Results: meniscal extrusion using MRI as the reference standard. We evaluated the diagnostic performance of US for the detection of medial and lateral meniscal extrusion grades was assessed using k statistics. We further assessed the agreement comparing extrusion measurements between US and MRI was moderate for reader 1 (k = 0.57) and substantial for reader 2 (k = 0.64). When comparing quantitative assessment (absolute values) of meniscal extrusion between US and MRI, substantial agreement was found for both readers (ICC of 0.73 and 0.70, respectively). The inter-reader agreement for meniscal extrusion was almost perfect (k = 0.98) for US and substantial (k = 0.70) for MRI. US showed excellent sensitivity (95% and 95%) and good specificity (82% and 70%) in the detection of meniscal extrusion.

Conclusion: US assessment of meniscal extrusion is reliable and can be used for both quantitative and semiquantitative assessment, exhibiting excellent diagnostic performance for the detection of meniscal extrusion when compared to MRI. This might be of relevance since dynamic evaluation of meniscal extrusion using US could be explored in future studies, which would potentially help the understanding of causes and consequences of meniscal extrusion.

352 ULTRASONOGRAPHIC EVALUATION OF MENISCAL EXTRUSION: COMPARISON WITH MAGNETIC RESONANCE IMAGING ASSESSMENT

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Purpose: Magnetic resonance imaging (MRI) is a well-established method widely used for both, semiquantitative and quantitative assessment of meniscal extrusion. Ultrasound (US) is more cost-effective and readily available in comparison to MRI and may be applied for the evaluation of meniscal extrusion. The aim of this study was to validate both, semiquantitative and quantitative assessment of medial meniscal extrusion using US with MRI assessment as the reference standard.

Methods: Ninety-three consecutive subjects with knee pain referred for knee MRI were also evaluated by US in the same day. US of the knee was systematically performed before MRI using a 12-5 MHz linear probe with subjects in a supine position. The US evaluation of the medial meniscus was performed at the medial aspect of the knee in the longitudinal axis where meniscal extrusion was maximal. Two skin markers were placed in the medial aspect of the knee where extrusion was assessed. MRI was performed at 1.5T using routine sequences. The coronal T2-weighted fat-suppressed sequence was used to evaluate mediocranial extrusion, using the slice displaying both skin markers placed during US. For both methods, the edge of the medial tibial plateau was the reference for meniscal extrusion measurements. Two musculoskeletal radiologists assessed meniscal extrusion on US and MRI separately and independently. Meniscal extrusion was semiquantitatively graded as: 0 (< 2 mm), 1 (2 mm and <4 mm), and 2 (>4 mm). For both readers, the agreement comparing extrusion measurements between US and MRI was evaluated using weighted kappa (k) statistics. Also, intra-class correlation coefficients (ICC) were used to evaluate agreement using the absolute values of extrusion measurements (quantitative assessment). Inter-reader correlation coefficients (ICC) were used to evaluate agreement using the absolute values of extrusion measurements (quantitative assessment). Inter-reader correlation coefficients (ICC) were used to evaluate agreement using the absolute values of extrusion measurements (quantitative assessment).

Results: For semiquantitative grading, the agreement between US and MRI was moderate for reader 1 (k = 0.57) and substantial for reader 2 (k = 0.64). When comparing quantitative assessment (absolute values) of meniscal extrusion between US and MRI, substantial agreement was found for both readers (ICC of 0.73 and 0.70, respectively). The inter-reader agreement for meniscal extrusion was almost perfect (k = 0.98) for US and substantial (k = 0.70) for MRI. US showed excellent sensitivity (95% and 95%) and good specificity (82% and 70%) in the detection of meniscal extrusion.

Conclusion: US assessment of meniscal extrusion is reliable and can be used for both quantitative and semiquantitative assessment, exhibiting excellent diagnostic performance for the detection of meniscal extrusion when compared to MRI. This might be of relevance since dynamic evaluation of meniscal extrusion using US could be explored in future studies, which would potentially help the understanding of causes and consequences of meniscal extrusion.