SLAP
Radioloogi käsitlus

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SA TÜK

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SportEST
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Positively surprising
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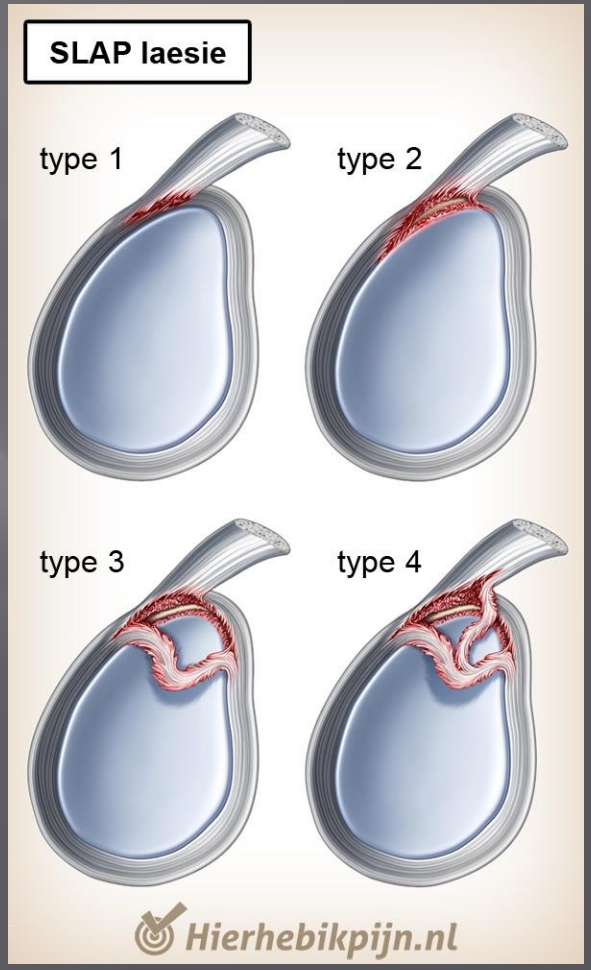
SLAP

- Enne artroskoopai leiutamist sellist patoloogiat ei tuntud.
- Description of superior labral lesions in throwing athletes by Andrews et al. in 1985
- Introduction of the acronym SLAP (superior labral anteroposterior) by Snyder et al. in 1990
- Synder et al. 1995 kirjeldas SLAP neli põhitüüpi , nendele lisndus erinevate autorite poolt tüübid 5-10.

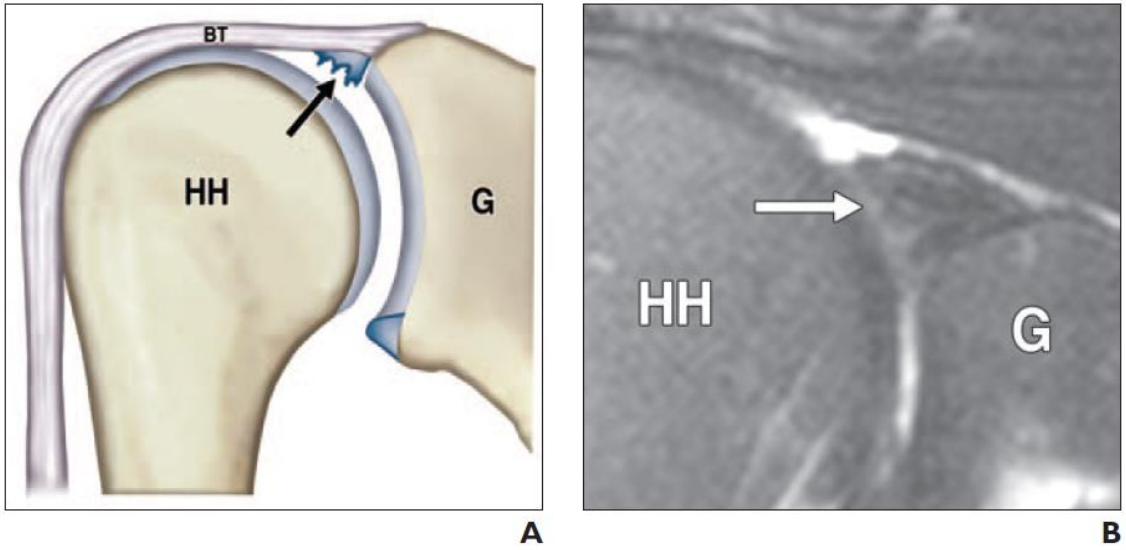
SLAP tüübid 1-4

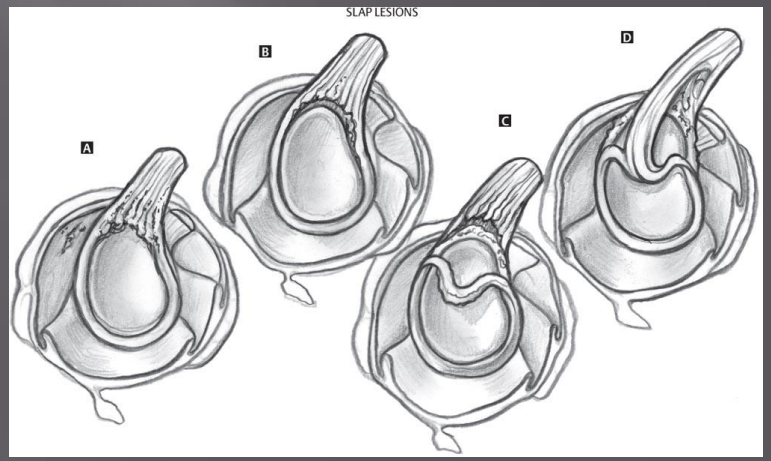
- I- 10% irregularities of labrum, no tear, biceps anchor intact
- II- 40% avulsion of biceps tendon with labrum
- III- 30% dislocated and torn labrum (bucklet handle (biceps remains intact)
- IV- 15% Type III + tear of biceps tendon



Tüüp 1

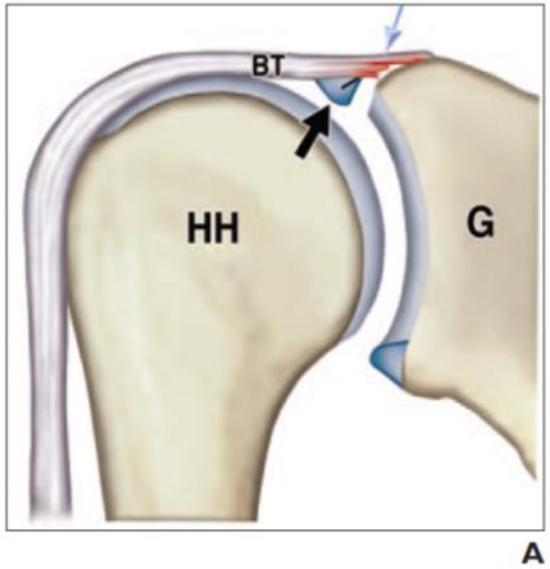
Fig. 1—Type I superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type I SLAP tear shows abnormal contour and fraying of superior labrum (*arrow*) without labral tear or detachment from glenoid and without biceps tendon involvement. BT = biceps tendon, G = glenoid, HH = humeral head.
B, Coronal oblique STIR image of shoulder of 48-year-old man with shoulder pain shows fraying of superior labrum (*arrow*) without labral tear or detachment from glenoid. HH = humeral head, G = glenoid.

