
A Comparison of Accuracy between MRI and Arthroscopic Finding in the Diagnosis of Acute ACL Tear

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Purpose: The purpose of this study is to evaluate the accuracy of magnetic resonance imaging (MRI) in the diagnosis of acute anterior cruciate ligament (ACL) injury and its tear pattern in comparison with arthroscopic finding.

Materials and Methods: Sixty consecutive patients with acute ACL injury were taken MRI followed by arthroscopic examination between January 2002 and June 2004. MRI findings were reviewed according to the presence of ACL discontinuity, diffuse swelling or thickening, focal edema, collapse on distal end, and any combined tear. The pathologic findings were then confirmed arthroscopically. The diagnostic accuracy of MRI on ACL tear pattern was analyzed by obtaining its positive predictive value.

Results: All fifty two cases with presence of discontinuity on MRI showed ACL rupture arthroscopically. The location of ACL tear, diffuse swelling and focal edema on MRI also corresponded with arthroscopic findings respectively. However, the diagnostic accuracy of MRI was relatively lower in the presence of other ACL patterns such as collapse and combined tear.

Conclusion: Preoperative MRI findings seem to be in accordance with arthroscopic findings and is significantly accurate in detection of location and diffuse swelling and focal edema of ACL tear.

KEY WORDS: ACL, Acute rupture, MRI, Arthroscopy

가 (MRI) 가 가
가 78% 100%

7,8,12)

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(100%)

2002 1 2004 6 24 14 (58%) 4 4 (100%) 26

16 (61%) (Table 1).

60 16

47 31

가 35 , 가 25 가

MRI 1 3

12 2

6 25

MRI 1 3,5,13)

MRI Robertson ¹⁵⁾

(discontinuity), 가

(diffuse swelling or thickening), 6)

(focal edema), (collapse) Lee ⁷⁾

(combined tear) 가

(positive predic- Lachman

tive value, PPV) 가

Coil 3.0 Tesla GE Sigma Knee Bomberg McGinty²⁾ Noyes ¹¹⁾

Resonance Scanner Magnetic 가

15

가 가

Ruwe ¹⁶⁾ 가 51%

52

가 46 (Fig. 1), 가 3 (Fig. 2), Mink ⁹⁾

가 3 가 95% Vahey

100% PPV 19)

57 57 가

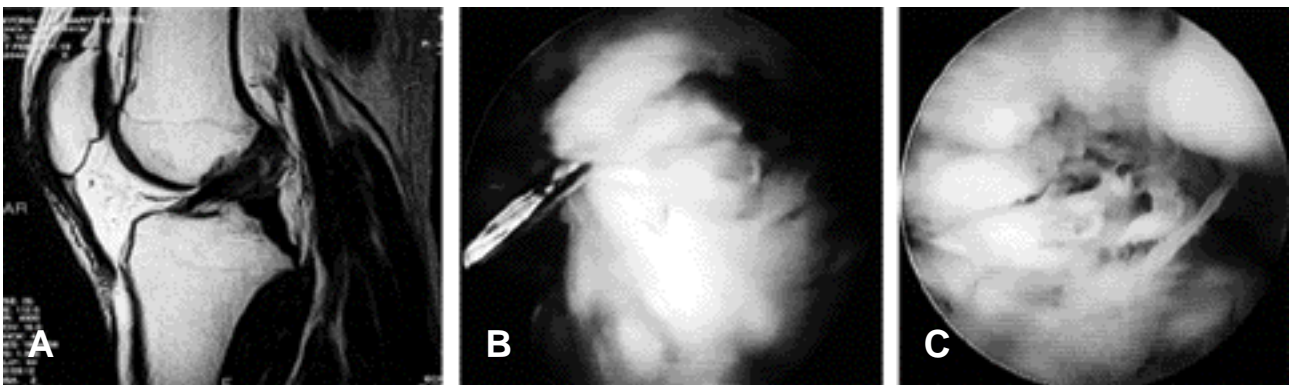


Fig. 1. (A) Sagittal magnetic resonance image shows proximal tear and discontinuity of substance. (B) Arthroscopic finding shows that ACL was grossly intact with synovial coverage. (C) Proximal tear was found with retraction.

가 4,14,18) 가

1,10,17)

가 100%

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Table 1. Positive predictive value of MRI as determined at arthroscopy

	True positive (No.)	False positive (No.)	PPV* (%)
Tear site	52	0	100
Diffuse swelling	57	0	100
Focal edema	4	0	100
Collapse	14	10	58
Combined tear	16	10	61

*PPV: positive predictive value= true-positive results/(true-positive results+false positive results)*100

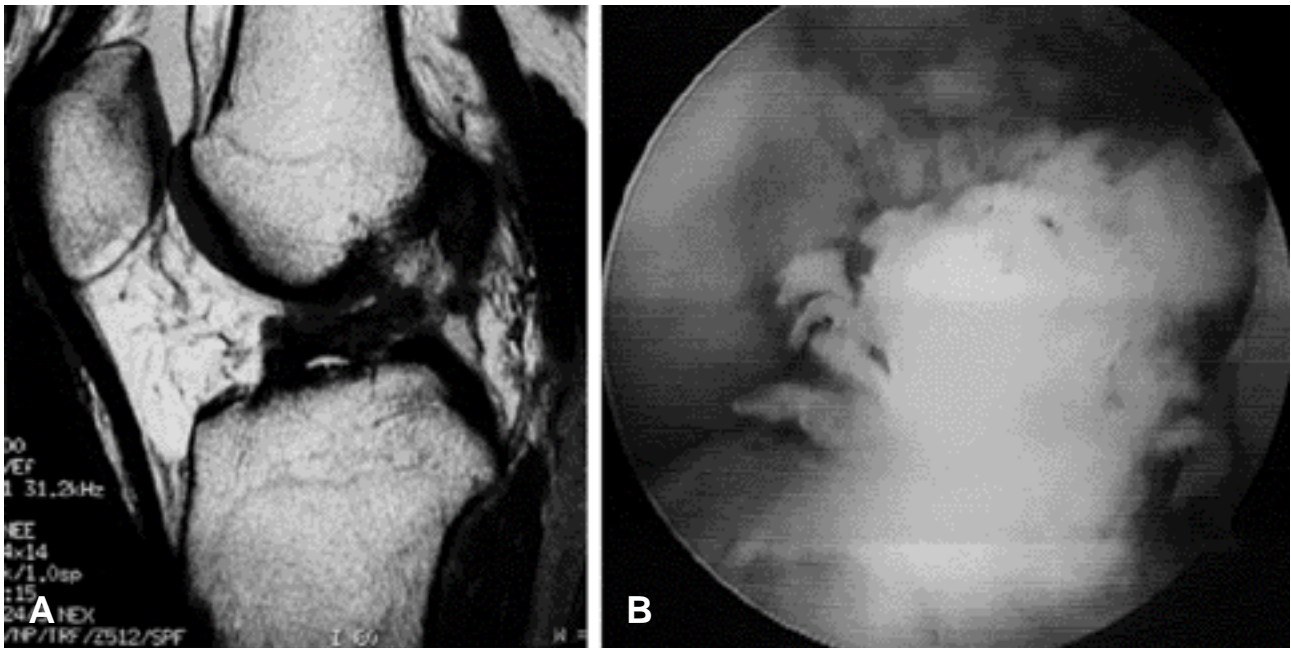


Fig. 2. (A) Sagittal magnetic resonance image shows midsubstance tear and discontinuity of substance. (B) Arthroscopic finding shows that midsubstance tear was found.

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: 2002 1 2004 6

60

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52

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가

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