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Accessory lateral discoid meniscus

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Abstract The lateral meniscus tends to have more developmental variation than the medial counterpart. This is a report of an accessory discoid layer of lateral meniscus. All arthroscopic, magnetic resonance imaging and histopathological views are presented.

Keywords Accessory discoid · Meniscus · Double-layered

Introduction

Many types of meniscal anomalies have been reported. Among them, discoid meniscus is the most common entity [1]. Spectrum of less common types includes double layered meniscus [2, 3], partial deficiency of the meniscus [4], abnormal band formation [5], hypoplasia [6], ring-shaped meniscus [7] and congenital absence of the menisci [8]. The lateral meniscus is morphologically more variable than the medial meniscus [9, 10]. In this case, the authors present an accessory discoid shaped meniscus underlying the normal lateral meniscus.

Case report

A 52-year-old man referred to our clinic with complains of pain, locking and giving way sensation of the left knee that had begun 5 months ago after an injury. He described that he had little discomfort on the lateral side of his knee before the injury.

On the physical examination, he had full range of motion with medial joint line tenderness and positive McMurray test on the medial side. There was mild lateral joint line tenderness and negative lateral McMurray test. The radiographs were normal. Magnetic resonance imaging (MRI) of the left knee revealed medial meniscus tear and lateral meniscal degeneration (Fig. 1a, b). He underwent arthroscopy of the left knee. Complex tear of posterior horn of the medial meniscus was found and partial menisectomy was performed. In arthroscopic evaluation of the lateral compartment, an accessory discoid-shaped structure was seen under the normal lying lateral meniscus (Fig. 2a, b). This structure looked like articular cartilage, however the arthroscopic examination with the probe showed it to be more closely resemble meniscal tissue. This accompanying cartilaginous structure over the tibial plateau was connected to the upper normal meniscus at the posterior and anterior horns of it. The histopathological evaluation of the resected accessory component revealed that there were dense bundles of

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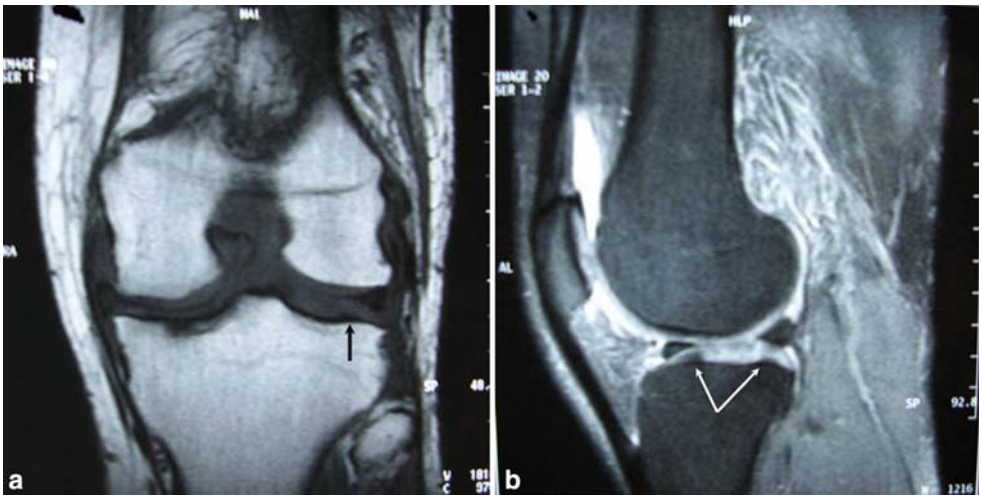

Fig. 1 **a**, **b** Preoperative MRI views of the patient's left knee. *Arrows* are showing the elements of accessory meniscus