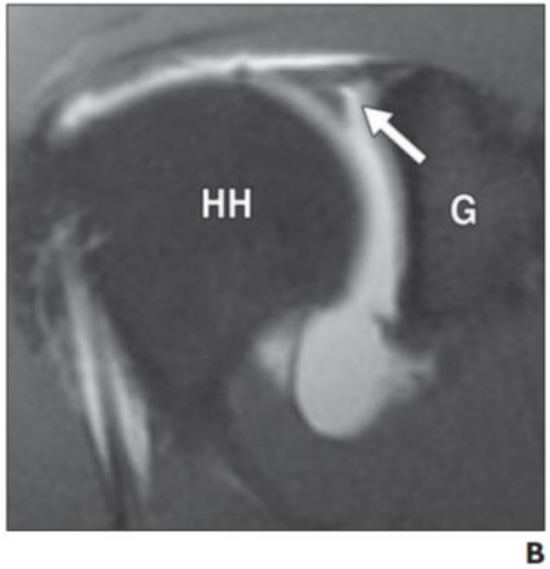


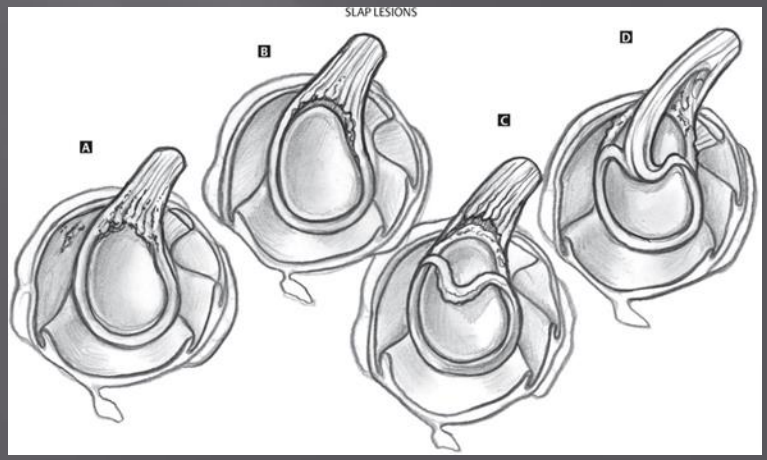


Tüüp 2

Fig. 2—Type II superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type II SLAP tear shows stripping of superior labrum (*black arrow*) and biceps tendon (*blue arrow*) from glenoid and labral tear (*black line*). BT = biceps tendon, G = glenoid, HH = humeral head.
B, Oblique coronal T1 fat-suppressed MR arthrogram of shoulder of 30-year-old female throwing athlete who presented with shoulder pain shows laterally oriented high signal in labrum (*arrow*). This finding is consistent with type II SLAP tear. HH = humeral head, G = glenoid.

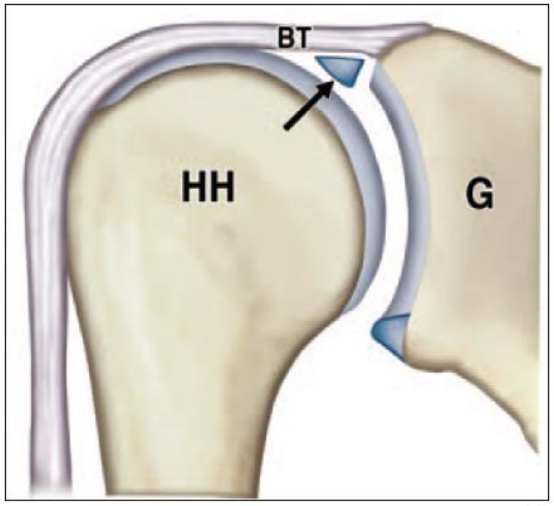






Tüüp 3

Fig. 3—Type III superior labral anteroposterior tear.
A, Schematic representation of bucket-handle tear of superior labrum shows displacement of torn central part of labrum into joint (*arrow*) while biceps tendon remains attached to glenoid. BT = biceps tendon, G = glenoid, HH = humeral head.
B, Oblique coronal T1 fat-suppressed MR arthrogram of shoulder of 32-year-old man with history of fall shows bucket-handle anteroposterior tear of superior labrum (*arrow*). Separation and displacement of glenoid labrum are clearly visible. Biceps tendon remains intact. HH = humeral head, G = glenoid.



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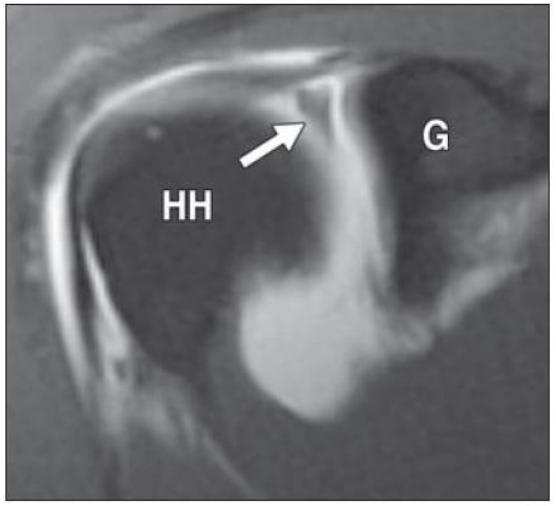

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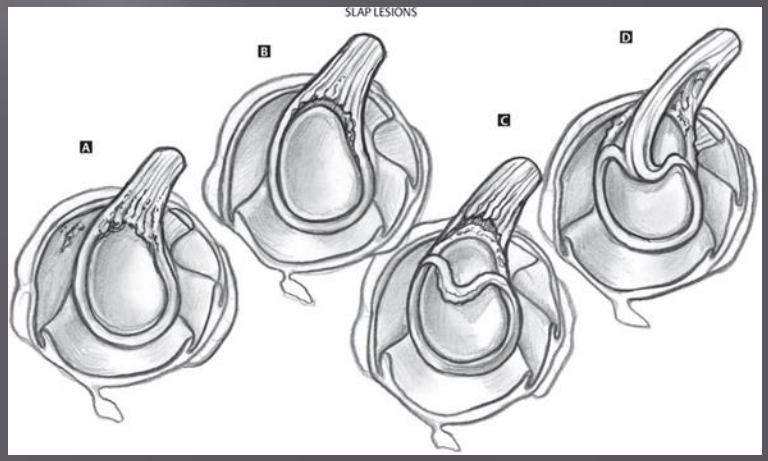

