

# Bilaterally Simultaneous Medial and Lateral Discoid Menisci

Seung-Oh Nam, M.D., Ji-Hwan Kim, M.D.<sup>✉</sup>, Young-Su Byun, M.D., and In-Ho Han, M.D.

*Department of Orthopedic Surgery, Daegu Fatima Hospital, Daegu, Korea*

Most discoid menisci are lateral and medial discoid meniscus is very rare. Several articles have reported on bilateral lateral discoid menisci as well as bilateral medial discoid menisci, and a few articles have reported simultaneous medial and lateral discoid menisci in the same knee. Only one case of simultaneous medial and lateral discoid menisci, bilaterally, has been reported. We present another case of a male patient with bilaterally simultaneous medial and lateral discoid menisci, diagnosed with magnetic resonance imaging and arthroscopy. The patient was treated by arthroscopic partial meniscectomy.

**Key words:** meniscus, bilateral discoid meniscus, meniscectomy, magnetic resonance image

In 1889, Young et al.<sup>1)</sup> first described a lateral discoid meniscus. The first medial discoid meniscus was reported by Cave and Staples<sup>2)</sup> in 1941. Jeannopoulos<sup>3)</sup> reported the first case of simultaneous medial and lateral discoid meniscus in the same knee in 1950. There had been one report for bilaterally simultaneous medial and lateral discoid menisci by Kim and Lubis<sup>4)</sup> in 2010. We report the second case of bilaterally simultaneous medial and lateral discoid menisci with magnetic resonance imaging (MRI) and arthroscopic pictures.

## CASE REPORT

A 22-year-old male patient complained of pain and swelling on his left knee for three months with no precipitating traumatic event. From the medical history, he had undergone arthroscopic partial meniscectomy of contralateral knee at the age of 15-year-old in our hospital. He was diagnosed as having a complete medial discoid meniscus with horizontal tear and intact incomplete lateral discoid meniscus (Fig. 1, 2). The patient was treated by arthroscopic partial meniscectomy for both medial and lateral menisci. And he had no complaint about the right knee.

On physical examination, the patient had medial joint line tenderness and had pain on medial side in McMurray's test. A mild degree of effusion was found. Full range of motion was possible without any mechanical symptoms. No abnormalities were detected with simple radiographs. MRI of left knee showed both discoid medial and lateral menisci. Medial meniscus had horizontal tear and lateral meniscus had no tear (Fig. 3).

At Arthroscopy, a complete discoid medial meniscus with horizontal tear in the body and intact complete discoid lateral meniscus were found (Fig. 4). Lateral discoid meniscus didn't have hypermobility or impingement. Partial meniscectomy of medial meniscus was performed. At the follow-up one year for left knee and seven years for right knee postoperatively, the patient was asymptomatic in left knee and also in right knee. Preoperative Lysholm score of left knee was 68 but right knee had no record. At the last follow-up, Lysholm score of left knee was 97 and right knee was 94. The radiologic findings had no definite interval changes including alignment of lower limb and gaps of both medial and lateral joint space.

## DISCUSSION

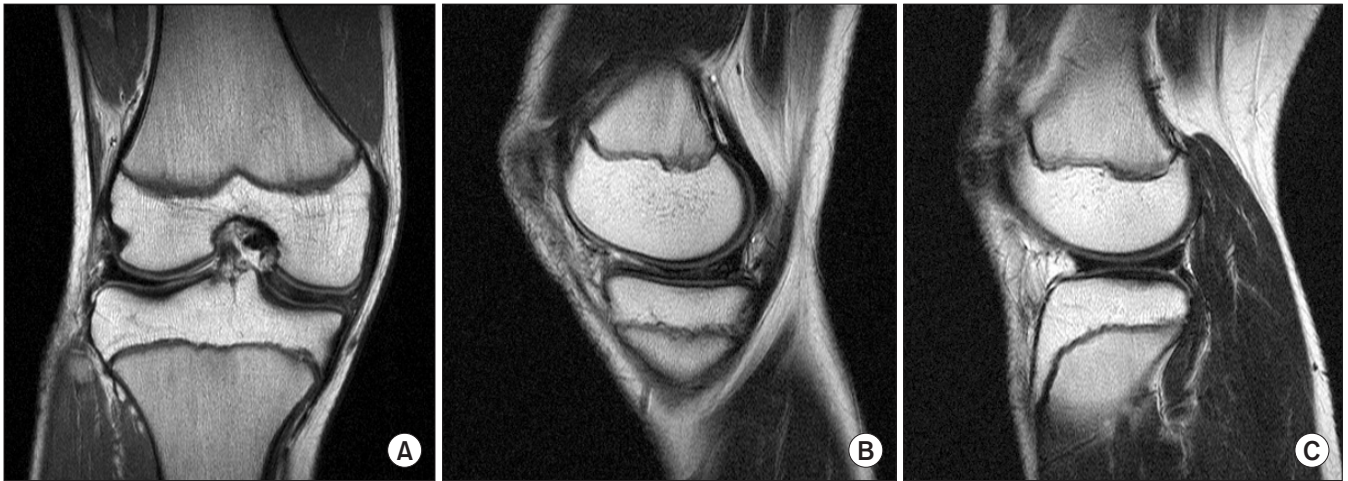
The incidence of discoid lateral menisci ranges from 1.5% to 15.5% and the highest incidence rate of discoid medial menisci reported is 0.3%.<sup>5)</sup> Jeannopoulos<sup>3)</sup> reported the first case of simultaneous medial and lateral discoid meniscus in the same knee in

