



(0.2T) :
SLAP 1

. 2 . 2 . 2

: (0.2T) 가 SLAP (superior labrum anterior to posterior)
: 7 150
46 .
8
T1 , T2
T2 .
: SLAP II 26 , SLAP III 1 , SLAP IV 1 , SLAP I
12 , 6 . SLAP Type 2
85.7%, 55.5%, 75%, 71%, 74% .
: SLAP

SLAP (Superior labrum anterior to posterior)

가

가

(1)

SLAP

(2-4).

가

2006 5 2006 12 150

가

가 (5).

46
40 SLAP 6
SLAP 22 , 18

가 가 (6, 7)

52.3 (37-68) 가
2 , 4 50.5 (41-76) .

(8, 9).

SLAP 24 , 16
2 , 4

가

7.8 (1-30)

(10)

(Snyder 가 80% type

(11, 12).

1-4 SLAP lesion

가

MRP 6800 (Hitachi,

¹
²

T1 (TR=600 msec/TE=25 msec; , 22 cm; , 256 × 256 ; , 2 ; , 4 mm; , 0.5 mm; , 12 ; , 7.41 min), T2 (TR=600 msec/TE= 23 msec; , 7.41 min), T1 (TR= 600 msec/TE=25 msec; , 7.41 min), T2

(0.2T) (TR=600 msec/TE=23 msec), T2 (TR= 3100 msec/TE= 117 msec; , 8 min), T2 (TR=3100 msec/TE=117 msec; , 7.26 min). 가 T1 T2 i) T1 , ii) 가 (biceps anchor) 가 SLAP type 2 가

Table 1. Comparison of MRI and Arthroscopic Diagnosis of SLAP Lesions

	Diagnosis with MRI	
	SLAP II-IV	Normal labrum
Arthroscopic diagnosis		
SLAP II-IV	24	4
SLAP I	8	4
Normal labrum	0	6

Table 2. Diagnostic Efficacy of MR Diagnosis for SLAP (2 - 4) Tear

	MR imaging signs		
	Irregular HSI	Posterior HSI	Normal labrum
Arthroscopic diagnosis			
SLAP II-IV	20	4	4
SLAP I	7	1	4
Normal labrum	0	0	6

Note; HSI = high signal intensity

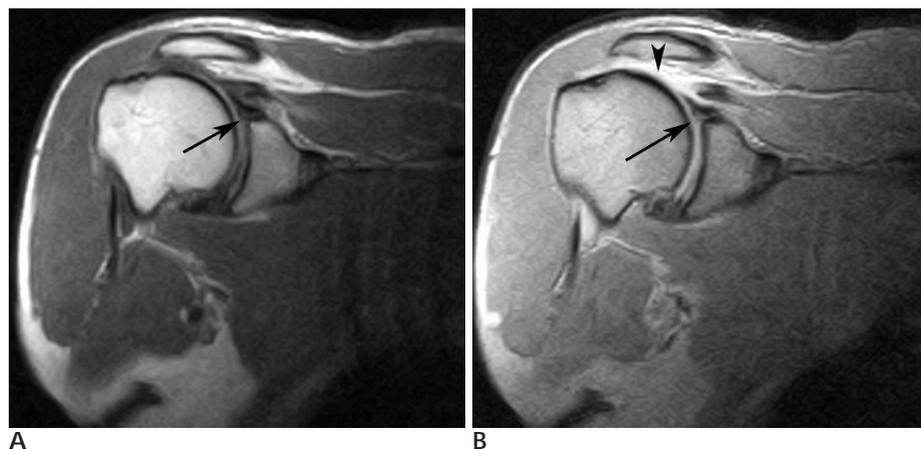


Fig. 1. 53-year-old man with type 2 SLAP lesion.

A. Coronal oblique T1-weighted image (TR/TE, 600/25) of right shoulder shows curved linear area of high signal intensity (arrow) in superior labrum.

B. Gradient echo T2-weighted image (TR/TE/FA, 600/23/40) of right shoulder shows irregular linear area of high signal intensity (arrow) in superior labrum and depicts full-thickness rotator cuff tear (arrowhead).

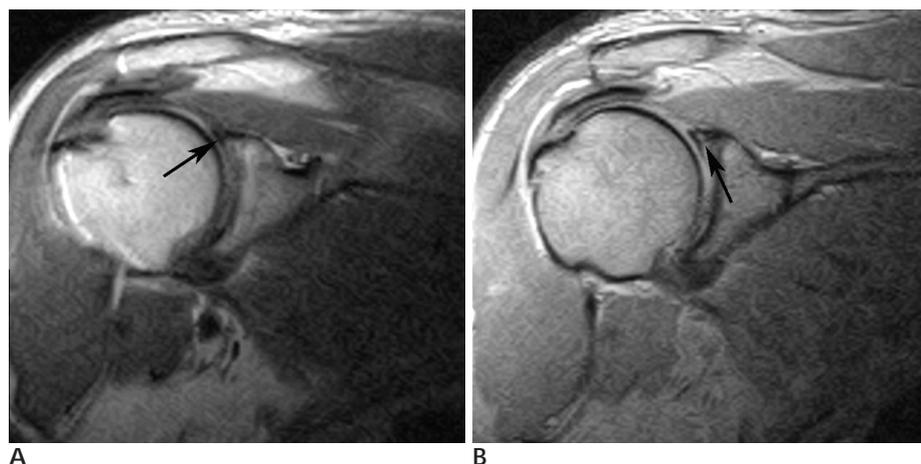


Fig. 2. 51-year-old man with type 2 SLAP lesion.