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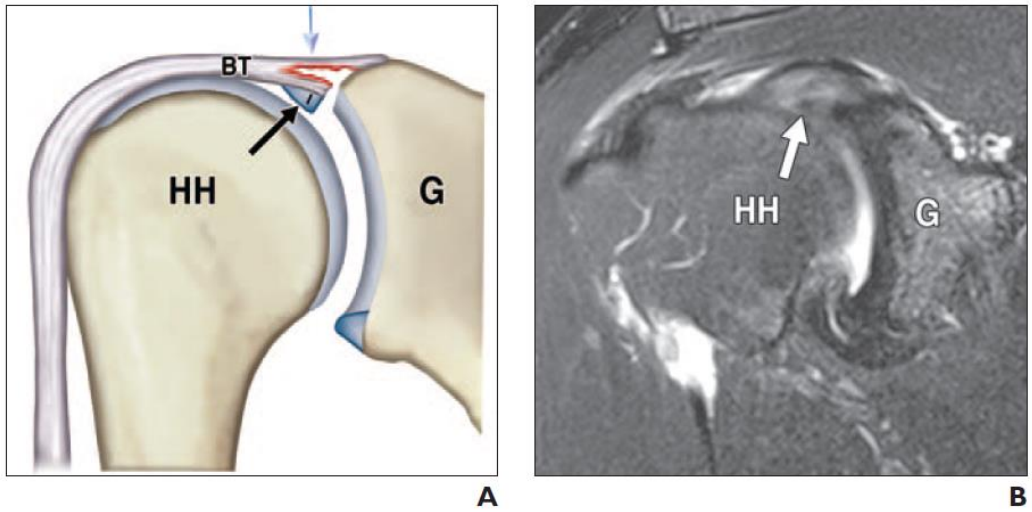


Fig. 5—Type IV superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type IV SLAP tear shows bucket-handle tear of superior labrum (*black arrow*) with extension of tear to biceps tendon (*blue arrow*) and labrum (*black line*). BT = biceps tendon, G = glenoid, HH = humeral head.
B, Oblique coronal STIR image of 55-year-old man with history of fall on outstretched hand shows tear of superior labrum with enlargement and severe stripping of biceps tendon from glenoid (*arrow*). HH = humeral head, G = glenoid.

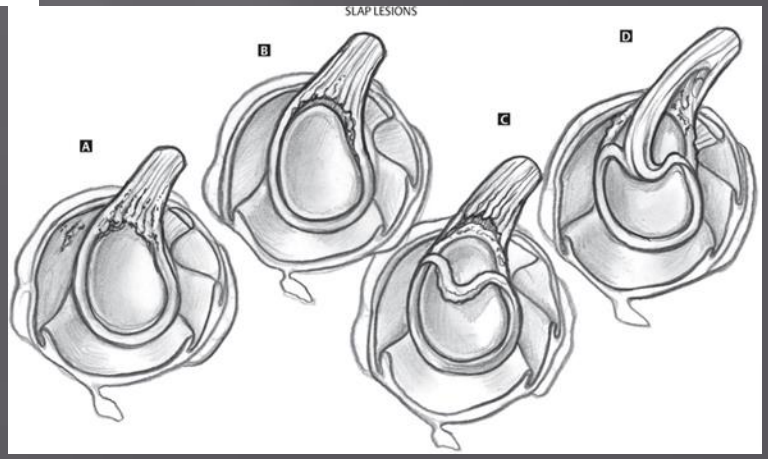


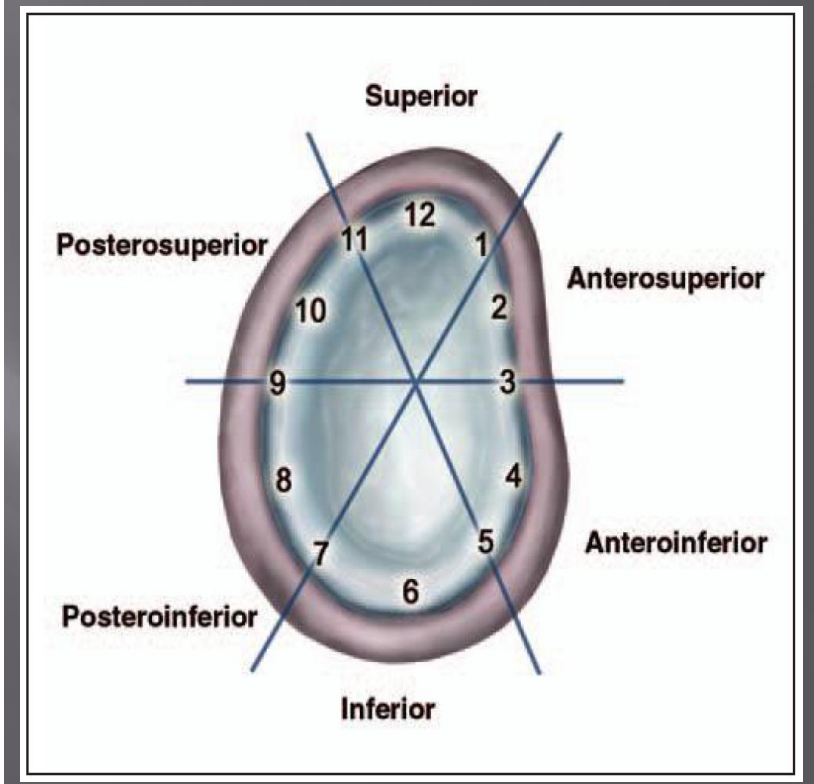
TABLE I Current Superior Labral Anteroposterior (SLAP) Lesion Classification with Associated Clinical Findings and Mechanisms of Injury

Type	Biceps-Labral Complex	Extension[a]	Comments
Snyder et al. [2]			
I	Fraying	11–1	Could be incidental finding; more significant in young people involved in overhead activities
II	Tear with biceps extension	11–1	Most common type; association with acute traction, repetitive overhead motion, and microinstability; could be associated with type IV
III	Bucket-handle tear with intact biceps	11–1	Less severe than type IV; association with fall on outstretched arm
IV	Bucket-handle tear with biceps extension	11–1	More severe than type III because of biceps extension; could be associated with type II; association with fall on outstretched arm
Maffet et al. [15]			
V	Not specified	11–5	Either a Bankart lesion with superior extension or a SLAP lesion with anterior inferior extension
VI	Anterior or posterior flap tear	11–1	Probably represents type IV or less likely type III with tear of the bucket-handle component
VII	Not specified	11–3	Type of middle glenohumeral ligament extension (avulsion or split) not specified; association with acute trauma with anterior dislocation
Resnick D[b]			
VIII	Not specified	7–1	Similar to type IIB but with more extensive abnormalities; association with acute trauma with posterior dislocation
IX	Not specified	7–5	Global labrum abnormality; probably traumatic event
Beltran J[c]			
X	Not specified	11–1 +	Rotator interval extension; articular side abnormalities
Morgan et al. [21]			
IIA	II	11–3	Similar to type X; association with repetitive overhead motion
IIB	II	9–11	Association with infraspinatus tear
IIC	II	9–3	Association with infraspinatus tear

[a] Clock positions.

[b] Unpublished data.

[c] Presented at the annual meeting of the Radiological Society of North America, Chicago, IL, December 2000.