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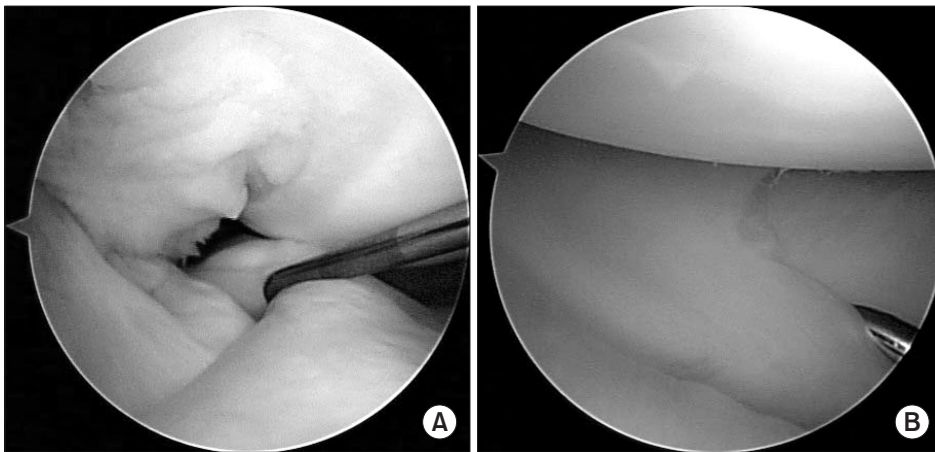
<sup>✉</sup>Correspondence to: Ji-Hwan Kim, M.D.

Department of Orthopedic Surgery, Daegu Fatima Hospital, 99 Ayang-ro, Dong-gu, Daegu 701-724, Korea

TEL: +82-53-940-7320 FAX: +82-53-954-7417 E-mail: hwan1260@naver.com



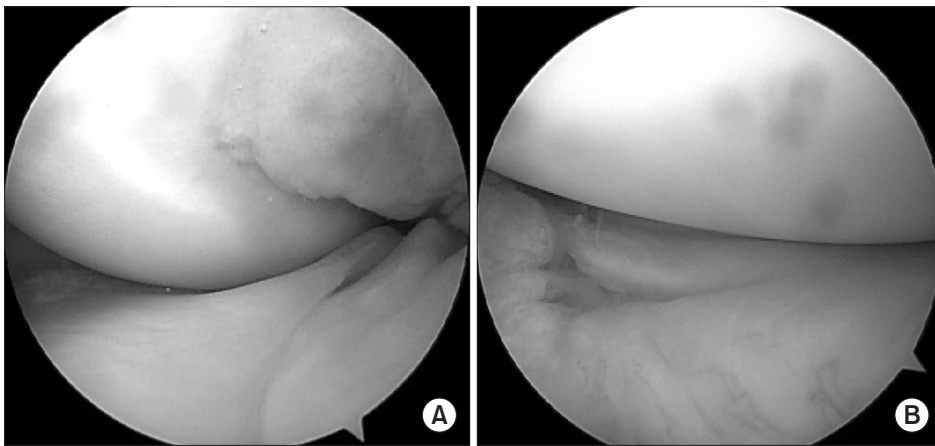
**Figure 1.** Magnetic resonance imaging of the right knee. (A) Coronal image of the right knee shows the medial discoid meniscus with mucoid degeneration and the lateral discoid meniscus with no tear. In sagittal image, the complete medial discoid meniscus has horizontal tear (B) and the incomplete lateral discoid meniscus is intact (C).



**Figure 2.** Arthroscopic views of the right knee. The complete medial discoid meniscus (A) and the incomplete lateral discoid meniscus (B) are shown.



**Figure 3.** Magnetic resonance imaging of the left knee. (A) Coronal image of the left knee shows the medial discoid meniscus with horizontal tear and intact lateral discoid meniscus. Sagittal image shows the complete type medial discoid meniscus with intra-meniscal signal change, which is considered meniscal tear (B) and shows the complete type intact lateral discoid meniscus (C).



