

Discoid Lateral Meniscus : Report of Four Cases With Arthroscopic Treatment And Review of The Literature

Chirag H. Chudasama*, Ankit Syal**

Abstract :

Discoid lateral meniscus is a relatively uncommon anomaly. We present four cases of discoid lateral meniscus, 3 females and 1 male presenting in the age group of 9 to 30 years. 3 out of 4 patients had symptoms and clinical examination suggestive of lateral meniscus pathology. X-rays and Magnetic resonance imaging were obtained for affected knees in which discoid lateral meniscus with tear was found in one case. Furthermore, on arthroscopy, all 3 patients having clinical findings suggestive of lateral meniscus injury showed incomplete discoid lateral meniscus with tear, treated by doing partial meniscectomy. In 1 case discoid lateral meniscus was discovered on arthroscopy, for medial meniscus tear, and was left as such.

Introduction :

Discoid lateral meniscus is a rare entity as compared to other menisci pathologies(0.4-0.5%).It might be revealed as an isolated pathology with tear or in association with other ligaments and medial meniscus injuries, picked up in thorough clinical examination and/or on MRI. We present a case series of 4 patients of discoid meniscus with clinical findings, pathoanatomy and treatment individually.

Material and methods :

From May 2012 to May 2013, four patients were diagnosed in our outpatient department of Orthopaedics, B.J.Medical College, Civil hospital, Ahmedabad. Individual complaints, clinical findings, X-ray, MRI and arthroscopy findings are discussed separately below. All four patients were operated under spinal anaesthesia with tourniquet applied to thigh. Post operative physiotherapy programme included Static Quadriceps Exercise (S.Q.E.) and full weight bearing as soon as patient is able to tolerate pain. No restriction of movement was done

Case Reports :

Case no.1 : 9 year old female presented with history of fall 1 yr back without recurrence with persistent pain in

* Asst. Professor and Consultant Arthroscopy Surgeon

** Resident

Department of Orthopaedics

B. J. Medical College, Ahmedabad.

Lt. Knee, without any symptoms on the contra lateral side. On clinical examination there was 5 degree of flexion deformity, Range of movement was flexion 5-135 degree, lateral joint line tenderness present, no signs of laxity, McMurray's for lateral meniscus was positive(with distinct click), negative for medial side; varus and valgus stress tests were negative.

Duration between MRI and arthroscopy was 5 months, MRI revealed discoid lateral meniscus extending over a length of 19mm to the inter condylar notch with

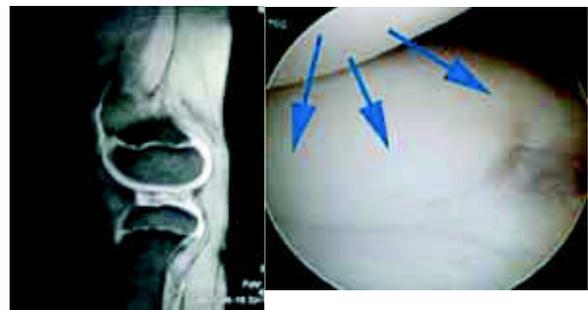


Figure : A1 (MRI showing discoid lateral meniscus with tear)

Figure : A2 (Arthroscopic view of discoid with tear) meniscus with tear)

On arthroscopic examination patient was found to have discoid lateral meniscus (incomplete) with complex tear for which partial meniscectomy was done, rest of structures were normal(Figure A2).

After operation during 1 month follow up patient had no pain, Range of Movement (ROM) was full and free.

Case no.2: 30 year old female presented with history of fall 12 months back with persistent pain in Left Knee, without any symptoms on the contra lateral side. On clinical examination knee ROM was full, lateral joint line tenderness present, no signs of laxity, McMurray's for lateral meniscus was positive(with distinct click), negative on medial side; varus and valgus stress tests were negative.

Duration between MRI and arthroscopy was 1 month, MRI suggestive of complex tear of lateral meniscus with bucket handle component with Anterior cruciate ligament (ACL) tear (Figure B1).



Figure B1 (MRI showing tear of lateral meniscus)
 Figure B2 (arthroscopy view showing bucket handle tear)

On arthroscopic examination patient was found to have discoid lateral meniscus (incomplete) with bucket handle tear for which partial meniscectomy was done, rest of structures were normal (Figure B2).

After operation during 1 month follow up patient had reduced pain, ROM was full and free.

Case no. 3:- 30 year old male presented to us with history of fall 5 months back with persistent pain in right knee and asymptomatic on the contra lateral side. On clinical examination knee ROM was full, lateral joint line tenderness present, anterior drawer and Lachmann tests were positive(++) with firm end point, pivot shift test was negative, McMurray's for lateral meniscus was positive, negative on medial side; varus and valgus stress tests were negative. Duration between MRI and arthroscopy was 2 weeks, MRI showing complex tear of lateral meniscus (Figure C1).



Figure C1 : PD sequence showing tear in lateral meniscus



Figure C2 : Arthroscopy showing incomplete discoid meniscus with tear

On arthroscopic examination patient was found to have incomplete discoid lateral meniscus with oblique tear in middle part (Figure C2) for which partial meniscectomy was done, medial patella plica excision was done and grade II chondral damage of lateral tibia plateau for which abrasionoplasty was done, rest of structures were normal.