Tüüp 5

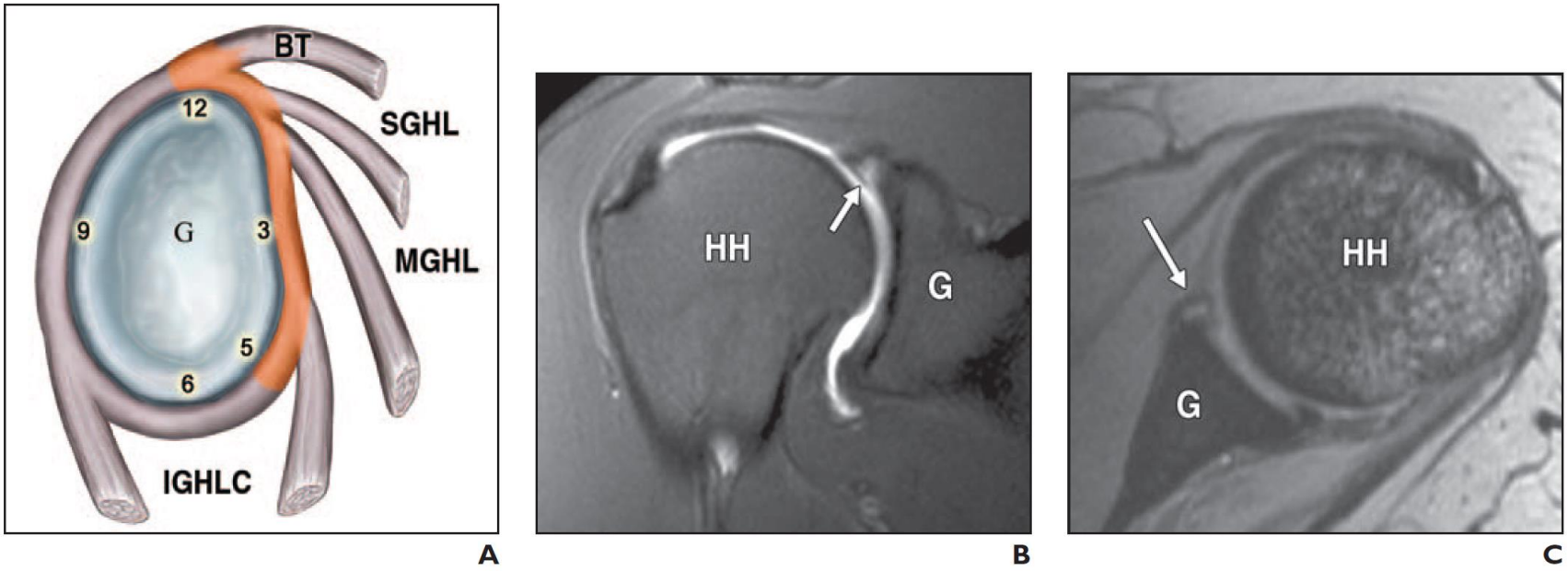
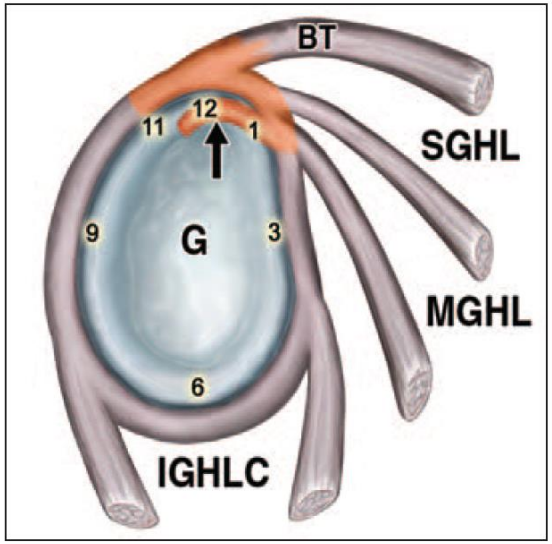


Fig. 6—Type V superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type V SLAP tear of superior labrum shows extension of anteroinferior labral tear from 5-o'clock position to superior labrum at 12-o'clock position and involvement of biceps tendon (*red*). Numbers show time zone divisions used to localize labral abnormalities. BT = biceps tendon, G = glenoid, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex.
B and **C,** Coronal T1 fat-suppressed MR arthrogram (**B**) and axial gradient-echo MR image (**C**) of shoulder of 45-year-old man with history of anterior shoulder dislocation show anteroinferior labral tear (*arrow*, **C**) extending to superior labrum (*arrow*, **B**). HH = humeral head, G = glenoid.

Tüüp 6

Fig. 7—Type VI superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type VI SLAP tear shows superior labral flap tear extending to biceps tendon (*red*) with small labral fragment partially attached to superior labrum (*arrow*). Numbers show time zone divisions used to localize labral abnormalities. BT = biceps tendon, G = glenoid, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex.
B, Oblique coronal T1 fat-suppressed MR arthrogram of shoulder of 42-year-old man who fell on outstretched hand shows superior labral flap tear with small labral fragment partially attached to superior labrum (*arrow*). HH = humeral head, G = glenoid.



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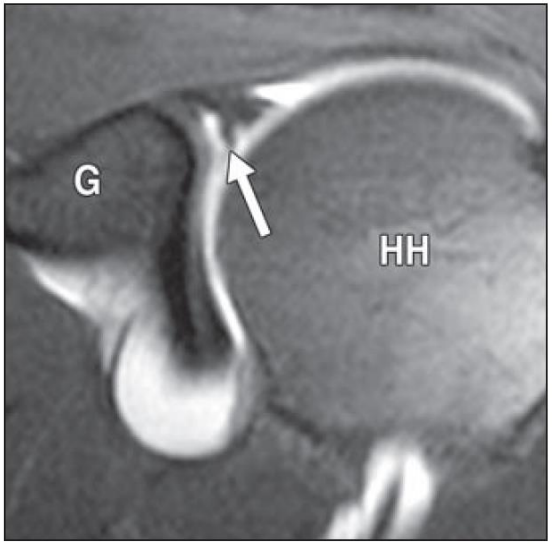


