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

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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.

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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 meniscofemoral ligament 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, Basmajan (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 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.

Fig A: Medial meniscal 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