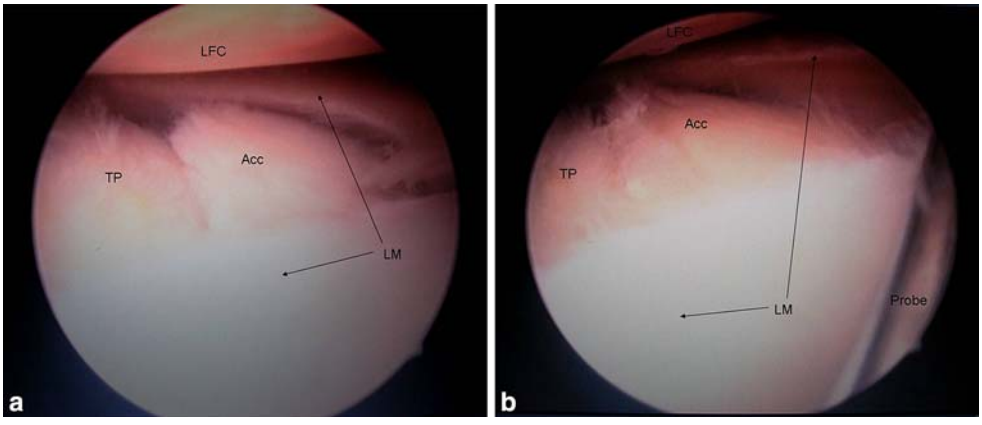

Fig. 2 **a**, **b** Arthroscopic views of lateral compartment. *LM* Normal lying of the lateral meniscus, *LFC* Lateral femoral condyle, *Acc* Accessory meniscus, *TP* Tibial plateau

collagen fibers, in between where chondrocytes singly or in pairs were forming rows (Fig. 3a, b). This appearance was identical to a meniscus structure.

Discussion

Meniscal abnormalities mostly affect the lateral compartment of the knee joint [9]. The most common known anomaly is the discoid structure which was first described by Young [11]. Kaplan [12] established that the discoid form develops gradually after the birth and is a result of abnormal motion of the meniscus due to the unattached posterior segment. Clark and Ogden [9] found that the lateral meniscus does not normally assume a discoid configuration during its development; rather it may be the result of instability due to absence of meniscofemoral attachment. However, they also

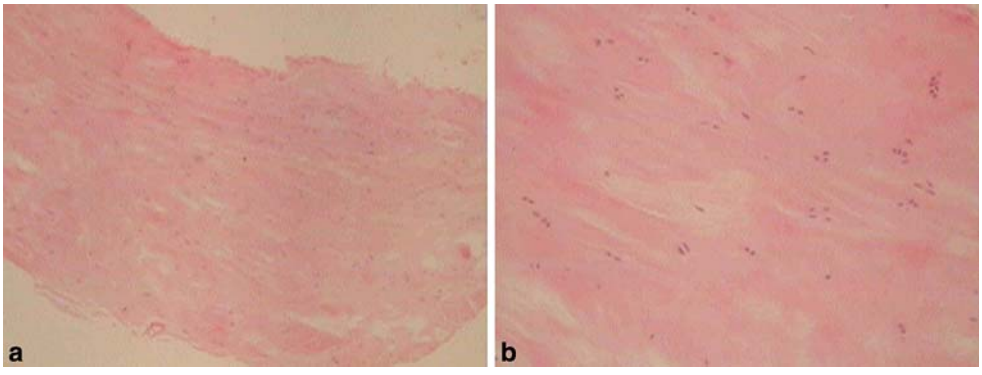

Fig. 3 **a**, **b** Histopathological appearance of resected accessory component. **a** Magnification ×40, **b** magnification ×200

found several knees from perinatal specimens in which the ligaments were small or absent but the lateral meniscus was normal [9]. On the other hand, before these studies Smillie [13] stated that the menisci exist as cartilaginous discs at an early stage of development, and that congenital discoid meniscus is due to occasional persistence of the fetal state.

There are few other anatomical malformations concerning accessory structures. Bailey and Blundel [14] reported first duplicated lateral meniscus which attached to the midlateral surface of lateral femoral condyle extending from posterior to the anterior horn area. Suzuki et al. [2] reported two cases of double-layered lateral meniscus in which one meniscus was overlying the other that were diagnosed during arthroscopy. Kim et al. [15] reported a case of a partially duplicated discoid lateral meniscus. Lee et al. [5] presented two cases with abnormal band of lateral meniscus, which were serpentine shaped and narrower than the accessory meniscus.

In our case, the lateral meniscus was in normal morphology. There was no ligamentous abnormality in the lateral compartment. However, there was an accessory discoid-shaped structure which was arising from tibial plateau and connecting to the capsule at its outer rims. The first appearance of this entity was resembling a chondral flap of tibial articular cartilage. Its arthroscopic examination by a probe and its histopathological evaluation confirmed that it is a typical meniscus structure.

The patient defined that he had had no clear-cut complains before the injury. The presenting symptoms of the patient before the surgery were actually due to the medial meniscus tear and the malformation of lateral meniscus was found incidentally during arthroscopy. Under which anatomical condition this accessory structure formed is unknown. However, we believe that it is most probably a congenital anomaly. The authors propose to leave these malformations untouched if they are not symptomatic.

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