Case Report of a Female with a Medial Discoid Meniscus complicated by a 10-year history of Juvenile Rheumatoid Arthritis

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Introduction: While lateral discoid menisci are relatively common, with a prevalence of 0.4-20% of the population, depending on the cited source, medial discoids are much rarer, seen in 0.06-0.3%[1] of the population. Ordinarily patients are diagnosed only with a discoid meniscus, or occasionally with a concurrent osteochondritis dissecans lesion[2], however there is not usually any associated arthritis with this pediatric population.

Case Report: 17-year-old female presents to orthopedic sports medicine clinic with a 10+ year history of left knee pain. She initially presented to orthopedics as a 6-year-old with a 2-week history of left knee pain and effusion without traumatic cause. She had laboratory testing including Lyme and MRI (Figure 1) all of which were read as normal. She was referred to Rheumatology and received the diagnosis of oligoarticular juvenile rheumatoid arthritis (JRA). She was placed on Naprosyn and given an intra-articular steroid injection with led to remission for 9 years.

She had a recurrence of pain and effusion and underwent another injection and resumed Naprosyn use, but this was only effective for several months. She had 2 more injections to decreasing effectiveness. At this point she underwent another MRI (Figure 2) and was referred to orthopedic sports medicine for a possible medial meniscus tear. On examination the patient had a moderate left knee effusion with an otherwise normal range of motion. She had a stable Lachman, anterior and posterior drawer exam, and a painful medial McMurray's exam with click. The MRI was reviewed, which demonstrated "degeneration and intrasubstance tearing of the medial meniscal body and posterior horn with possible extension to the inner margin of the posterior horn/root junction." It was also suspicious, based on meniscal volume, that there was an incomplete discoid medial meniscus (Figure 2).

Surgically, the patient's synovium had a chronic inflammatory appearance, and so a biopsy sample was obtained, which was read as "synovial hyperplasia and underlining lymphoplasmacytic chronic inflammation including reactive lymphoid nodules" typical of JRA. We then proceeded to observe the medial meniscus, which had posterior redundant tissue typical of an incomplete discoid, with a posterior longitudinal split tear. When the leading edge of the discoid was resected back to the area of the tear, a chronic appearing horizonal tear was revealed. The central aspect was debrided, and 5 total sutures were placed in an all-inside fashion to repair the meniscus. Surgical discarded tissue was used for histological examination.

Discussion: Discoid medial menisci are extremely rare let alone the existence of only one previous citation of a case of discoid concomitant with juvenile rheumatoid arthritis.[3] The patient we present here is the first of her kind, a medial discoid meniscus in a biopsy-confirmed oligoarticular juvenile rheumatoid arthritis knee. The rarity of this situation helps to explain the 10-year lag in her diagnosis, especially with 9 of those years spent in remission.

Significance/Clinical Relevance: There has been no previous investigation into medial discoid menisci and how they relate to both regular menisci and lateral discoid menisci. The presence of concomitant JRA and discoid medial meniscus, while extremely rare, cannot be excluded without a comprehensive exam including both a rheumatologic workup in addition to an MRI and physical exam.

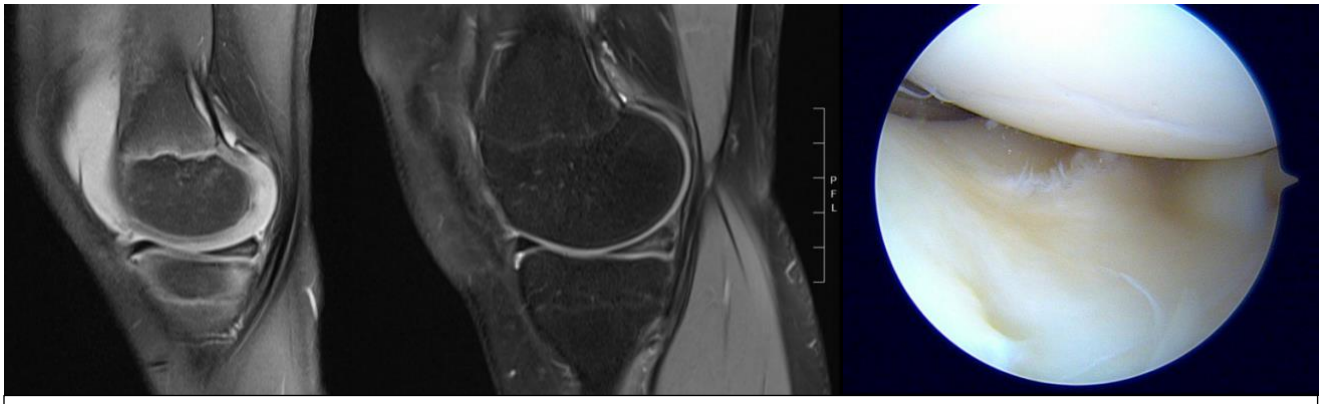

Figure 1: A) Left knee sagittal image at 6yo demonstrating redundant tissue with possible horizontal tear. B) Left knee sagittal image at 17yo demonstrating incomplete medial discoid meniscus with horizontal tear. C) Arthroscopy demonstrating medial discoid meniscus with redundant tissue and posterior longitudinal tear.

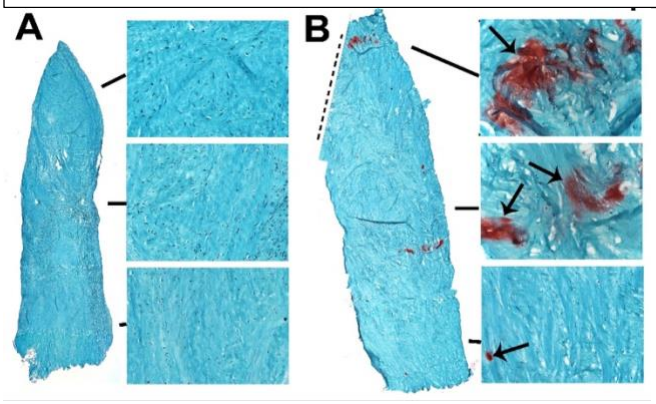

Figure 2: Histological findings in FFPE tissue sections stained with Safranin-O Red to reveal proteoglycan (counterstained with Fast Green). A) meniscal tear resection from a nondiscoid pediatric patient. The entire resection is shown at 30x. The corresponding panels are 100x. Note presence of numerous cells and well-organized tissue structure. B) meniscal resection/saucerization from the medial discoid patient (30x). One corner of the section is missing (dotted line). In the corresponding panelsnote that the matrix is disorganized overall with irregularly oriented fibers and noticeably fewer cells. Variable patches of Safranin-O positive matrix staining are also seen (arrows) (100x).

1) Anderson KG, Carsen S, Stinson Z, Kushare I, Finlayson CJ, Nault ML, Lee RJ, Haus BM; PRiSM Meniscus Research Interest Group; Schmale GA. Medial Discoid Meniscus in Children: A Multicenter Case Series of Clinical Features and Operative Results. Am J Sports Med. 2023 Apr;51(5):1171-1176.
2) Takigami J, Hashimoto Y, Tomihara T, Yamasaki S, Tamai K, Kondo K, Nakamura H. Predictive factors for osteochondritis dissecans of the lateral femoral condyle concurrent with a discoid lateral meniscus. Knee Surg Sports Traumatol Arthrosc. 2018 Mar;26(3):799-805.
3) Rush PJ, Shore A, Wilmot D, Smith C. Discoid meniscus presenting as juvenile rheumatoid arthritis. J Rheumatol. 1986 Dec;13(6):1173-7.