Anterior cruciate ligament was found to be lax but not torn.

After operation during 1 month follow up patient had reduced pain and ROM was full and free.

Case no.4: 20 year old female had history of fall 15 days back presented with persistent pain and locking in left knee, without any symptoms on the contra lateral side. On clinical examination knee ROM was full, medial joint line tenderness present, no signs of laxity, McMurray's for medial meniscus was positive, negative for lateral side; varus and valgus stress tests were negative.

Duration between MRI and arthroscopy was 4 days, MRI suggestive of Bucket handle tear of medial meniscus with partial ACL tear (Figure D1).

Figure D1: MRI showing bucket handle tear of medial meniscus. Discoid lateral meniscus not picked up by MRI.



Figure D2 : Arthroscopy picture showing incomplete discoid lateral meniscus, without tear

On arthroscopic examination patient was found to have discoid lateral meniscus (incomplete) without tear left as such (Figure D2), partial meniscectomy was done for bucket handle tear of medial meniscus, rest of the structures were normal (no ACL tear).

After operation during 1 month follow up patient had no pain. ROM was full and free.

Discussion : A discoid lateral meniscus may present as an isolated pathology or with concomitant injuries. Both should be treated appropriately. Diagnosis depends upon accurate history taking and clinical examination for joint line tenderness and McMurray's test.

In MRI the transverse diameter of a normal meniscus is approximately 10 to 11 mm; therefore a normal meniscus body will be visible on only 2 slices of a MRI with 4-5 mm sagittal slices. A discoid meniscus should be considered if more than two contiguous body segments are present. Coronal and radial images of the meniscus are useful to demonstrate the extension of the aberrant meniscus into the joint. On coronal images, it is diagnosed when the horizontal measurement between the free margin and the periphery of the body is more than 1.4 cm.

The most common method of classification of discoid lateral meniscus is that of Wantanabe et al., who described three types: complete or incomplete, based on the degree of coverage of the lateral tibial plateau, and the Wrisberg variant with absent or abnormal posterior meniscal tibial attachment.



Complete and incomplete types are more common, are disc shaped, and have a posterior meniscal attachment. These types usually are asymptomatic, with no abnormal motion of the meniscus during knee flexion or extension. If an incomplete or complete discoid meniscus is torn, symptoms are similar to those of any other meniscal tear that are: lateral joint line tenderness, clicking, and effusion. Wrisberg-type discoid menisci usually are nearly normal in size and shape and have no posterior attachment except the ligament of Wrisberg. Wrisberg-type discoid menisci often occur at a younger age than complete or incomplete types and are unassociated with trauma. Abnormal motion of this type of discoid meniscus results in a popping sound during knee flexion and extension (“snapping knee syndrome”).

The current recommended treatment of a discoid lateral meniscus is based on this system of classification and associated pathology (tears or degeneration). An intact, complete or incomplete discoid meniscus seen as an incidental finding at arthroscopy does not necessarily require treatment unless they are causing grooving, chondromalacia changes, or other pathological conditions within the compartment. Complete and incomplete lesions with tears of the discoid component are partially resected (sub- total meniscectomy or saucerisation) to a stable peripheral rim of lateral meniscus 6 to 8 mm wide.

For a Wrisberg-type discoid meniscus, which lacks an adequate posterior tibial attachment, the treatment generally is total meniscectomy, however some recent studies have shown good results with repairs of this type of variant when menisci were found to be healthy.

Conclusion : A discoid lateral meniscus may present as a primary pathology or may be discovered during a systematic examination of the knee in which other abnormalities may be producing symptoms. MRI can be used as an important non-invasive tool. The abnormality accounting for the symptoms should be appropriately corrected, and the discoid lateral meniscus should be left intact unless torn or degenerative. Careful evaluation of the superior and the inferior surfaces of the meniscus is necessary to rule out a meniscal tear. It is crucial to classify the type of discoid menisci with its pathoanatomy (especially wrisberg type) for the treatment for these groups of patients.

References :-

- Cave EF, Staples OS: Congenital discoid meniscus: A cause of internal impingement of the knee. *Am J Surg* 1941, 54:371-376.
- Jeannopoulos CL: Observations on the discoid menisci. *J Bone Joint Surg Am* 1950, 32:649-652
- Ding J, Zhao J, He Y, Huangfu X, Zeng B: Risk factors for articular cartilage lesions in symptomatic discoid lateral meniscus. *Arthroscopy* 2009, 25:1423-1426
- Management of discoid lateral meniscus tears: observations in 34 knees.
- [Atay OA](#), [Doral MN](#), [Leblebicioğlu G](#), [Tetik O](#), [Aydingöz U](#).
- 5) Arthroscopic treatment of symptomatic discoid meniscus in children: classification, technique, and results. [Good CR](#), [Green DW](#), [Griffith MH](#), [Valen AW](#), [Widmann RE](#), [Rodeo SA](#).