Malays J Pathol 2021; 43(2): 337 – 338

LETTER TO EDITOR

Intra-articular loose bodies: a clinico-radiological conundrum with distinctive pathological morphologies

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Dear Editor,

Intra-articular loose bodies (LB) are a cause of joint pain and are one of the most common indications for hip arthroscopy.[1] These LB can be due to rice bodies (RB), which occur as a response to chronic synovitis, and can be seen in rheumatoid arthritis (RA), tuberculosis or an unknown aetiology.[2-4] Synovial chondromatosis (SC), is a benign but locally aggressive neoplasm consisting of cartilaginous nodules, can also manifest as intra-articular LB.[5,6] Although RB can be distinguished from SC on magnetic resonance imaging (MRI),[7] histopathological examination remains the method of definitive diagnosis. This distinction is crucial as there is a risk of malignant transformation with primary SC.[8,9] Herein, we present two cases of intra-articular LB, with distinct morphologies on histopathological examination despite similar clinical presentations.

A 52-year-old female with a seven-year history of RA, presented with persistent right shoulder pain. MRI revealed numerous LB in the sub-acromial bursa (Figure 1A, arrow). Intraoperatively, more than 100 loose bodies were present in the sub-acromial space. Histopathological evaluation showed multiple nodules (Figure 1B), comprising amorphous nodules of fibrin admixed with collagen, neutrophils, histiocytes and debris (Figure 1C), consistent with RB. Another 46-year-old male with a one-year history of right knee osteoarthritis underwent arthroscopic debridement for pain control. Intraoperatively, more than 50 intra-articular LB were present. Despite a similar clinical presentation to the 52-year-old female, histopathological examination showed multiple nodules comprising clusters of chondrocytes surrounded by hyaline cartilaginous matrix (Figure 1D), consistent with SC. Some of the chondrocytes exhibited mild nuclear atypia (Figure 1E), however, there were no atypical mitoses or frank infiltration into adjacent structures.

On imaging, RB is isointense on both T1- and T2-weighted images,[10] in contrast to SC which is isointense to slightly hyperintense compared to muscle on T1-weighted images whilst appearing hyperintense on T2-weighted images.[11] Calcifications are often seen in SC, corresponding to areas of signal void on all imaging sequences.[11] However, these differences can be very subtle[12] especially in SC without calcifications. The locality is not entirely helpful as both SC and RB can occur in the sub-acromial region as well as the knee.[13,14] Hence, histopathological examination is necessary to provide a definitive diagnosis.

RB formation reflects an inflammatory process and is benign, whereas primary SC is a locally aggressive neoplastic process bearing recently described FN1 and/or ACVR2A mutations.[15] In addition, chondrosarcomas arising in primary SC are seen in up to 6% of cases and usually occur in larger tumours or long-standing cases with multiple recurrences.[8,9] This underscores the importance of distinguishing these two entities.

In conclusion, intra-articular LB can be difficult to distinguish based on clinico-radiological features. Differential diagnoses include RB and SC, which have distinctive pathological morphologies. The need for a definitive diagnosis is warranted, given the potential for malignant transformation to chondrosarcoma in SC.

Keywords: loose, bodies, rice, rheumatoid, synovial, chondromatosis

Acknowledgement: None. This research did not receive any funding.

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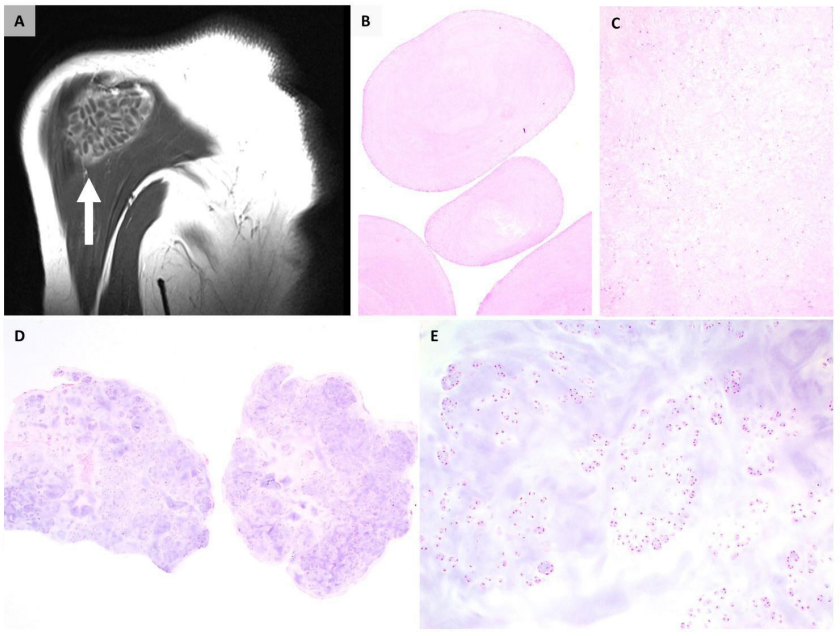

FIG. 1: (A) Intra-articular loose bodies seen on magnetic resonance imaging (arrow); (B) multiple eosinophilic nodules seen on H&E; (C) these nodules are made up of fibrin admixed with neutrophils; (D) multiple nodules comprising lobules of cells surrounded by hyaline cartilaginous stroma; (E) These cells were polygonal, located in lacunae and exhibit mild nuclear atypia.

Authors' contribution: THC and YLT contributed to the conception, preparation, writing and approval of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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