

A case report of synovial chondromatosis of the knee

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ABSTRACT

Synovial chondromatosis is an uncommon disease characterised by foci of cartilage in the synovial tissue of joints, due to metaplasia of intimal layer of synovium. It affects most commonly knee joint. Involvement of smaller joints has also been reported, which includes distal radioulnar, tibio fibular, metacarpophlangeal and metatarsophalangeal joint. The aetiology of the disease is uncertain. We are presenting a case of a 47-year-old male who presented with an eight month history of progressive right knee pain with associated swelling and was diagnosed as chondromatosis. The patient underwent surgical treatment and was discharged.

Key words: Chondromatosis, loose bodies, metaplastic synovium

INTRODUCTION

Synovial chondromatosis is an uncommon disease characterised by a foci of cartilage in the synovial tissue of joints, due to metaplasia of intimal layer^[1] of synovium. It affects the knee joint most commonly,^[2] rarely bursal lining and tenosynovium.^[2] The aetiology of the disease is uncertain. Milligram classified the disease into three phases: Early (active intrasynovial disease but no loose bodies), transitional disease (active disease and loose bodies), and late (multiple loose bodies but no intrasynovial disease)^[2]. Involvement of smaller joints has also been reported, which includes distal radioulnar, tibio fibular, metacarpophlangeal and metatarsophalangeal joint.^[3-7] It occurs twice as frequently in men than women and usually presents with increasing joint pain and swelling during the third to fifth decade.^[4] A patient with synovial chondromatosis experiences a decreased range of motion, palpable swelling, effusion, and crepitus.^[8]

CASE REPORT

A 47-year-old male presented with history of progressive right knee pain since 8 months which was present at rest, and worsened on standing (bearing weight), thus restricting his walking. His knee had become increasingly swollen. The patient was otherwise fit and well. His past medical history was normal and he was only taking analgesics for the pain. On examination there was quadriceps wasting, generalized swelling of the knee and the popliteal fossa appeared full. On palpation, effusion was present. There was a diffuse tenderness all around the knee, there was no raise of local temperature. The radiographs of knee showed a single radio-opaque loose body in the postero-medial corner of knee. No neuropathic joint changes or osteoarthritis was seen. MRI of the knee revealed multiple calcified loose bodies in the lateral recess of the supra patellar bursa at the level of lateral femoral condyle and posteriorly in the midline at the level of the tibiofemoral joint. Patient was treated with synovectomy and excision of loose bodies through posterior approach.[Figure 1] Post operative period was uneventful, pain free, and his range of movement was increased to 120°. There is no recurrence, and his recent radiographs are within normal limits.

DISCUSSION

Synovial chondromatosis is a rare metaplastic condition which is characterized by formation of cartilaginous bodies

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Figure 1: Gross image of the cartilaginous tissue obtained from the knee joint



Figure 2: X- ray of the knee joint showing a single radio-opaque loose body

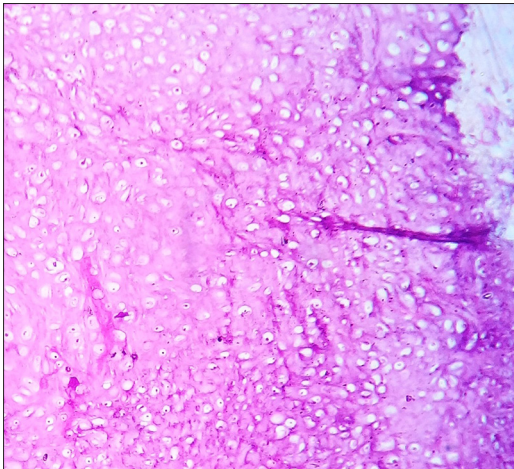


Figure 3: Photomicrograph showing high power microscopic view of mature chondrocytes [H and E ×40]

within the synovium and subsynovial connective tissues of the large joints. Chondromatosis depends on metaplastic transformation of the synovial cells into chondrocytes via an unknown stimulus.^[1] The chondrocytes so formed become pedunculated and encrusted inside the synovium

and are eventually expelled into the joint as loose bodies.^[9] There are three phases in the disease process of synovial chondromatosis. Phase 1- Metaplasia of synovium with active synovitis and absence of loose bodies. Phase 2- Active synovitis with the formation of loose bodies, which are still cartilaginous. Phase 3- Loose bodies tends to calcify and synovitis subsides.^[3] Primary synovial chondromatosis is a very rare monoarticular synovial disease.^[2] Secondary chondromatosis is common, where articular cartilage is shred and found as loose bodies in the joint. Extra-articular synovial chondromatosis is rare, Extra-articular diseases can be classified as tenosynovial chondromatosis or bursal chondromatosis depending on the origin.^[10] Physical findings include limited movements, tenderness, effusion, mass, palpable loose bodies, crepitus on motion, synovial thickening. Although benign, it can sometimes be destructive and cause severe osteoarthritis, pain and disability.^[11] Radiographic findings include single/multiple radio-opaque loose bodies with osteoarthritis changes, although sometimes normal.^[12] [Figure 2] Microscopically, it is seen as a large number of cartilaginous masses just beneath or around the synovial membrane lining with typical metaplastic foci in the sublining layer of stratum synoviale.[Figure 3] Surgical treatment for synovial chondromatosis proved beneficial for these patients. By means of identified indications, selecting an appropriate surgical approach provides a rapid recovery and low incidence of recurrence.^[13] Malignant transformation to chondrosarcoma is an unusual but possible complication. It is closely associated with recurrence rate and usually occurs 10 years after surgical treatment.^[14] Kukreja presented a similar case report of synovial chondromatosis arising from marginal synovium.^[15]

CONCLUSION

A synovial chondromatosis is a rare condition which can be highly aggressive and destructive. This case highlights the importance of careful clinical assessment, lateral thinking, appropriate use of investigation, and careful pre-operative planning. The peculiarities of this case are its age of presentation and metaplastic synovium at the margins of the joint.

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