

(0.2T) SLAP 1

2 2 2

(0.2T) 가 SLAP (superior labrum anterior to posterior) : 7 150 46 8 T1 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

52.3 (37-68)

가

가

가

(6, 7)

2

4

50.5

(41-76)

SLAP

24

16

(8, 9).

2

4

가

7.8 (1-30)

(10)

(

가 80%

)

SLAP

Snyder

type

(11, 12).

1-4 SLAP lesion

가

MRP 6800 (Hitachi,

(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)
 가 , ii)
 (biceps anchor) 가
 SLAP type 2

T1
 T2
 (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

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

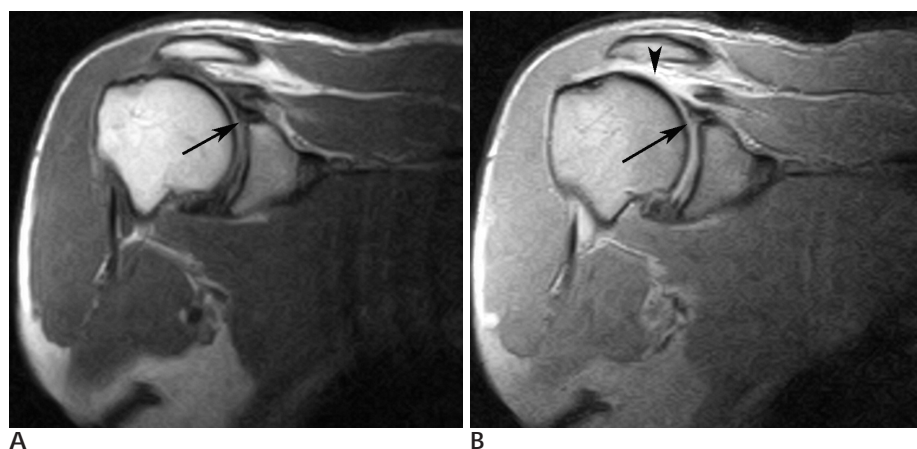


Fig. 1. 53-year-old man with type 2 SLAP lesion.

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).

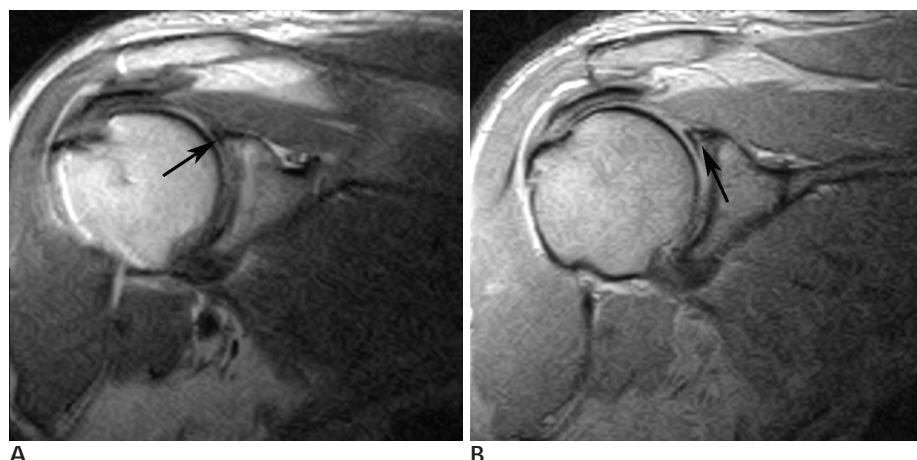
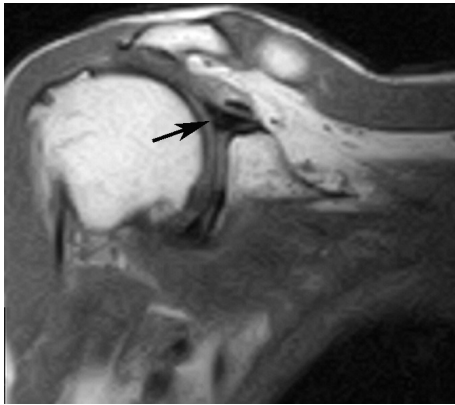


Fig. 2. 51-year-old man with type 2 SLAP lesion.

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 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



A



B

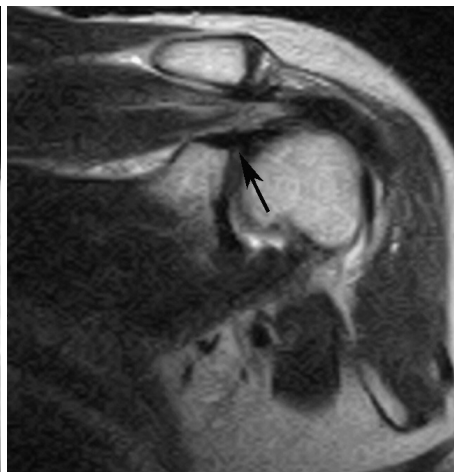
Fig. 3. 68-year-old woman with false positive.

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.



A



B

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.

: (0.2T)
 가 7 mm ,
 30 cm SLAP
 . Shellock (11) 0.2T (14 - 16 cm)
 (5 mm) 89%, 95%,
 80%, 97%
 , Zlatkin (12) 55%, 100%,
 100%, 82%
 가 100% 36% 75%
 SLAP 가 54% 33% - 45%
 17%
 19 - 33% (15).
 Loew (1)
 Tung (8) SLAP
 T1 가 64%, 가 70%, 가 67%
 Yoneda (10)
 T1 40 SLAP 가
 T1 T2 T2 SLAP 가
 T1 가 T2 가
 T2 T2 가
 (Fig. 2). 가
 T2 가
 T1 가 T1 가
 가 T1 가
 가 T2
 Allmann (6) 0.2T 91%, 67%, 91% 1.0T
 Shih (7) 85.7%,
 55.5%, 74%
 가 T2 T2
 T1 가 8
 type 1 SLAP
 가 T1 T2
 . Yoneda (10)

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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