### Supplementary tables

**Supplementary table 1:** Detailed definitions of patterns of MRI lesions.

| Regarding VCI only | baseline | 1-year | 2-years |
|--------------------|----------|--------|---------|
| 1--VCI at any timepoint, irrespective of VCFD status | VCI+ | VCI+/ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |
| 2--VCI at baseline, irrespective of VCI status at other timepoints and irrespective of VCFD status | VCI+ | VCI+/ | VCI+/- |
| 3--VCI at only baseline, irrespective of VCFD status | VCI+ | VCI- | VCI- |
| 4--VCI at baseline and another timepoint, irrespective of VCFD status | VCI+ | VCI+ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |
| | VCI+/- | VCI- | VCI- |
| 5--VCI at all three timepoints, irrespective of VCFD status | VCI+ | VCI+ | VCI+ |
| 6--VCI at ≥ 2 consecutive timepoints, irrespective of VCFD status | VCI+ | VCI+ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |

| Regarding VCFD only | baseline | T0 | T1 1-year | T2 2-years |
|--------------------|----------|----|-----------|-----------|
| 7--VCFD at any timepoint, irrespective of VCI status | VCFD+ | VCFD+/ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| 8--VCFD at baseline, irrespective of VCFD status at other timepoints and irrespective of VCI status | VCFD+ | VCFD+/ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| 9--VCFD at only baseline, irrespective of VCI status | VCFD+ | VCFD- | VCFD- |
| 10--VCFD at baseline and another timepoint, irrespective of VCI status | VCFD+ | VCFD+ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| 11--VCFD at all three timepoints, irrespective of VCI status | VCFD+ | VCFD+ | VCFD+ |

| Regarding VCI and VCFD | baseline | T0 | T1 1-year | T2 2-years |
|------------------------|----------|----|-----------|-----------|
| 12--Vertebral corner inflammation (VCI) but not vertebral corner fat (VCFD) at any timepoint | VCI+ | VCI+/ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |
| | VCI+/- | VCI+ | VCI+/- |
| 13--VCFD but not VCI at any timepoint | VCFD+ | VCFD+/ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| | VCFD+/- | VCFD+ | VCFD+/- |
| 14--VCI preceded VCFD | VCI+ | VCI+ | VCI+ |
| | VCI+ | VCI+ | VCI+ |
| | VCI+ | VCI+ | VCI+ |
| 15--VCI preceded or coincides with VCFD. VCFD does not precede VCI | VCI+ | VCI- | VCI- |
| | VCI+ | VCI- | VCI- |
| | VCI+ | VCI- | VCI- |

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The table presents definitions of patterns of MRI lesions over time on the vertebral corner level. The variables indicating presence of a pattern are coded as true (1) or false (0). MRI lesions are vertebral corner inflammation (VCI) and vertebral corner fat deposition (VCFD) and can be present (+), absent (-) or allowed to be either present or absent (+/-). The pattern variable is true for an MRI reader if the pattern of MRI lesions on a vertebral corner scored by that reader matches with at least one row of possible MRI patterns. When a pattern is scored by ≥2 MRI readers the pattern is deemed present and coded as true (1).
**Supplementary table 2**: baseline demographics

|                                      | N=50 |
|--------------------------------------|------|
| Age at inclusion (mean (SD))         | 49 (9.8) |
| Sex (males)                          | 43 (86%) |
| Uveitis                              | 14 (28%) |
| Psoriasis                            | 3 (6%) |
| IBD                                  | 3 (6%) |
| Heel enthesitis                      | 7 (14%) |
| Dactylitis                           | 3 (6%) |
| Peripheral arthritis                 | 7 (14%) |
| HLA-B27 status                       | 39 (78%) |
| Elevated CRP or ESR                  | 27 (54%) |
| Number of syndesmophytes on radiographs reader 1 (mean (SD)) | 5.7 (4.5) |
| Number of syndesmophytes on radiographs reader 2 (mean (SD)) | 6.2 (5.1) |
| BASDAI (mean (SD))                   | 3.8 (2.2) |
| ASDAS-CRP (mean (SD))                | 2.6 (1.2) |
| Physician global (mean (SD))         | 4.1 (2.1) |
| NSAID use current                    | 33 (66%) |
| csDMARD use ever                     | 12 (24%) |
| csDMARD use current                  | 5 (10%) |
| bDMARD use ever                      | 14 (28%) |
| bDMARD use current                   | 11 (22%) |

SpA features (uveitis, psoriasis, inflammatory bowel disease (IBD), heel enthesitis, dactylitis, peripheral arthritis, HLA-B27 and elevated CRP or ESR) are presented as ever/never. Numbers are presented as N (%) unless otherwise specified. SD, standard deviation; IBD, inflammatory bowel disease; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; ASDAS-CRP, Ankylosing Spondylitis Disease Activity Score; NSAID, non-steroidal anti-inflammatory drug; csDMARD, conventional synthetic Disease Modifying Anti Rheumatic Drug; bDMARD, biological Disease Modifying Anti Rheumatic Drug.