for the outcome due to presence of a bridged syndesmophyte at baseline were excluded. Multilevel generalized estimated equations were used, with separate models per MRI pattern, accounting for correlations within patients and between ldCT readers.

Table 1. Effect of vertebral corner inflammation and vertebral corner fat deposition on syndesmophyte formation

Patterns of lesions over time on MRI	Corners with VCI/ VCFD pattern N(%)	OR (95% CI)
1. VCI at any TP, irrespective of VCFD	691 (15.0%)	**2.37 (1.49-3.78)**
2. VCFD at any TP, irrespective of VCI	1080 (23.5%)	**2.58 (1.97-3.39)**
3. VCI on ≥1 TP and absence of VCFD on all TPs	372 (8.1%)	**1.90 (1.15-3.13)**
4. VCFD on ≥1 TP and absence of VCI on all TPs	754 (16.4%)	**1.87 (1.41-2.48)**
5. VCI precedes VCFD	43 (0.9%)	2.20 (0.83-5.86)
6. VCI precedes or coincides with VCFD. VCFD does not precede VCI	198 (4.3%)	**2.33 (1.47-3.69)**
7. Absence of VCI and VCFD on all TPs	3108 (67.6%)	**0.35 (0.25-0.49)**

VCI, vertebral corner inflammation; VCFD, vertebral corner fat deposition; TP, timepoint.

Results: 50 patients were included, contributing a total of 4600 vertebral corners. Their mean age was 49.3 years (SD 9.8), 86% were male and 78% were HLA-B27+. Presence of VCI and VCFD patterns ranged from 43 (0.9%) to 3108 (67.6%) corners (Table), with the lowest frequency being for VCI preceding VCFD. Protection against syndesmophyte development was seen in case of absence of both VCI and VCFD (OR 0.35) and positive associations with ORs ranging from 1.87-2.58 were observed for various VCI/VCFD patterns. Nevertheless, out of all corners with a new or grown syndesmophyte, 47.3% of corners according to reader 1 and 43.9% according to reader 2 had neither VCI nor VCFD preceding the bone formation.

Conclusion: Presence of VCI or VCFD and combinations of the two, measured yearly on MRI, increased odds of bone formation 2 years later, whereas absence of both VCI and VCFD decreased the odds, showing that VCI and VCFD have some role in the development of syndesmophytes. However, almost half of all bone formation occurred in corners without VCI or VCFD, suggesting the presence of these lesions in yearly MRIs does not fully explain the development of syndesmophytes. This study confirmed that there is an association between VCI and VCFD and bone formation also for the thoracic spine and on ldCT compared to conventional radiography.

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OP0251 DATA-DRIVEN DEFINITIONS BASED ON INFLAMMATORY LESIONS FOR A POSITIVE MRI OF THE SPINE CONSISTENT WITH AXIAL SPONDYLOARTHRITIS

W. P. Maksymowych[1,2], R. G. Lambert[3], X. Baraliakos[4], S. Juhl Pedersen[5,6], U. Weber[7], I. Eshed[8], P. Machado[9], M. De Hooge[10], J. Sieper[11], S. Wichuk[1], D. Poddubnyy[11], M. Rudwaleit[12], D. Van der Heijde[13], R. B. M. Landewé[14], M. Østergaard[5,6], on behalf of ASAS MRImagine. [1]*University of Alberta, Medicine, Edmonton, Canada*; [2]*CARE Arthritis, Rheumatology, Edmonton, Canada*; [3]*University of Alberta, Radiology and Diagnostic Imaging, Edmonton, Canada*; [4]*Rheumazentrum Ruhrgebiet, Rheumatology, Herne, Germany*; [5]*COPECARE, Rheumatology, Copenhagen, Denmark*; [6]*Rigshospitalet, Rheumatology, Glostrup, Denmark*; [7]*Practice Buchsbaum, Rheumatology, Schaffhausen, Switzerland*; [8]*Sheba Medical Center, Radiology and Diagnostic Imaging, Tel Aviv, Israel*; [9]*University College London, Rheumatology, London, United Kingdom*; [10]*Ghent University Hospital, Rheumatology, Ghent, Belgium*; [11]*Charité Universitätsmedizin, Rheumatology, Berlin, Germany*; [12]*Klinikum Bielefeld, Rheumatology, Bielefeld, Germany*; [13]*Leiden University Medical Centre, Rheumatology, Leiden, Netherlands*; [14]*Academic Medical Center, Rheumatology, Amsterdam, Netherlands*

Background: The ASAS definition of a positive MRI for inflammation in the spine (ASAS-MRIspine+) is intended for classification of patients as having axSpA but is often misused for diagnostic purposes. This is problematic because bone marrow edema (BME) in the spine may occur in 20-40% of those with mechanical back disorders. The ASAS MRI group has generated updated consensus lesion definitions which have been validated on MRI spine images from the ASAS Classification Cohort.

Objectives: We aimed to identify quantitative cut-offs based on numbers of vertebral corners that define ASAS-MRIspine+, there being two gold standards: A. majority central reader decision as to the presence of spine MRI findings consistent with axSpA B. rheumatologist expert opinion diagnosis of axSpA.