A. Coronal oblique T1-weighted image (TR/TE, 600/25) of right shoulder shows no abnormality (arrow) in superior labrum.

B. Gradient echo T2-weighted image (TR/TE/FA, 600/23/40) of right shoulder shows irregular linear area of high signal intensity (arrow) in superior labrum.

T1 T2 가 가 7 ,
 type 2 SLAP 가 1 4 (14%)
 SLAP SLAP II 3 , SLAP IV 1 (Fig.
 SLAP type 2 SLAP type 2 4). 가 83.3%, 58.8%, 74%
 , , , 50%, 90%,
 , . 80% (Table 2). Type 2 SLAP
 가 17 ,
 가 4 , SLAP 7
 .
 46 type 2 SLAP 26 ,
 type 3 1 , type 4 1 , type 1 12 , 6
 . gold standard type 2
 SLAP
 85.7%, 55.5%, 75%,
 71%, 74% (Table 1).
 가 가 27 ,
 가 5 (Fig. 1,
 2). 8 (44.5%) SLAP I 가 (13, 14).
 (Fig. 3) 가 SLAP

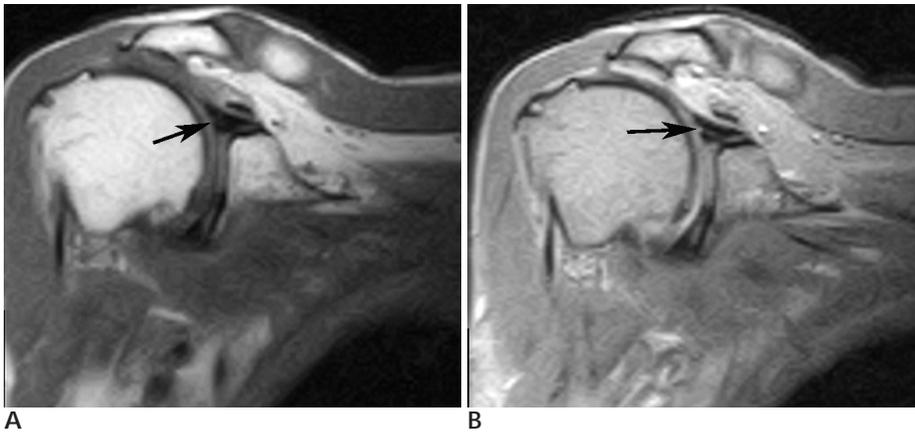


Fig. 3. 68-year-old woman with false positive.
A. Coronal oblique T1-weighted image (TR/TE, 600/25) of right shoulder shows irregular area of high signal intensity (arrow) in superior labrum.
B. Gradient echo T2-weighted image (TR/TE/FA, 600/23/40) of right shoulder shows irregular linear area of high signal intensity (arrow) in superior labrum and depicts full-thickness rotator cuff tear. At shoulder arthroscopy (not shown), type 1 SLAP lesion was seen.

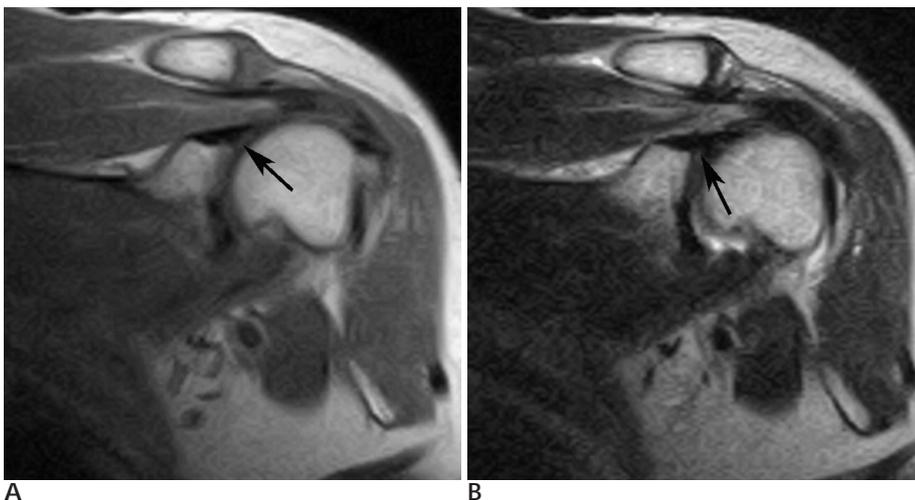


Fig. 4. 50-year-old woman with false negative.
A. Coronal oblique T1-weighted image (TR/TE, 600/25) of left shoulder shows no abnormality (arrow) in superior labrum. At shoulder arthroscopy (not shown), type 2 SLAP lesion was seen.
B. Coronal oblique T2-weighted image (TR/TE, 3100/117) of left shoulder shows no abnormality (arrow) in superior labrum.