**Figure 4.** Arthroscopic views of the left knee. The complete medial discoid meniscus (A) and the complete lateral discoid meniscus (B) are shown.

1950. Yáñez-Acevedo<sup>6)</sup> reported one case of bilateral discoid lateral menisci and unilateral discoid medial menisci in 11-year-old girl. Kim and Lubis<sup>4)</sup> in 2010, firstly described one case of bilaterally simultaneous medial and lateral discoid menisci.

Smillie<sup>5)</sup> classified discoid menisci in three types as primitive, infantile, and intermediate. In 1979, Watanabe et al.<sup>7)</sup> classified 3 types of discoid meniscus: complete, incomplete, and Wrisberg type. The first two vary only on the degree of coverage of the meniscus. The Wrisberg type discoid menisci are hypermobile forms that lack posterior coronary ligaments and capsular attachment. In our case, with Watanabe's classification, the left knee had both medial and lateral complete discoid menisci. And the right knee, according to previous MRI and arthroscopy, had medial complete and lateral incomplete discoid menisci.

Symptoms of discoid meniscus have no specific clinical features, and the main symptoms include tenderness on the joint line, swelling, snapping, giving-way and locking.<sup>6,8)</sup> In our case, there were tenderness and swelling with effusion.

Abnormal radiologic findings of discoid meniscus such as widening of joint line and cupping of the tibial plateau have been reported but our patient had no remarkable radiographic findings.<sup>4,6,9)</sup>

Therefore, diagnosis for the discoid meniscus should be confirmed by either MRI or arthroscopy. Silverman et al.<sup>8)</sup> described MRI can provide accurate diagnosis and assist in pre-operative planning. A discoid meniscus is said to be present if 3 or more contiguous sagittal sections that are 5-mm thick show a continuity of the meniscus between the anterior and posterior horns. The presence of 2 adjacent peripheral 5-mm thick sagittal sections showing equal or nearly equal meniscal height probably indicates a discoid meniscus. Also, coronal images showing a complete meniscus, sometimes extending into the intercondylar notch, in all sections through the knee would indicate a discoid meniscus. Yilgor et al.<sup>9)</sup> reported the accuracy of

MRI about discoid meniscus. The statistical analysis reveal that MRI is 100% specific and 97.8% sensitive in determining whether there is a tear in the discoid meniscus or not. MRI can predict the presence and absence of a tear with an 85.7% negative predictive value and 100% positive predictive value. In our case, all of 4-meniscus showed 3 or more contiguous sagittal sections that are 5-mm thick and both medial menisci had horizontal tear.

The treatment principles of medial discoid meniscus are the same as those of lateral ones. Once validated, partial resection of torn and symptomatic discoid meniscus with arthroscopy is needed. Chen et al.<sup>10)</sup> pointed out that the surgical indication of discoid meniscus injury were similar to those of normal meniscus, and nonsurgical treatment was recommended to those without symptoms. Kim and Lubis<sup>4)</sup> reported good result of bilateral medial and lateral discoid menisci by partial meniscectomy of both torn medial menisci and preservation of intact lateral meniscus in one side. In our case, a complete discoid medial meniscus with horizontal tear in the body and intact complete discoid lateral meniscus were found. Arthroscopic partial meniscectomy of medial meniscus was performed leaving a functional residual rim of the medial meniscus. In general, the results of meniscectomy for discoid meniscus are good.<sup>4,6,10)</sup> Our patient was satisfied with the result of his surgeries and had no complaint.

## CONFLICTS OF INTEREST

The authors have nothing to disclose.

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# 양쪽 슬관절에서 내측 및 외측에 동시에 발생한 원판형 반월상 연골

남승오 · 김지환<sup>✉</sup> · 변영수 · 한인호

대구파티마병원 정형외과

원판형 반월상 연골은 대부분 외측에 발생하고 드물게 내측에도 발생한다. 양측성 외측 또는 내측 원판형 반월상 연골에 대한 보고가 있었고, 한쪽 슬관절의 내측 및 외측에 동시에 발생한 원판형 반월상 연골에 대한 보고도 매우 드물게 있었다. 특히 양쪽 슬관절에서 내측 및 외측에 동시에 발생한 원판형 반월상 연골의 경우는 1예만 보고되었다. 저자들은 양쪽 슬관절에서 내측 및 외측에 동시에 발생한 원판형 반월상 연골을 자기공명영상과 관절경으로 진단하고 반월상 연골 부분절제술로 치료하였던 증례를 보고하고자 한다.

**색인단어:** 반월상 연골, 양측성 원판형 반월상 연골, 연골 절제술, 자기공명영상

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<sup>✉</sup>책임저자 김지환

대구시 동구 아양로 99, 대구파티마병원 정형외과

TEL 053-940-7320, FAX 053-954-7417, E-mail hwan1260@naver.com