B

Tüüp 7

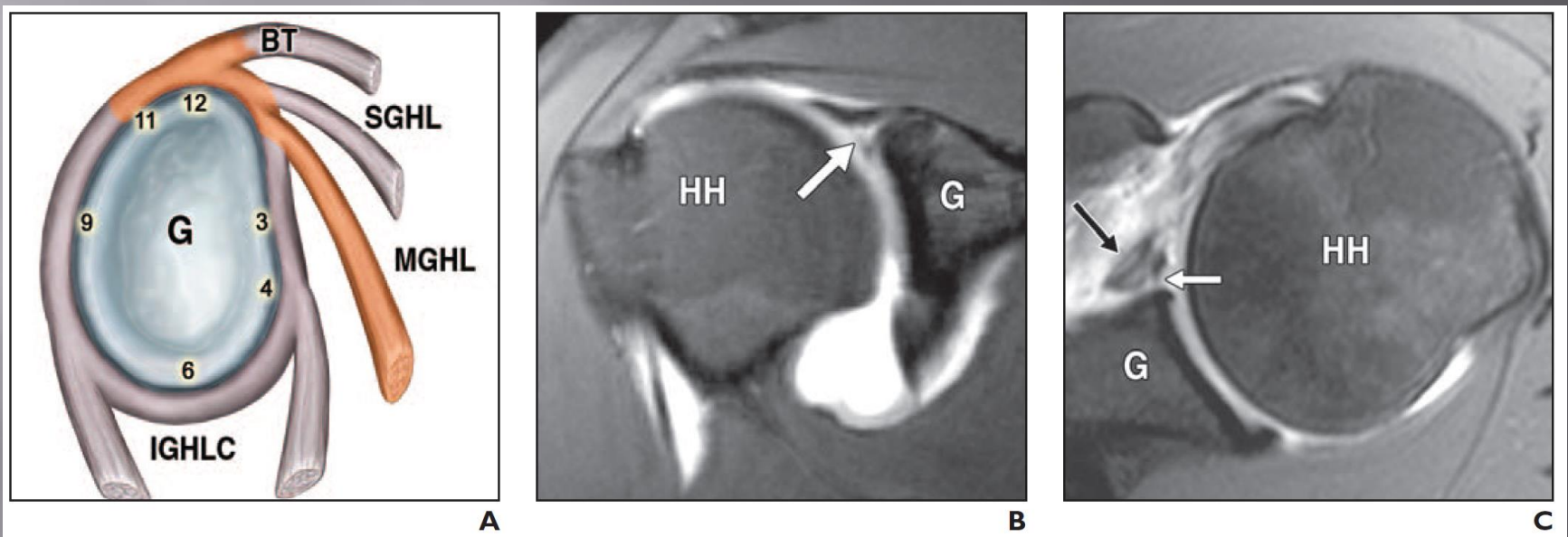


Fig. 8—Type VII superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type VII SLAP lesion shows SLAP tear with extension to middle glenohumeral ligament. Numbers show time zone divisions used to localize labral abnormalities. BT = biceps tendon, G = glenoid, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex.
B and **C,** Oblique coronal (**B**) and axial (**C**) T1 fat-suppressed MR arthrogram of shoulder of 56-year-old woman with acute shoulder trauma show SLAP tear (*arrow*, **B**) with extension to middle glenohumeral ligament (*black arrow*, **C**). Normal sublabral foramen (*white arrow*, **C**) is also seen. HH = humeral head, G = glenoid.

Tüüp 8

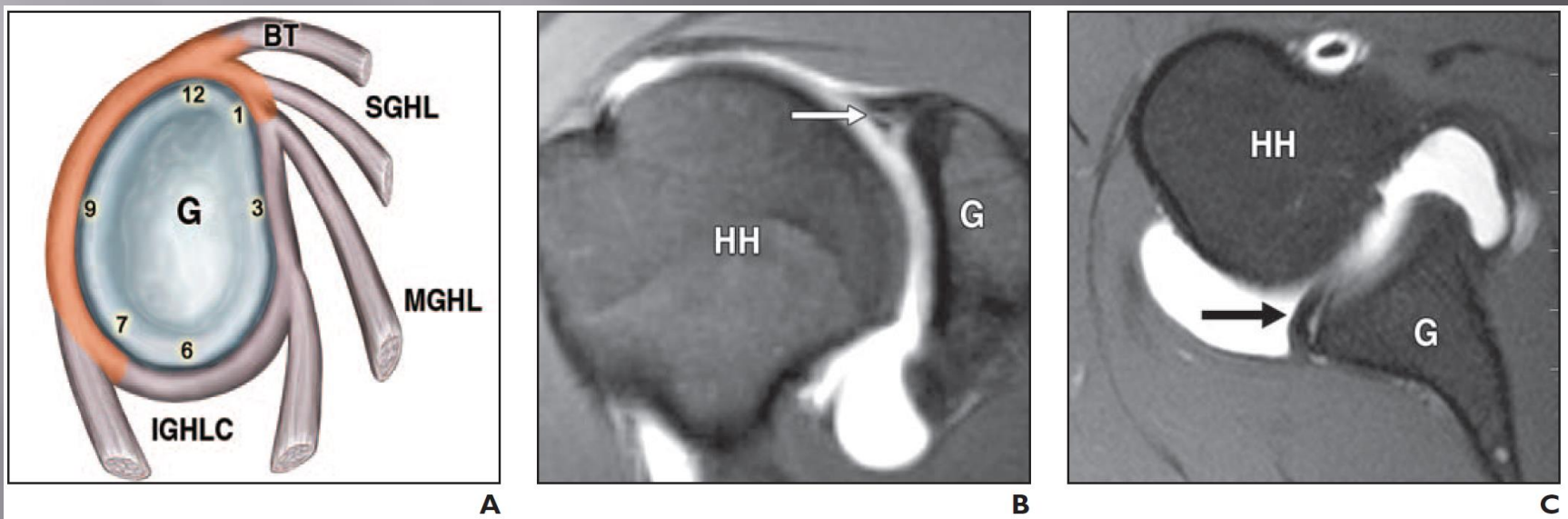


Fig. 9—Type VIII superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type VIII SLAP lesion shows SLAP tear with extension to posteroinferior labrum extending from 1- to 7-o'clock position (*red*). Numbers show time zone divisions used to localize labral abnormalities. BT = biceps tendon, G = glenoid, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex.
B and **C,** Oblique coronal (**B**) and axial (**C**) T1 fat-suppressed MR arthrograms of shoulder of 36-year-old man with history of posterior shoulder dislocation show anterior posterior tear of superior labrum (*arrow*, **B**) and tear of posteroinferior labrum (*arrow*, **C**). HH = humeral head, G = glenoid.

