

skeletal, radiographic or MRI) parameters. Likewise, histologic analysis of synovial membrane and articular cartilage including repair tissue did not show any differences between treatment groups.

Conclusions: We found that long-term improvement was enhanced in repair tissue firmness and aggrecan content following intraarticular administration of BMSC. These findings persisted even with strenuous exercise and may be of long-term clinical benefits in other species. We believe that these positive findings support further in vivo research, including human clinical trials to use BMSC to enhance outcomes of the microfracture procedure.

Paper 11: Femoral Anteversion in the Hip: Comparison of Measurement by CT, MRI, and Physical Examination, and Relationship with Intra-Articular Findings *ITAMAR BUSHERI BOTSER, MD, USA, PRESENTING AUTHOR*

GEORGE CHUKWUKA OZOUDE, MD, USA

DOREA ELIZABETH MARTIN, BA, BS, USA

SIVARAJA KUPPUSWAMI, MD, USA

AHEED JAWEED SIDDIQI, MD, USA

BENJAMIN G. DOMB, MD, USA · Hinsdale Orthopaedic Associates
Chicago, IL, USA

SUMMARY

While high correlation was found between anteversion angle measurements by CT and MRI, significant discrepancies in the absolute anteversion number implies that they may not be interchangeable. The lack of a high correlation to range of motion suggests that femoral anteversion may represent an incomplete or oversimplified description of the complex rotational anatomy of the hip.

DATA

Purpose: Femoral rotational anatomy is thought to have important effects on the function and pathology of the hip joint. However, adequate assessment and description of rotation of the proximal femur have remained elusive, largely due to the 3-dimensional complexities involved. While anteversion has commonly been measured by CT or MRI, the clinical importance of those measurements is unknown. The purpose of this study was to evaluate the correlation between measurements of femoral anteversion by CT, MRI, and physical examination, and the relationship of anteversion with intraoperative findings.

Methods: Preoperative CT and MRI measurements of anteversion, along with clinical examination, were performed on 135 consecutive hips before hip arthroscopy

for non-arthritic hip injuries. Most hips were treated for labral tears and/or femoro-acetabular impingement (FAI). All studies were read preoperatively by two musculoskeletal-trained radiologists, and arthroscopic findings and procedural data were prospectively collected. Statistical analysis was performed for correlation between anteversion measurements by CT, MRI, and physical examination.

Results: CT and MRI measurements of femoral anteversion were highly correlated ($r = 0.723$, p value < 0.00001). However, more than 80% of the cases had a difference larger than 5° between the two measurements. Internal rotation on physical exam was moderately correlated with anteversion angles as measured by CT and MRI, with r values of 0.38 ($p < 0.0001$) and 0.33 ($p = 0.0001$), respectively. No correlation was found between external rotation measurements and CT or MRI anteversion values, with r values of -0.08 ($p = 0.38$) and -0.02 ($p = 0.81$), respectively. Patients who underwent iliopsoas release had larger anteversion angles, whereas patients who underwent femoral osteoplasty and microfracture had lower values of anteversion angles. No correlation was found between anteversion angle and intra-operative findings.

Conclusion: While high correlation was found between anteversion angle measurements by CT and MRI, significant discrepancies in the absolute anteversion number between the two techniques implies that they may not be interchangeable. The lack of a high correlation between anteversion and range of motion suggests that femoral anteversion may represent an incomplete or oversimplified description of the complex rotational anatomy of the hip. In addition, the absence of correlation between anteversion and arthroscopic findings calls into question the clinical relevance of femoral anteversion. Further research is needed to develop more complete assessment tools for femoral rotational anatomy, and to better understand its importance.

Paper 12: Indirect Magnetic Resonance Arthrographic Correlation with Arthroscopy in the Evaluation of Articular Hip Pathology *SUN-JUNG YOON, MD, PHD, KOREA, PRESENTING AUTHOR*

JONG-HYUK PARK, MD, KOREA

MYUNG SIK PARK, MD, PHD, KOREA

· Chonbuk National University Hospital
Jeonju, Chonbuk, Korea

SUMMARY

Although indirect magnetic resonance arthrography is an effective mean of hip evaluation for labral tears, it has limited sensitivity to evaluate articular cartilage lesion. A