6. Allmann KH, Walter O, Laubenberger J, Uhl M, Buitrago-Tellez CH, Biebow N, et al. Magnetic resonance diagnosis of the anterior labrum and capsule: effect of field strength on efficacy. *Invest Radiol* 1998;33:415-420
7. Shih TT, Chen WG, Su CT, Huang KM, Ericson F, Chiu LC. MR patterns of rotator cuff and labral lesions: comparison between low-field and high-field images. *J Formos Med Assoc* 1993;92:146-151
8. Tung GA, Entzian D, Green A, Brody JM. High-field and low-field MR imaging of superior glenoid labral tears and associated tendon injuries. *AJR Am J Roentgenol* 2000;174:1107-1114
9. Magee T, Shapiro M, Williams D. Comparison of high-field-strength versus low-field-strength MRI of the shoulder. *AJR Am J Roentgenol* 2003;181:1211-1215
10. Yoneda M, Izawa K, Hirooka A, Hayashida K, Wakitani S. Indicators of superior glenoid labral detachment on magnetic resonance imaging and computed tomography arthrography. *J Shoulder Elbow Surg* 1998;7:2-12
11. Shellock FG, Bert JM, Fritts HM, Gundry CR, Easton R, Crues JV 3rd. Evaluation of the rotator cuff and glenoid labrum using a 0.2-Tesla extremity magnetic resonance (MR) system: MR results compared to surgical findings. *J Magn Reson Imaging* 2001;14:763-770
12. Zlatkin MB, Hoffman C, Shellock FG. Assessment of the rotator cuff and glenoid labrum using an extremity MR system: MR results compared to surgical findings from a multi-center study. *J Magn Reson Imaging* 2004;19:623-631
13. Gartsman GM, Hammerman SM. Superior labrum, anterior and posterior lesions. When and how to treat them. *Clin Sports Med* 2000;19:115-124
14. Maffet MW, Gartsman GM, Moseley B. Superior labrum-biceps tendon complex lesions of the shoulder. *Am J Sports Med* 1995;23:93-98
15. Type SLAP
1999;2:115-119

J Korean Radiol Soc 2007;56:569 - 573

Evaluation of the SLAP Lesion Using a Low-field (0.2T) Magnetic Resonance System¹

Yong Soo Cho, M.D., Chang Hee Back, M.D.², Kyung Rae Lee, M.D.², Yun-hack Shin, M.D.²

Department of Radiology, Yeosu Baek Hospital

²*Department of Orthopedic Surgery, Yeosu Baek Hospital*

Purpose: To evaluate the diagnostic capabilities of the low-field (0.2T) magnetic resonance (MR) system in the detection of the superior labrum anterior to posterior (SLAP) lesion.

Materials and Methods: One hundred fifty patients underwent magnetic resonance imaging of the shoulder over a 7-month period. Forty-six patients underwent arthroscopic surgery, and the surgical results were correlated with the findings of the MR imaging. Arthroscopic procedures were performed within a mean of 8 days after MR imaging. MR imaging of the shoulder was conducted as follows: shoulder coil; T1-weighted spin echo, coronal-oblique images; T2-weighted gradient echo, coronal-oblique and axial images; and T2-weighted spin echo, coronal-oblique and sagittal-oblique images. Prospectively, one radiologist interpreted the MR images.

Results: The results of surgery were as follows: SLAP II in 26 shoulders, SLAP III in 1 shoulder, SLAP IV in 1 shoulder, normal labrum in 6 shoulders. For SLAP lesions with a higher grade than type 2, the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of the low-field MRI were 85.7%, 55.5%, 75%, 71%, and 74%, respectively.

Conclusion: There was relatively good agreement for the comparison of the MR results obtained using a low-field MR system with the surgical findings for identifying SLAP lesions.

Index words : Shoulder, MR

Magnetic resonance (MR), low-field-strength imaging

Arthroscopy

Address reprint requests to : Cho Yong Soo, M.D., Department of Radiology, Yeosu Baek Hospital,
236 Yeoseo-dong, Yeosu, Jeollanamdo 550-260, Korea.
Tel. 82-61-655-3000 Fax. 82-61-653-3008 E-mail: wave1ys@hanmail.net