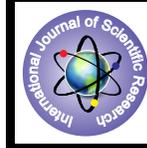


A ring shaped lateral semilunar cartilage a case report and review of literature



Medical Science

KEYWORDS: Ring-shaped Lateral semilunar cartilage Developmental anomaly

sanjay chougule

ABSTRACT

We present a rare congenital abnormality of the lateral meniscus. A careful perusal of the English literature to date makes us feel that the following case merits recording.

Introduction –

Congenital anatomic variations of the lateral meniscus have been rarely reported in the literature. In addition, there have been only a few reports of ring-shaped lateral menisci. Here we describe an abnormally shaped lateral meniscus, which was discovered as an incidental finding. We believe that this abnormal meniscus is a developmental anomaly rather than an old, displaced, bucket-handle tear.

Case presentation –

A 34 year old white European male presented with pain in his left knee, which he attributed to a football injury. His knee had been normal prior to the injury. The referring general practitioner's letter stated that the patient had difficulty running and playing football. His presenting complaint was pain at the medial aspect of the left knee, with no history of locking. He also complained of difficulty running and playing sports.

Clinical examination revealed tenderness along the medial joint line. The knee could be fully extended, but flexion was painful. The McMurray test was positive for a tear in the medial meniscus. Lachman's test was negative, indicating that the anterior cruciate ligament was intact. Radiographs did not reveal any significant abnormalities. Because of the severity of his symptoms, the patient underwent arthroscopy of his left knee. A ring-shaped lateral meniscus was visualized during arthroscopy.

Conclusion –

Ring-shaped lateral menisci have rarely been described. Our patient presented following a twisting injury while playing football, had pain over only the medial joint line without locking of the knee, and had been asymptomatic before injury. Previous reports suggest that a ring-shaped meniscus could be an old bucket-handle tear; however, our patient was asymptomatic prior to his injury so we strongly suspect that this is a developmental anomaly.

Introduction

Congenital anatomic variations of the lateral meniscus have been rarely reported in the literature. In addition, there have been only a few reports of ring-shaped lateral menisci. Here we describe an abnormally shaped lateral meniscus, which was discovered as an incidental finding. We believe that this ring-shaped meniscus is a developmental anomaly rather than old, displaced, bucket-handle tear.

Case presentation

A 34-year-old man presented with pain in his left knee, which he attributed to a football injury. His knee had been normal prior to the injury. The referring general practitioner's letter stated that he has difficulty running and playing football. His presenting complaint was pain at the medial aspect of the left knee with no history of locking. He also complained of difficulty running and playing sports.

Clinical examination revealed tenderness along the medial joint line. The knee could be fully extended, but flexion was painful. The McMurray test was positive for a tear in the medial meniscus. Lachman's test was negative, indicating that the anterior cruciate ligament was intact. Radiographs did not reveal any significant abnormalities. Magnetic resonance imaging showed only a tear of the medial meniscus, and the lateral meniscus was not mentioned in the imaging report. Because of the severity of his symptoms, the patient underwent arthroscopy of his left knee. During arthroscopy we found an oblique tear of the medial meniscus, which was treated by partial meniscectomy (Fig A,B). The lateral meniscus was visualized as a complete ring (Fig C,D,E,F), which was stable with smooth edges and showed no evidence of a previous bucket-handle tear

Postoperatively the patient's symptoms resolved and the portal wounds healed well. He was referred for outpatient physiotherapy and at the time of this report he remained asymptomatic.

Conclusion

Ring-shaped lateral menisci have rarely been described in the literature. Our patient presented following a twisting injury while playing football, had pain only over the medial joint line without locking of the knee, and he had been asymptomatic before injury. Previous reports suggest that a ring-shaped meniscus could

be an old bucket-handle tear; however, our patient had been asymptomatic prior to injury so we strongly suspect that this is a developmental anomaly.

Discussion

Embryology of the medial meniscus (Ref 1)-

The lower limb bud first appears at four weeks of gestation. By six weeks, chondrification of the femur, tibia, and fibula has commenced. At this time the knee consists of a mass of blastemal cells. The medialmeniscus is identifiable approximately seven weeks after ovulation. Each meniscus assumes its characteristic shape during prenatal development. A ring meniscus is an atavism; ring-shaped menisci are normally found in the chimpanzee.

Only a few cases of ring-shaped lateral menisci have been reported. Watson-Jones (Ref 2) first described this anomaly in 1930, and he too was uncertain of its etiology. In 1952, Basmajian (ref 3) identified a ring-shaped medial meniscus during dissection of the cadaver of a previously asymptomatic patient. In the opinion of Professor R. I. Harris, the present case "represents a bucket-handle tear that has been completely displaced into the intercondylar notch for long enough to smooth the anterior and posterior portion of the junctions of the separated free margin of the meniscus with the cartilage proper." While this is a very real possibility, it raises the question of whether the ring-shaped meniscus in this case is developmental or traumatic in origin.

Our patient had been asymptomatic until he sustained a twisting injury while playing football. His pain was exclusively over the medial joint line and his knee did not lock. A partial medial meniscectomy resulted in complete resolution of his symptoms. His history and presentation lead us to believe that, although previous reports suggest that a ring-shaped meniscus may be an old bucket-handle tear, in this case the ring-shaped lateral meniscus is likely to be a developmental anomaly.

Consent

"Verbal informed consent was obtained from the patient for publication of this Case report and any accompanying images."

Competing interests

“We do not have any competing interests.”

Authors’ contributions

“GT/SC analyzed and interpreted the patient data regarding the investigations and treatment and was a major contributor in writing the manuscript.”

Authors’ information (optional)

I work as a senior registrar/ locum consultant in East Surrey Hospital, my special interest is in lower limb (hip/knee). My qualifications are MBBS, Diploma Orthopaedics, FCPS Orthopaedics, MRCS and FRCS Trauma &Orthopaedics.



A



B



C



D



E



F

Fig A- Medial maniscal tear
 Fig B- Medial meniscus after excision
 Fig C- Ring shaped lateral meniscus 1
 Fig D-Ring shaped lateral meniscus 2
 Fig E-Ring shaped lateral meniscus 3
 Fig F-Ring shaped lateral meniscus 4

REFERENCE

- 1.Clark, C. R., and Ogden, J. A.(1983) Development of the menisci of the human knee joint.Morphological changes and their potential role in childhood meniscal injury. *J. Bone and Joint Surg.*, 65-A:538-547. | | 2.WATSON-JONES, R. (1930) : Specimen of Internal Semilunar Cartilage as a Complete Disc. *Proceedings of the Royal Society of Medicine (Section of Orthopaedics)*, 23, 1588. | | 3.J. V. BASMAJIAN : A RING-SHAPED MEDIAL SEMILUNAR CARTILAGE | 638 *THE JOURNAL OF BONE AND JOINT SURGERY*TORONTO, CANADA | ITOH? theDepartozent of A ;zatoniv, L,z,i'cr.st.v of Toronto |