comparing surgical techniques.

Conclusion: Endoscopic surgical repair can be an effective treatment of GM tears at a minimum follow-up of two-years.

Predictors of Clinical Outcomes After Hip Arthroscopy: A Prospective Analysis of 1038 Patients With Two-Year Follow-Up

SS-33

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Introduction: The purpose of this study was to evaluate clinical outcomes of hip arthroscopy in a prospective study and to analyze this cohort to identify predictive factors of improvement.

Methods: Data was collected prospectively on all patients undergoing hip arthroscopy between February 2008 and June 2012. We included all patients undergoing hip arthroscopy who agreed to participate and completed four PRO instruments at minimum two-year follow-up, including the modified Harris Hip Score, (mHHS), Non-arthritic Hip Score (NAHS), Hip Outcome Score – Activities of Daily Living and Sports Subscale (HOS-ADL, HOS-SSS). The NAHS was selected as our primary outcome instrument. All patients with any previous hip conditions were excluded. We analyzed 34 preoperative and intraoperative variables using bivariate and multivariate analyses compared to NAHS scores.

Results: The cohort consisted of 1038 patients with a mean follow-up of 30.1 months (range: 24.0 – 61.2 months). The mean age of the group was 36.4 years (range: 13.2 – 76.4 years). All postoperative PRO scores showed significant improvement ($p < 0.001$) at two years compared to preoperative scores. Bivariate analysis identified fifteen variables (seven categorical and eight continuous), and multivariate analysis identified 10 variables that were predictive of two-year postoperative NAHS scores. Preoperative NAHS, HOS-ADL, mHHS, age, duration of symptoms, body mass index (BMI), and revision hip arthroscopy were identified as predictive factors in both bivariate and multivariate analyses. The predictive value of preoperative NAHS was accentuated for patients with higher BMI.

Conclusion: This study reports favorable clinical outcomes in the largest cohort of hip arthroscopies with minimum two-year follow-up in the literature to date. Factors identified as predictive in both bivariate and multivariate analyses included preoperative NAHS, Hip HOS-ADL, and mHHS, age, duration of symptoms, BMI, and revision hip arthroscopy. These predictive factors may