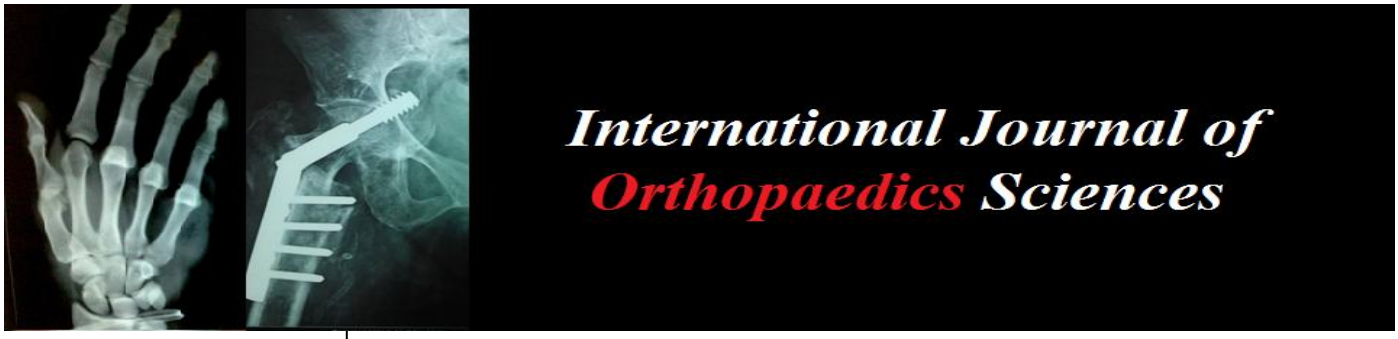

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Management of a Rare Case of Synovial Chondromatosis of Hip: Case Report and Review of Literature

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Abstract
Primary synovial chondromatosis of the hip.is a rare benign metaplastic condition of the synovium of unknown aetiology. We report a case of 27 year old female presented to us with pain and restriction of movements of the hip treated by debridement and removal of loose bodies via anterior approach to the hip. A literature search was performed to identify studies describing outcome after surgical treatment of synovial chondromatosis of hip by various methods like arthroscopic debridement, total hip arthroplasty and debridement via arthrotomy. Post operative outcome of our case was assessed by post operative radiograph and harris hip score.

Keywords: Synovial chondromatosis, hip, arthrotomy

Introduction
Synovial chondromatosis is a non-neoplastic condition where metaplastic cartilage nodules in the synovium of the joints, bursa, or tendon sheath are present. Lesions are almost always monoar-ticular and tend to occur in large joints, with the most frequent location in the knee and less frequently in the pelvis, elbows, wrists, ankles, and temporomandibular joints [1]. Primary synovial chondromatosis (also known as Reichel syndrome or Reichel-Jones-Henderson syndrome) is characterised by synovial metaplasia of unknown aetiology. Various theories such as raised bone morphogenic protein (BMP), interleukin-6 (IL-6), and vascular endothelial growth factor-A (VEGF) and trauma leading to the synovial metaplasia and formation of loose bodies in Primary synovial chondromatosis have been suggested but yet unproven [2]. Giant solitary synovial chondromatosis is first described by Edeiken *et al*. They set the definition as a mass larger than 1 cm in size. The masses are formed either by clumping of multiple chondromas, forming one large mass, or by growth of a single chondroma. On radiographs, these lesions can be difficult to distinguish from a low-grade malignancy. Few cases of giant synovial chondromatosis have been described, occurring in the ankle, hip and knee. Microscopically, SC is characterised by the formation of multiple cartilaginous proliferating nodules. These nodules detach and form nodules within the joints or surrounding soft tissue. Erosion of articular surfaces and mechanical wear of joint surfaces leads to the development of features of osteoarthritis [3]. These changes lead to the development of typical articular symptoms of pain, locking, and limitations of joint movements. Primary 'Synovial chondromatosis' of the hip (PrSC of the hip) is an uncommon condition, and its prevalence is not exactly known. Diagnosis of SC of any joint is facilitated by imaging studies like plain Radiographs, Magnetic Resonance Imaging (MRI), and Computed Tomography. Radiological features depend on the stage of disease and the extent of calcification or ossification of the cartilaginous nodules. Plain radiographs may reveal soft tissue swelling, joint erosion, and a characteristic appearance of multiple small, juxta-articular radio-opaque nodules. Since the PrSC of the hip is a rare condition, there is a paucity of knowledge about this condition and its management protocols. An optimal surgical approach and treatment options remain controversial. Several procedures have been described to manage it including joint

debridement and synovectomy using open arthrotomy with or without hip dislocation, minimally invasive surgery, or by arthroscopic surgery.