Tüüp 9

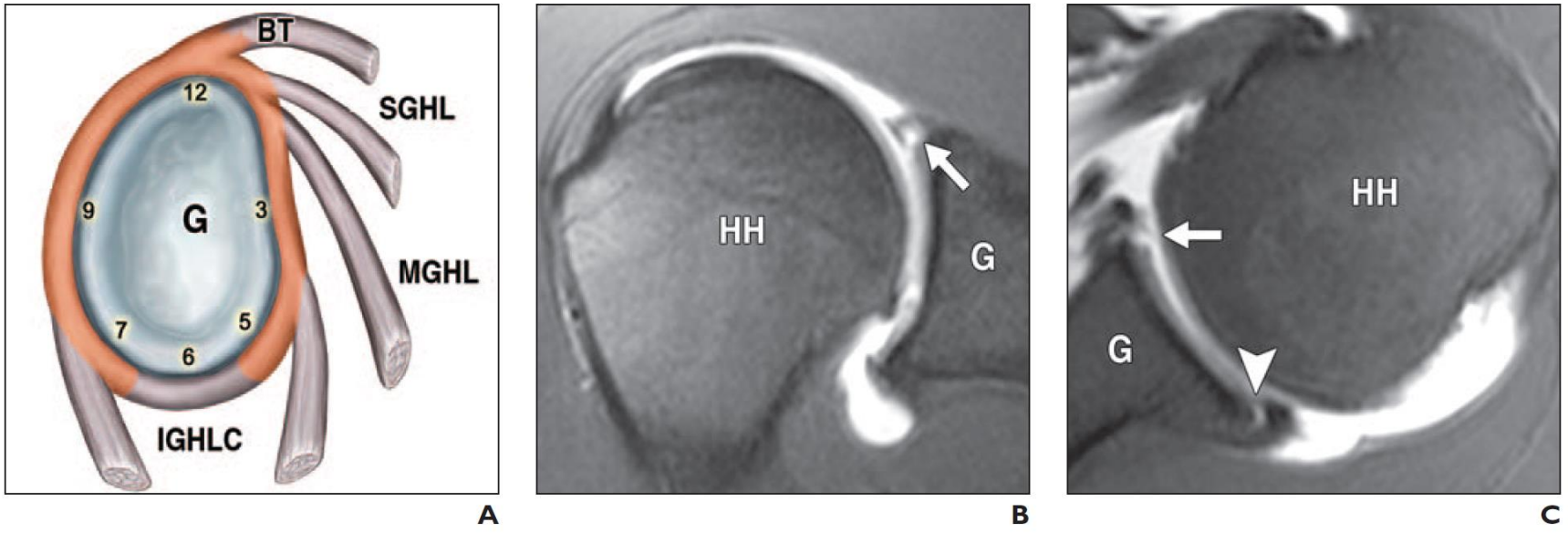


Fig. 10—Type IX superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type IX SLAP tear shows detachment of labrum from glenoid as a result of significant anterior and posterior extension of superior labral tear (*red*). Tear extends from 7- to 5-o'clock position. Numbers show time zone divisions used to localize labral abnormalities. BT = biceps tendon, G = glenoid, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex.
B and **C,** Oblique coronal (**B**) and axial (**C**) T1 fat-suppressed MR arthrograms of shoulder of 23-year-old female athlete show tear of superior labrum (*arrow*, **B**) extending to anteroinferior labrum (*arrow*, **C**) and to posteroinferior labrum (*arrowhead*, **C**). HH = humeral head, G = glenoid.

Tüüp 10

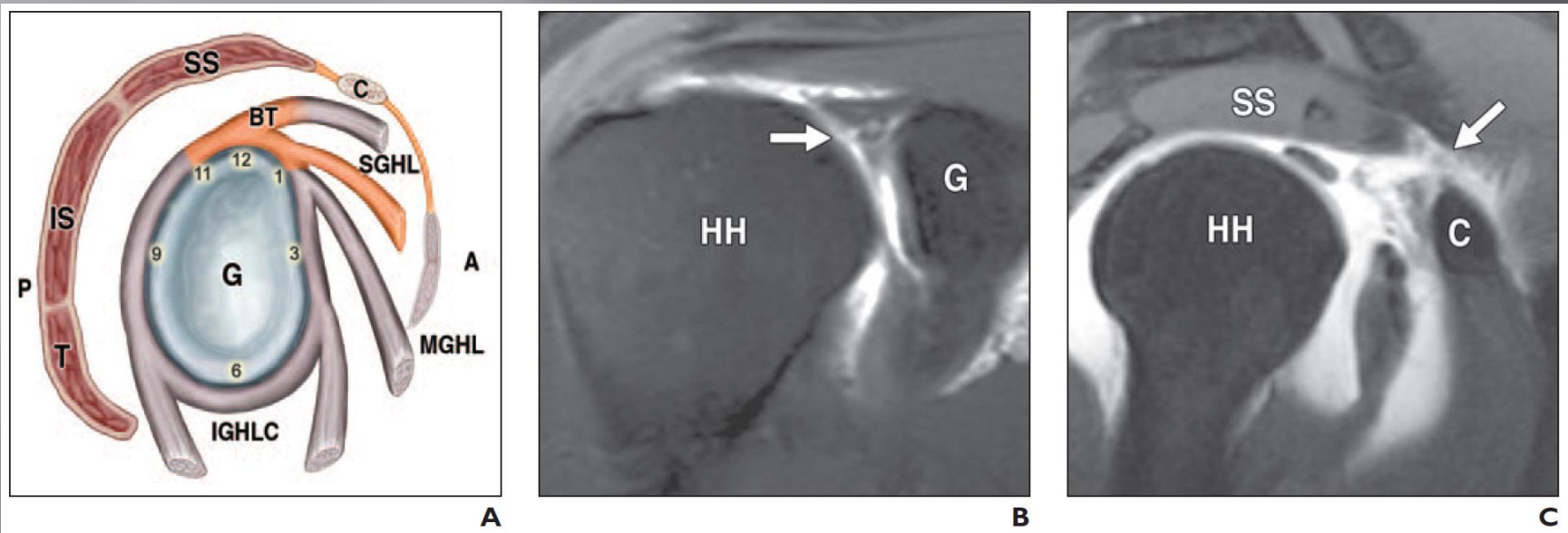


Fig. 11—Type X superior labral anteroposterior (SLAP) tear.
A, Schematic representation of type X SLAP tear shows superior labral tear with extension to rotator interval or structures that cross it including long head of biceps tendon, superior glenohumeral ligament, and coracohumeral ligament (*red*). Numbers show time zone divisions used to localize labral abnormalities. C = coracoid process, SS = supraspinatus muscle, IS = infraspinatus muscle, T = teres minor, BT = biceps tendon, SGHL = superior glenohumeral ligament, MGHL = middle glenohumeral ligament, IGHLC = inferior glenohumeral ligament complex, G = glenoid, A = anterior, P = posterior.
B and **C,** Coronal (**B**) and sagittal (**C**) T1 fat-suppressed MR arthrograms of 45-year-old man with severe shoulder trauma show superior labral tear (*arrow*, **B**) with extension to rotator interval and structures that pass through it (*arrow*, **C**). HH = humeral head, G = glenoid, SS = supraspinatus muscle, C = coracoid process.