Methods: Eight ASAS-MRI readers recorded MRI lesions in the spine according to recently updated ASAS definitions from 62 cases in an eCRF that comprises global assessment (MRI consistent with axSpA? (yes/no)), and detailed scoring of lesions for all sites in the spine. We calculated sensitivity and specificity for numbers of vertebral corners with BME where a majority of readers (≥5/8) agreed as to the presence of MRI findings consistent with axSpA. We selected cut-offs with ≥95% specificity. These cut-offs were analyzed for their predictive utility for rheumatologist diagnosis of axSpA by calculating positive and negative predictive values (PPV, NPV) and selecting cut-offs with PPV ≥95%. Both criteria were considered requirements for designation of MRI cut-offs defining ASAS-MRIspine+.

Results: MRI findings consistent with axSpA were observed by majority read in 8 (20%) of 40 cases diagnosed with axSpA, and 0 (0%) of 19 cases without axSpA. Cut-offs achieving specificity of ≥95% for MRI findings consistent with axSpA were 4 vertebral corners (sensitivity 75%) for all cases, 3 vertebral corners (sensitivity 37.5%) for cases with ≥1 additional location with inflammation, 1 vertebral corner (sensitivity 62.5%) in cases with ≥2 vertebral corner fat lesions (Table 1). All of the above cut-offs also had very high PPV (≥95%) for diagnosis of axSpA in cases diagnosed by the rheumatologist (Table 2).

Table 1. Majority readers agree MRI findings consistent with axSpA are present is the gold-standard external reference

MRI cut-offs	Sensitivity (95%CI)	Specificity (95%CI)
BME in ≥2 vertebral corners	87.5 (47.3 - 99.7)	87.0 (75.1 - 94.6)
BME in ≥ 3 vertebral corners	87.5 (47.3 - 99.7)	94.4 (84.6 - 98.8)
BME in ≥4 vertebral corners	**75.0 (34.9 - 96.8)**	**98.2 (90.1 - 100.0)**
Cases with ≥1 additional non-corner site inflammatory lesion		
BME in ≥2 vertebral corners	37.5 (8.5 - 75.5)	94.4 (84.6 - 98.8)
BME in ≥3 vertebral corners	**37.5 (8.5 - 75.5)**	**98.2 (90.1-100.0)**
Cases with ≥2 vertebral corner fat lesions		
BME in ≥1 vertebral corner	**62.5 (24.5 - 91.5)**	**100.0 (93.4-100.0)**
BME in ≥2 vertebral corners	62.5 (24.5 - 91.5)	100.0 (93.4-100.0)

Table 2. Predictive values of cut-offs for number of vertebral corners with BME according to the diagnostic ascertainment of the rheumatologist

MRI cut-offs	Sensitivity (95%CI)	Specificity (95%CI)	PPV	NPV
MRI findings consistent with axSpA ≥any 2 readers	52.5 (36.1 - 68.5)	94.7 (74.0 - 99.9)	95.5 (75.3 - 99.3)	48.6 (40.2 - 57.2)
MRI findings consistent with axSpA ≥majority read	20.0 (9.1 - 35.6)	100.0 (82.4 - 100.0)	100.0	37.3 (33.7 - 40.9)
BME in ≥ 4 vertebral corners	**17.5 (7.3 - 32.8**	**100.0 (82.4 - 100.0)**	**100.0**	**36.5 (33.3 - 39.9)**
Cases with ≥1 additional inflammatory lesion				
BME in ≥ 3 vertebral corners	**10.00 (2.8 - 23.7)**	**100.00 (82.4 - 100.0)**	**100.0**	**34.5 (32.2 - 36.9)**
Cases with ≥2 vertebral corner fat lesions				
BME in ≥1 vertebral corner	**12.50 (4.2 - 26.8)**	**100.00 (82.4 - 100.0)**	**100.0**	**35.2 (32.6 - 37.9)**

Conclusion: A cut-off of BME in ≥4 vertebral corners, or ≥3 corners in the setting of additional inflammatory lesions at other locations or corner fat, are primary candidates for defining ASAS-MRIspine+. These cut-offs apply to typical patients referred to a rheumatologist with a high index of suspicion of axSpA and may not be appropriate in other populations.

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OP0252 ARTHRITIS AND ENTHESITIS IN THE HIP AND PELVIS REGION IN SPONDYLOARTHRITIS – VALIDATION OF TWO WHOLE-BODY MRI METHODS

M. Wetterslev[1,2], R. G. Lambert[3,4], W. P. Maksymowych[5,6], I. Eshed[7], S. Juhl Pedersen[1], P. Bird[8], M. Stoenoiu[9], S. Krabbe[1], A. J. Mathew[1,2], V. Foltz[10], F. Gandjbakhch[10], J. Paschke[6], G. De Marco[11,12], H. Marzo-Ortega[11,12], P. Carron[13,14], A. E. F. Poulsen[1], J. L. Jaremko[3], P. G. Conaghan[11,12], M. Østergaard[1,2]on behalf of the OMERACT MRI in Arthritis Working Group. [1]*Rigshospitalet, Copenhagen Center for Arthritis Research, Center for Rheumatology and Spine Diseases, Copenahgen, Denmark*; [2]*University of Copenhagen, Department of Clinical Medicine, Copenhagen, Denmark*; [3]*University of Alberta, Department of Radiology and Diagnostic Imaging,*