

TABLE E-1 Magnetic Resonance Imaging Examination: Brief Definitions of Pathological Changes in the Shoulder Joint\*

Tendinopathy (supraspinatus, subscapularis, infraspinatus, teres minor)	Focal intratendinous signal increase on T1-weighted, T2-weighted, and proton-density fat-saturated images without evidence of loss of continuity in the image morphology. Magnetic resonance imaging features: intermediate to high signal intensity on proton-density fat-saturated images, but low to intermediate signal intensity on T2-weighted images, never isointense to fluid on T2-weighted images and no loss of tendon continuity
Complete rotator cuff rupture	Transmural defect/loss of tendon continuity that can be focal (circumscribed, narrow) or complete (entire tendon, for example, supraspinatus). Synonym: full-thickness rupture. Magnetic resonance imaging features: complete absence of any tendon morphology in all sequences. On proton-density fat-saturated images and on T2-weighted images, defect is isointense to fluid
Partial rotator cuff rupture	Non-transmural defect/loss of tendon continuity, which, according to location, can be distinguished as superficial, either on the bursal side or the joint side, or within the tendon tissue; focal thinning of the superior segments of the rotator cuff. Magnetic resonance imaging features: defect is isointense to fluid on proton-density fat-saturated and T2-weighted images. This finding distinguishes partial rotator cuff rupture from tendinopathy as the latter (primarily on T2-weighted images) would never show an isointense signal but rather would show only a low to intermediate signal intensity
Subacromial-subdeltoid bursitis	Evidence of fluid in bursitis and changes in the rotator cuff, as described above, were defined as bursitis. (Problem: low amounts of fluid in bursitis can also be physiological, and contrast media would be needed to detect inflammation; this, however, was not part of the study protocol, nor was it necessary.) Magnetic resonance imaging features: fluid signal in bursitis on proton-density fat-saturated images (very sensitive) and T2-weighted images, possibly peribursal edema on proton-density fat-saturated images
Arthrosis in the acromioclavicular joint	Narrowing of the acromioclavicular joint cavity, subchondral cysts/erosion, osteophytic spurs near the joint, joint capsule hypertrophy, contusion/bruise/effusion Highly sensitive: subchondral edema, juxta-articular periarticular edema in the acromioclavicular joint, signal increase on proton-density fat-saturated images, signal decrease on T1-weighted images (activated acromioclavicular joint arthrosis, however, may not show symptoms)
Glenohumeral osteoarthritis	Narrowing of the glenohumeral joint space; glenohumeral chondropathy (cartilage abrasion apparent on proton-density and proton-density fat-saturated images), (subcapital) osteophytes, cystic debris on the head and glenoid side, areas of subchondral sclerosis (hypointense on all sequences), focal subchondral edema (hyperintense on proton-density fat-saturated images)

Tendinopathy/tendinitis of long head of the biceps tendon	Intratendinous signal increase in the tendon on sagittal T2-weighted images (in the horizontal course) and axial proton-density images (in the intrasulcal course) over multiple slices ( $n \geq 2$ ); the fulcrum/pivot point was not assessed (due to the partial volume effect and the magic-angle phenomenon)
Tendovaginitis in long head of the biceps tendon	Detection of fluid in the tendon sheath of long head of the biceps tendon over the entire intrasulcal course (either isolated [sensitive] or in conjunction with a glenohumeral effusion [less specific because it is a communicating injury])
Insertion tendinopathy (supraspinatus, infraspinatus, subscapularis, teres minor)	The same characteristics apply as for tendinopathy; however, the tendon injuries are restricted to the area in direct proximity to the region of projection (greater tubercle, lesser tubercle). In addition (but not mandatory): cystic or edematous subcortical osseous changes at the area of tendon insertion (applies mainly to the front or back edge of the greater tubercle)
Rupture of long head of the biceps tendon	No image morphological evidence of the tendon, mainly on coronal proton-density fat-saturated images, sagittal T2-weighted images, and axial proton-density images; empty anterior rotator interval (with corresponding accompanying injuries); usually empty biceps tendon sheath (narrow intact residual fibers can usually already be observed); ideally, evidence of retracted proximal tendon stump; no evidence of luxation of long head of the biceps tendon (see below)
Dislocation of long head of the biceps tendon	No local evidence of preserved continuity of long head of the biceps tendon: the tendon is medially dislocated and on or above the lesser tubercle of the humerus. Here, it might lie on the tendon projection of the subscapularis, or lie under the subscapularis tendon (then it usually is associated with the subscapularis rupture); empty biceps tendon sheath
Primary glenohumeral osteoarthritis	Characteristics: see glenohumeral osteoarthritis. Cause usually unknown; chronic microtrauma, microinstability, individual predisposition. Lesion is primary glenohumeral osteoarthritis if the image does not show clear signs of another cause, no cause can be deduced from the medical history, or no other cause is known to the radiologist
Secondary glenohumeral osteoarthritis	Characteristics: see glenohumeral osteoarthritis. Lesion is secondary glenohumeral osteoarthritis if it is known, for example, to be subsequent to trauma, congenital (or early acquired) deformities, shoulder infections, chronic inflammatory diseases (e.g., rheumatoid arthritis), or metabolic diseases (e.g., diabetes mellitus)

\*Proton-density sequence = long repetition time, short echo time. Fat-saturated = spectral (selective) suppression of the fat signal on the proton-density sequences. T2-weighted sequence = long repetition time, long echo time. T1-weighted sequence = short repetition time, short echo time.