Radioloogilised meetodid

- Röntgen
- KT
- KT artrograafia
- UH
- MRT
- MRT artrograafia

MRT või MRT artrograafia

TABLE 1: Results of Conventional MRI

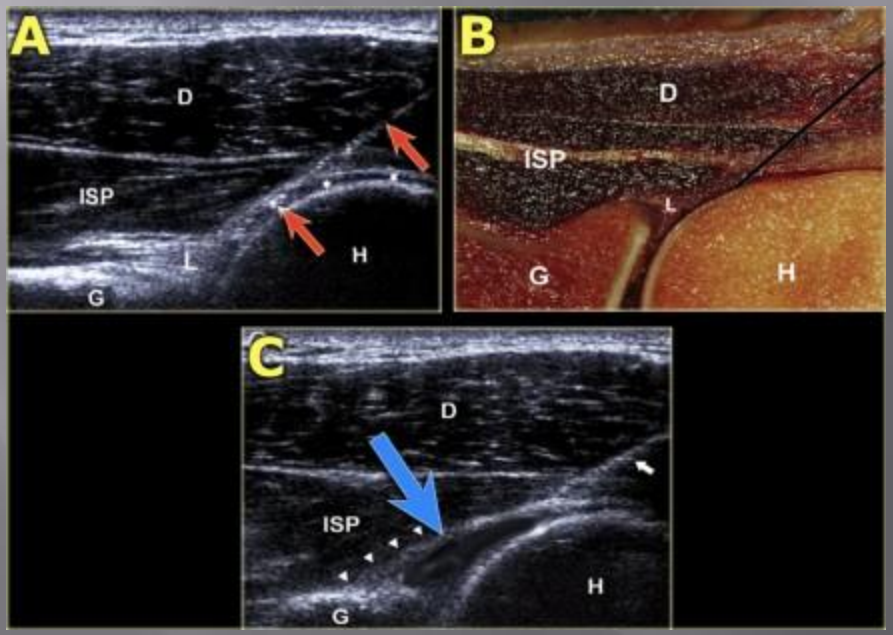
Type of Tear	Tear on Conventional MRI	Tear on Arthroscopy	True-Positive	True-Negative	False-Positive	False-Negative	Sensitivity (%)	Specificity (%)
Anterior labral tear	34	41	34	109	0	7	83	100
Posterior labral tear	16	19	16	131	0	3	84	100
Superior labral anterior-to-posterior tear	39	47	38	103	1	8	83	99
Supraspinatus tendon tear	33	36	33	114	0	3	92	100
Partial-thickness articular surface tear	22	32	22	118	0	10	68	100
Partial-thickness bursal surface tear	16	19	16	131	0	3	84	100

TABLE 2: Results of MR Arthrography

Type of Tear	Tear on MR Arthrography	Tear on Arthroscopy	True-Positive	True-Negative	False-Positive	False-Negative	Sensitivity (%)	Specificity (%)
Anterior labral tear	40	41	40	109	0	1	98	100
Posterior labral tear	18	19	18	131	0	1	95	100
Superior labral anterior-to-posterior tear	46	47	46	103	1	1	98	99
Supraspinatus tendon tear	36	36	36	114	0	0	100	100
Partial-thickness articular surface tear	31	32	31	118	0	1	97	100
Partial-thickness bursal surface tear	16	19	16	131	0	3	84	100

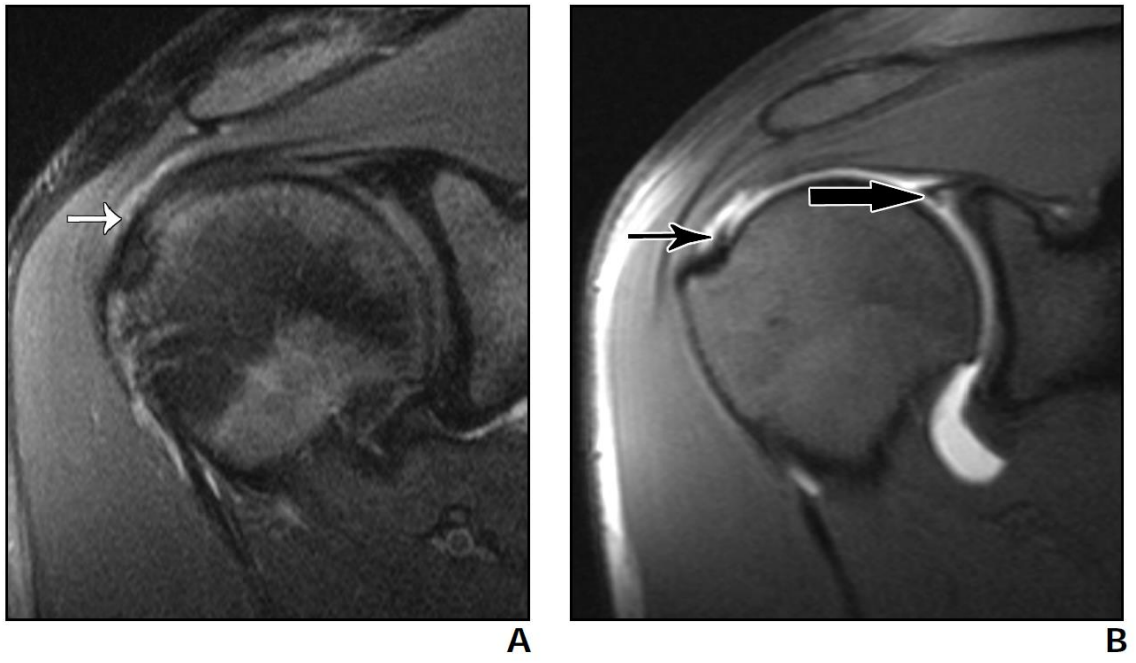
- 3-T MRI of the Shoulder: Is MR Arthrography Necessary? AJR:192, January 2009

MRT artrograafia



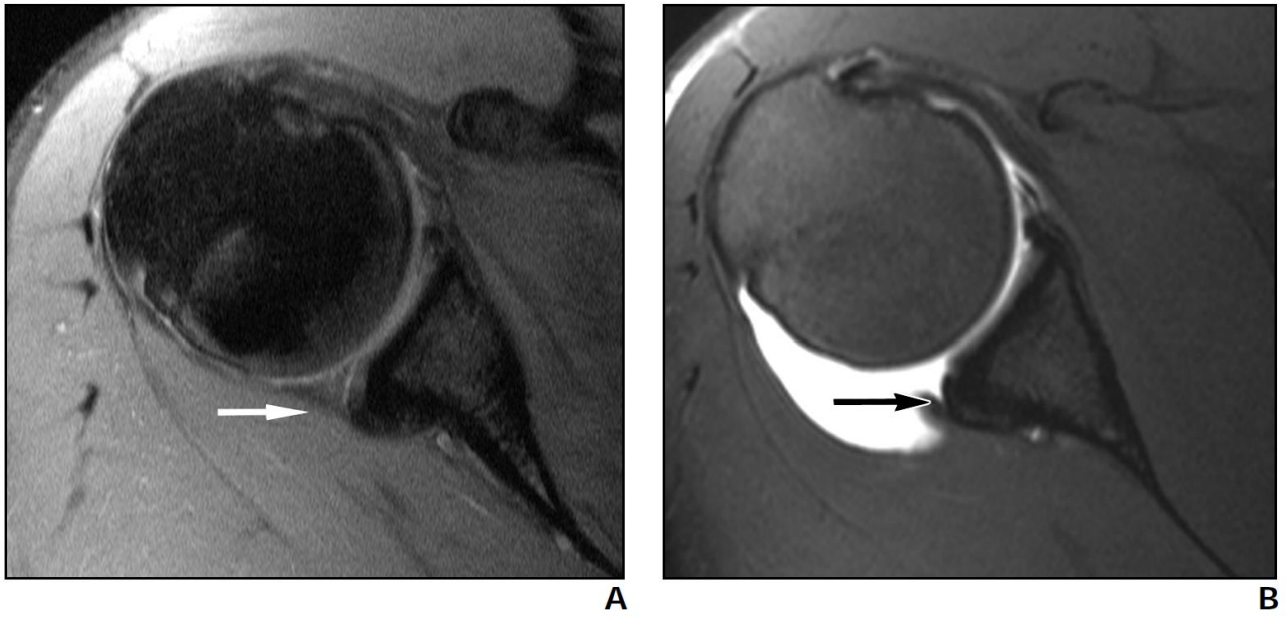
MRT/MRT artro

Fig. 2.—22-year-old man (professional athlete) with shoulder pain.
A, Coronal T2-weighted MR image (TR/TE, 4,000/72) shows intact supraspinatus tendon (*arrow*).
B, Coronal fat-saturated T1-weighted MR arthrogram (507/12) shows high-grade partial-thickness supraspinatus tendon tear (*thin arrow*) and superior labral anteroposterior tear (*thick arrow*).



