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Case Report

Primary Bilateral Synovial Osteochondromatosis of the Knee Joint

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ABSTRACT

Background: Synovial osteochondromatosis (SOC) is a rare, benign condition characterized by proliferation of synovial lining and metaplasia. The disease is usually mono articular and commonly involves knee joint, but it can also occur in shoulder, elbow, hip and ankle joints. Bilateral joint involvement is extremely rare and has been reported only in ankle and tempero mandibular joint. A thorough literature search did not reveal any case report of SOC affecting bilateral knee joints.

Case: We report a case of 36 year old female who presented with complaint of pain and swelling in both the knee joints of two years duration. There was tenderness and effusion on local examination. Plain X-ray revealed multiple radio opaque round bodies. Patient underwent complete synovectomy and loose body removal. Histopathology confirmed the diagnosis of bilateral SOC.

Conclusion: Bilateral SOC of knee joint is extremely rare. A close coordination between the clinician, radiologist and pathologist is essential for accurate diagnosis and management.

Key words: Synovial osteochondromatosis (SOC), bilateral, knee joint, loose bodies.

INTRODUCTION

Synovial osteochondromatosis (SOC) is a rare disease involving the synovial lining of joints, bursae or tendon sheaths. A benign self-limiting disease of adults, it is characterized by formation of multiple osteocartilaginous bodies in synovial membrane. [1] Disease is usually monoarticular and the most common joint affected is the knee, but it can occur in hip, elbow, shoulder, ankle and wrist joint in the decreasing order of frequency. [2] Bilateral involvement is extremely rare. Documented case reports of bilateral presentation are usually seen in ankle joints, tempero

mandibular joints and rarely hip joints. [3, 4] Careful clinical history, a thorough physical examination aided by radiology and histopathology leads to correct diagnosis and guides in planning management. We describe an extremely rare case of bilateral SOC of knee joint with brief review of literature.

CASE REPORT

A 36 year female presented with complaint of pain and swelling in both the knee joints of two years duration. There was no history of any joint disease in the past. On examination there was swelling, tenderness and signs of effusion in both the knee joints. Plain X-ray revealed multiple radio opaque round bodies. Rest of the joints and bones did not show any other changes. A provisional diagnosis of SOC was rendered. Patient underwent synovectomy and the tissue was sent for histopathological examination.

Grossly synovial membrane was covered with multiple grey white translucent polypoidal nodules of varying sizes (Figure 1). Cut section was gritty grey white in centre and translucent grey white at periphery.

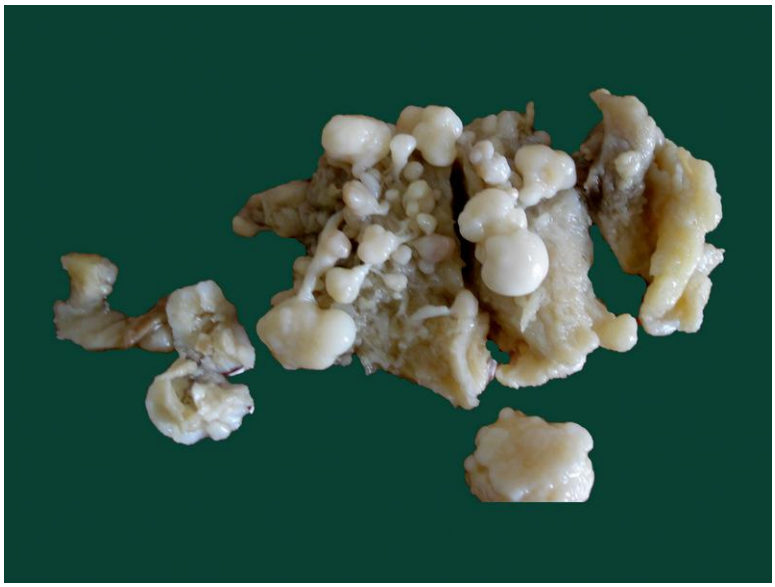

Figure 1: Gross showing multiple grey white translucent polypoidal nodules of varying sizes.

Microscopy showed synovial tissue with attached and embedded lesions composed of mature hyaline cartilage islands, many with foci of ossification (Figure 2 and 3). There was no evidence of malignancy. Histopathology confirmed the diagnosis of primary synovial osteochondromatosis.

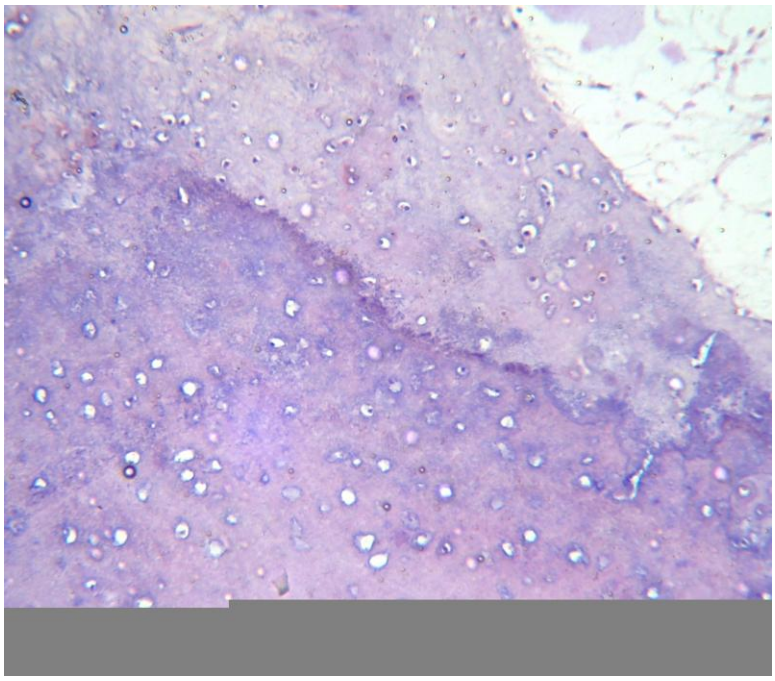

Figure 2: Histopathology showing mature cartilage (Hematoxylin and eosin x100)