The current article emphasise on presentation of a rare case of synovial chondromatosis and its management.

Case report

We present a case of 27 year old female came to our opd with pain right hip since 1 year associated with restriction of movements of right hip. Pain was insidious in onset and gradually progressive. She had no history of significant trauma, loss of weight and loss of appetite. There was no history of fever and involvement of any other joint. Patient had no contact with tuberculosis. On examination hip was in external rotation. On palpation there was anterior joint line tenderness of hip joint with restricted rotations and flexion deformity of 20 degrees. There was no limb length discrepancy. Plain radiographs of pelvis with both hips ap view was suggestive of multiple loose bodies around the right femoral neck (Fig 1). There were elevated inflammatory markers and MRI of both hips were suggestive of synovial chondromatosis (Fig 2, 3). After obtaining the surgical consent and pre-anesthetic fitness patient was posted for excisional biopsy. The pre-operative HARRIS HIP SCORE was 62.5. Surgical procedure: under spinal anesthesia and under strict aseptic precautions via Smith-Peterson approach hip joint capsule was exposed anteriorly after reflecting the head of rectus femoris. The capsule was incised and and loose bodies were extracted (Fig 4,5) with the largest loose body measuring around 4cm and all the loose bodies were sent for histopathological examination. Haemostasis was secured and surgical wound closed in layers over suction drain. Post operative radiograph confirmed the removal of loose bodies (Fig 6). Histopathological examination confirmed the diagnosis of synovial chondromatosis Post operative HARRIS HIP SCORE was78 at 1 month and 96 at 3 months follow-up. No evidence of recurrence was noted.

Discussion

Synovial chondromatosis (SC) is a rare, benign condition affecting any synovial joint. Since the SC of the hip is extremely rare, and there are no large series of cases of PrSC of the hip published before in literature documenting its management strategies. Management of the case depends upon the extent of symptoms like pain and restriction of movements whilst the definitive mode of treatment given in the literature was open arthrotomy and excision. Arthrotomy of the hip joint has been undertaken for the removal of symptomatic, loose bodies and arthrotomy with and without hip dislocation has been described. Young patients were treated with a mini arthrotomy without hip dislocation. The surgical hip dislocationwas suggested by Fang S *et al*. [4]. As an effective approach for managing intra-articular, as well as extraarticular hip lesions with lesser surgical time, fewer complications, good function, and a lower recurrence rate. In a review of all published case reports of hip SC, Gilbert SR *et al*. [5] found that an open hip synovectomy not only relieves pain but may also delay progression or prevent OA. Arthroscopic surgical techniques of the hip have opened an innovative way of dealing with synovial chondromatosis of hip however the limitations of arthroscopy include the difficulty in approaching various parts of the hip joint and recurrence can be a concern. In a systemic review, De Sa D *et al*. [6] suggested that for the hip SC, arthroscopic synovectomy and removal of loose osteochondral fragments/loose bodies are effective and safe. However, there is a mean recurrence rate of 7.1%. Open techniques may be necessary in cases of recurrence. Schoeniger *et al*. [7] reported no recurrence (at 6.5 years) in eight cases with monoarticular involvement. These cases had extensive synovectomy and joint debridement through a surgical hip dislocation, with a flip trochanteric osteotomy. They found this method of treatment effective, that prevents disease recurrence. Management of recurrence remains a challenge. Radiotherapy, Radio synovectomy, and cryotherapy have been described in the management of SC but only a few case reports have been published. Total hip arthroplasty (THA) or joint reconstruction remains a cornerstone in the management of patients with extensive disease, recurrence after open or arthroscopic synovectomy, and in patients with underlying arthritis. Prabowo Y *et al*. [8] reported two cases (55 and 22-year-old men) who presented with SC of the hip. The former presented at a late stage with OA of the hip and underwent a total hip arthroplasty (THA), along with a thorough debridement to evacuate loose bodies and inflamed synovium. The latter had an open arthrotomy, with joint debridement. At 1-year follow-up, both cases demonstrated an improved functional outcome. The Harris Hip Score (HHS) improved from 39 to 91 in the first patient, while in the latter case it improved from 68 to 93. The authors concluded that joint debridement alone or along with THA can be effective options in the treatment of SC of the hip. K.P. Iyengar *et al* [9] in their retrospective cohort analysis of primary synovial chondromatosis of hip found that in 15 patients the mean age was 36.53 years with male predominance in 9 patients. Their management strategies included supervised observation in 4 patients, arthroscopic excision in 6, open excision in 1 patient and 4 patients underwent arthroplasty. No malignant transformation was reported.