MRT/MRT artro

Fig 3.—19-year-old man (professional athlete) with shoulder pain.
A, Axial proton density–weighted fast spin-echo MR image (TR/TE, 4,000/18) shows possible posterior labral tear (*arrow*).
B, Axial fat-saturated T1-weighted MR arthrogram (507/12) shows displaced posterior labral tear (*arrow*).



MRT/MRT artro

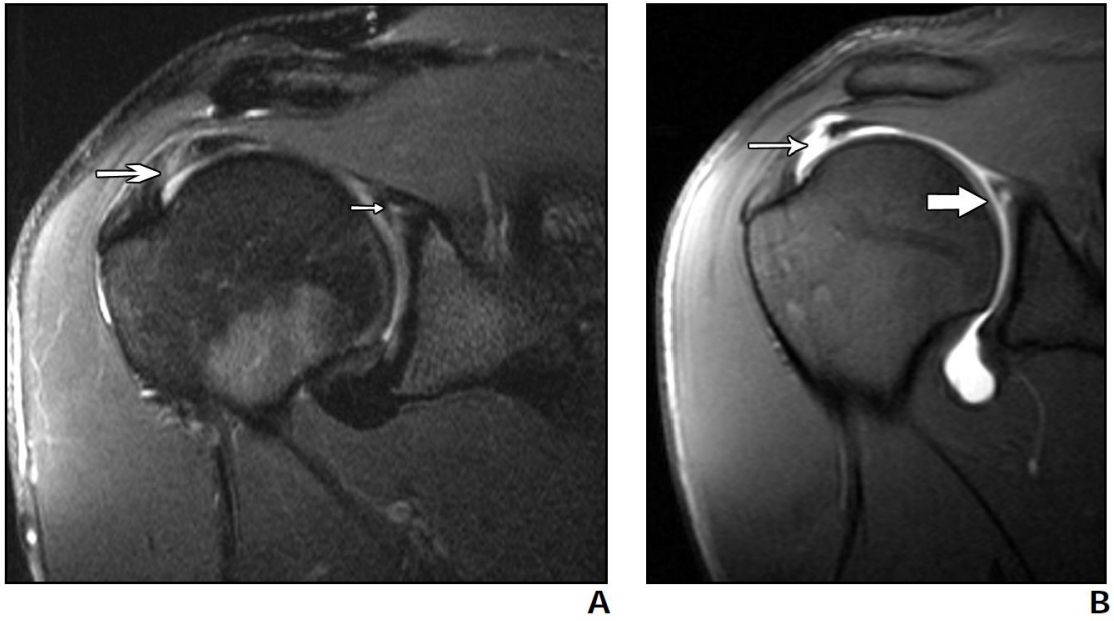
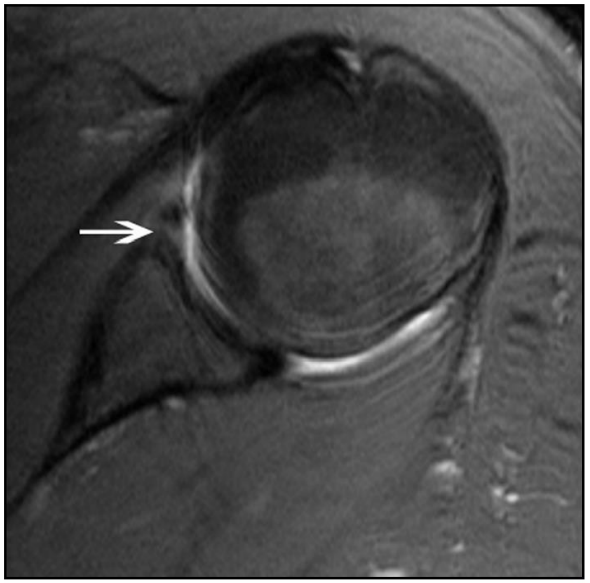


Fig. 4.—27-year-old man (professional athlete) with shoulder pain.
A, Coronal T2-weighted MR image (TR/TE, 4,000/72) shows possible partial-thickness supraspinatus tendon tear (*thick arrow*) and probable superior labral antero-posterior (SLAP) tear (*thin arrow*).
B, Coronal fat-saturated T1-weighted MR arthrogram (507/12) shows full-thickness supraspinatus tendon tear (*thin arrow*) and SLAP tear (*thick arrow*).

MRT/MRT artro

Fig. 7.—28-year-old man (nonprofessional athlete) with shoulder pain.
A, Axial proton density–weighted fast spin-echo MR image (TR/TE, 4,000/18) shows possible anterior labral tear (*arrow*).
B, Axial fat-saturated T1-weighted MR arthrogram (507/12) shows displaced anterior labral tear (*arrow*).



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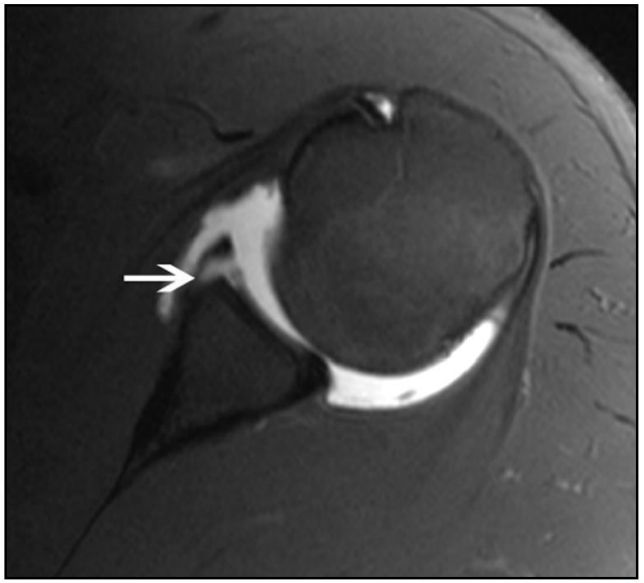

B

Meie kogemus

- Kui palju uuringuid teeme = tellitakse?

Meie kogemus

- Tartu 2015
- 1,5 T , 3T
- Õlaliigese MRT 287 uuringut
- Õlaliigese MRT artrograafia 14 uuringut
- Õlaliigese UH 517 uuringut

- Tänan kuulamast!