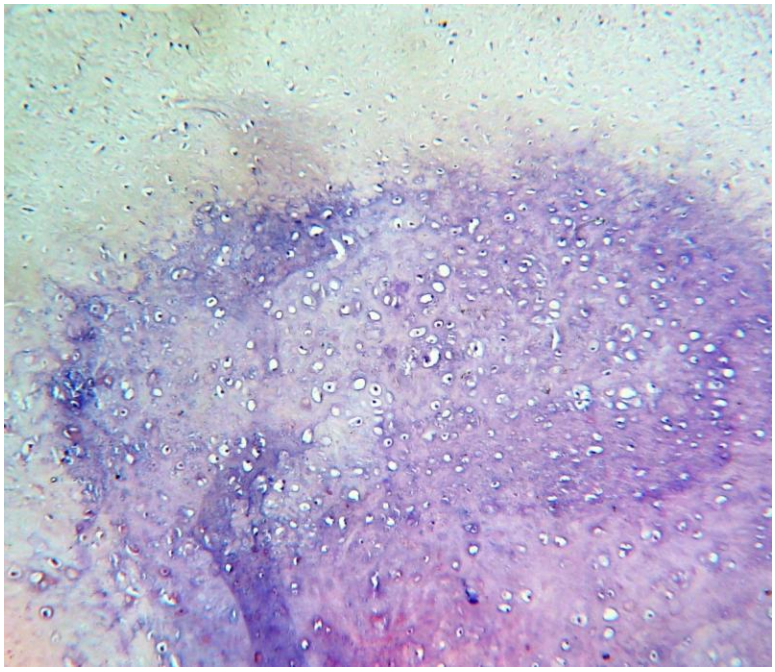

Figure 3: Histopathology showing ossification occurring in the cartilaginous tissue. (Hemoatoxylin and eosin x 100)

DISCUSSION

Synovial osteochondromatosis is a rare entity. It is common in third to fifth decade of life and twice more common in males. [1,5] Disease is usually monoarticular and the common joints affected are knee, hip, elbow, shoulder, ankle and wrist joint in the decreasing order of frequency. [2] Over 50% of reported cases occur in knee joint.[6] Bilateral involvement is extremely rare. Documented case reports of bilateral presentation are usually seen in ankle joints, temperomandibular joints and rarely hip joints. [3,4] Bursae, tendon sheath and soft tissues may rarely be involved. [7] SOC has been classified as primary and secondary. [8] Primary SOC involves otherwise normal joints and secondary SOC includes those cases in which there is underlying degenerative joint disease, osteochondritisdissecans, or neuropathic arthropathy.[1, 8, 9]
Primary form is more likely to recur following surgical removal.

Though aetiology is unknown, irritation due to minor trauma, infection or some chromosomal aberrations has been suggested as possible causative factors. [9]
Clinically patients present with complaints of gradual onset of joint pain, swelling or stiffness. On disease progression there can be decreased range of movements, effusion, crepitation and eventually locking of joints.

Examination reveals tenderness, signs of effusion with reduced range of motion in affected joint. A palpable mass (loose body) may be felt, which appear as multiple round to oval bodies on plain X ray when calcified. Magnetic resonance imaging or computed tomography scans aid in identifying the non-calcific bodies. [10]

Other than degenerative diseases of joint, synovial chondrosarcoma and chondrosarcoma of bone are the close differential diagnosis. [4]

On macroscopy there is diffuse or focal involvement of synovial membrane with multiple small grey white translucent shiny polypoidal nodules ranging from one mm to three mm. [9] Nodules are often concentrated near the synovial cartilage junction, many lay freely in the joint space as loose bodies.

Microscopically nodules appear as focal islands of metaplastic hyaline cartilage embedded in synovium. Chondrocytes may show hypercellularity, nuclear enlargement and pleomorphism. Advanced stages may show mineralization and ossification. Milgram had described three stages of synovial osteochondromatosis. 1. Active intra synovial disease (metaplasia without loose bodies), 2. Transitional phase (metaplasia with loose bodies) and 3.Quiescent synovial disease (loose bodies without metaplasia). [11]

SOC is a non-aggressive condition with a fairly good prognosis. Rare cases of malignant transformation of primary SOC have been documented, the relative risk being 5% according to a study by Davis. [12]
Treatment includes synovectomy (open or arthroscopic) with loose body removal. Synovectomy alone without loose body removal leads to local recurrence. [4, 10]

CONCLUSION

In summary, the present case highlights the fact that though rare, SOC can involve the joint bilaterally and thus it should be considered in the differential diagnosis of any patient presenting with bilateral knee pain and effusion. Thorough literature search revealed did not reveal any case of primary bilateral SOC of knee joint. SOC can be mistaken for malignancy and hence a combined clinical, radiological and histopathological approach helps in accurate diagnosis.

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