Fig 1: Pre-operative radiograph showing multiple loose bodies in the right hip

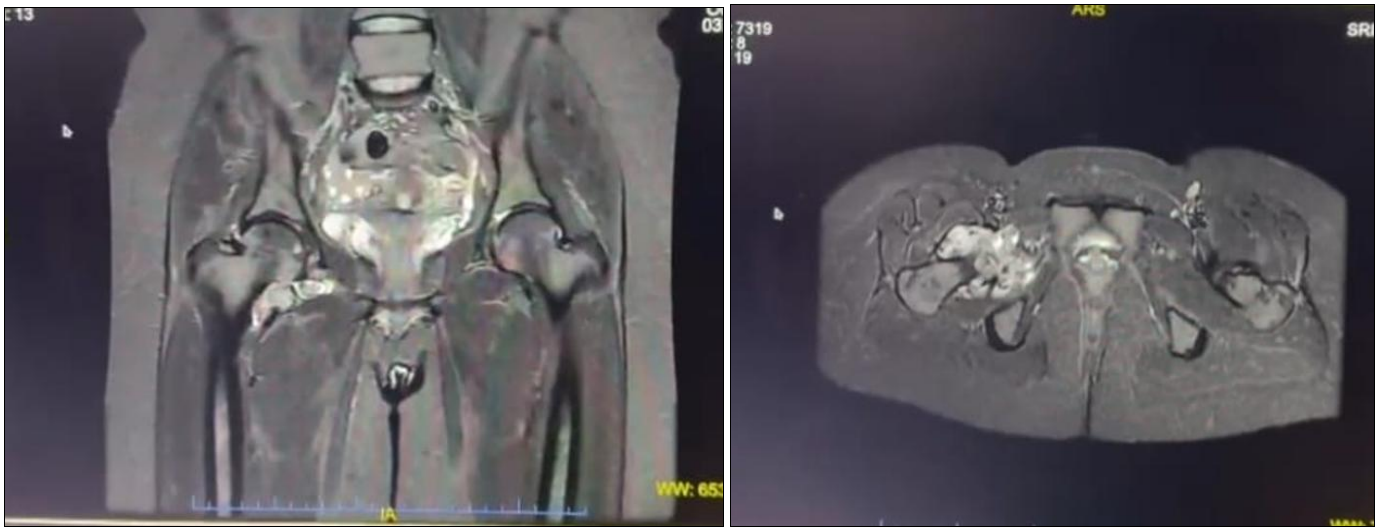

Fig 2 & 3: Sagittal and axial section of MRI showing synovial chondromatosis of hip

Fig 4 & 5: Intra-operative images showing extraction of loose bodies

Fig 6: Post operative radiograph

Conclusion

Primary synovial chondromatosis of hip is a rare condition characterised by pain and restriction of movements of hip. Debridement and excision of loose bodies via arthrotomy through anterior approach can be choosen as an option for treatment if there are no changes of arthritis of the joint however long term follow-up is needed to check for any recurrences.

Conflict of Interest

Not available

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Not available

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