Synovial Chondromatosis of Hip in a Young Patient Salvaged With Mini Arthrotomy Without Hip Dislocation – A Case Report

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Learning Point of the Article:

Early surgical intervention with complete removal of loose bodies with early initiation of hip physiotherapy helps in getting better outcome in patients with synovial chondromatosis hip with early arthritis.

Abstract

Introduction: Synovial chondromatosis is a rare, benign disorder of the synovium, which leads to loose body formation due to metaplastic transformation. It presents as multiple cartilaginous bodies in the synovial joints, bursae and in tendon sheaths. The diagnosis often delayed in hip involvement due to insidious onset of symptoms. Surgical management is essential to manage synovial chondromatosis, which includes hip dislocation and debridement, arthroscopic removal or using arthrotomy.

Case Report: A 20-year-old male patient presented with complaints of pain in the left hip since 1 year and difficulty in walking for 6 months. On examination, the patient had mild tenderness over the left hip with the restriction of joint movements. He had flexion deformity of 30°, adduction and external rotation deformity of 10 and 15°, respectively. X-ray of the pelvis with both hips anteroposterior and left hip lateral view revealed calcified nodular mass over superior, inferior part of the femoral head, and anterior part of the neck with decreased joint space. As the patient was disabled with pain, stiffness especially restricted flexion and abduction and difficulty in daily routine activities, we planned for surgical excision of the loose bodies. Using lateral approach to the hip, intra-articular loose bodies were removed through arthrotomy without hip dislocation. At present 2-year follow-up, the patient is having full hip range of motion with no difficulty in squatting, sitting cross-legged, and radiological examination showed no evidence of recurrence. The patient is fully satisfied with the chosen treatment and participating in running and other sports.

Conclusion: Although hip synovial chondromatosis are rare, early surgical intervention with complete removal of loose bodies, joint distraction for 6 weeks to allow healing, and early initiation of hip physiotherapy helps in getting better outcome even in patients with early stages of hip arthritis. The early surgical intervention also prevents the progression of the joint degeneration, which in turn helps in postponing replacement surgeries in young patients. Satisfactory outcomes can be achieved by salvaging the natural hip joint.

Keywords: Hip synovial chondromatosis, hip salvage, loose bodies, mini arthrotomy.

Introduction

Synovial chondromatosis is a rare, benign disorder of the synovium, which leads to loose body formation due to metaplastic transformation. It presents as multiple cartilaginous bodies in the synovial joints, bursae, and in tendon sheaths [1, 2, 3]. The knee joint is the most common to involve which accounts about 50–65% of the cases followed by hip, elbow, shoulder, and ankle joints. These are most commonly seen in males with age 30–50 years [4]. Synovial chondromatosis presents as joint pain, decreased range of motion, stiffness, and difficulty in walking, it can also cause joint degeneration and secondary osteoarthritis if not treated early [5, 6]. The diagnosis often delayed in hip involvement due to the insidious onset of symptoms [7]. Surgical management is essential to manage synovial chondromatosis, which includes hip dislocation and debridement, arthroscopic removal or using

Access this article online

Website: www.jocr.co.in

DOI: 10.13107/jocr.2021.v11.i01.1952

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Figure 1: X-ray pelvis with both hips showing loose bodies in the left hip with reduced joint space.

Figure 2: Three-dimensional computed tomography pelvis with both hips showing the exact location of the loose bodies.

Figure 3: Three-dimensional computed tomography left hip (lateral view) showing the location of the superior loose body.

mini arthrotomy.

We present a case of young patient with the left hip synovial chondromatosis, managed with mini arthrotomy without hip dislocation.

Case Report

A 20-year-old male patient presented with complaints of pain in the left hip since 1 year and difficulty in walking for 6 months. There was no history of trauma, fever, weight loss, and not a known case of diabetes and hypertension. The patient was diagnosed as tuberculosis left hip in the outside hospital without any biopsy, for which he had taken anti-tubercular treatment for 9 months, and still patient was not relieved of pain and stiffness. On examination, the patient had mild tenderness over the left hip with the restriction of joint movements. He had flexion deformity of 30°, adduction and external rotation deformity of 10 and 15° respectively. Wasting of the thigh and leg was present with no true shortening. X-ray of the pelvis with both hips anteroposterior and lateral view revealed calcified nodular mass over superior, inferior part of the femoral head, and anterior part of the neck with decreased joint space (Fig. 1). Computed tomography (CT) pelvis showed multiple intra-articular loose bodies with largest measuring 3*2.2 cm with early changes of secondary osteoarthritis and no evidence of joint effusion and erosion (Fig. 2, 3). Magnetic resonance imaging (MRI) was suggestive of early arthritis with intra-articular loose bodies. There was <10% of articular erosion of postero superior part of acetabulum. As the patient was disabled with pain, stiffness especially restricted flexion and abduction and difficulty in daily routine activities, we planned for surgical excision of the loose bodies and cheilectomy of the overgrown/ossified femoral head on superior part of the femur to improve the stiffness of affected hip joint.

The patient was operated in lateral position under spinal anaesthesia using the lateral approach to the hip. Fascia lata was cut along the line of incision and retracted anteriorly to expose the anterior capsule. Arthrotomy was done using 2 cm incision over the anterior capsule and the anterior, inferior loose bodies were removed. Superior loose bodies were approached through gluteus medius and removed (Fig. 4). Capsule was closed using ethibond suture, the wound was closed in layers, and the removed loose bodies were sent for histopathological examination (Fig. 5).

Post-operative X-rays revealed the complete removal of the loose bodies (Fig. 6), the patient was started with a hip range of motion from the 2nd post-operative day. Histopathological examination was suggestive of synovial chondromatosis with no evidence of inflammation/granuloma. At present 2-year follow-up, the patient is having full hip range of motion with no difficulty squatting, sitting cross-legged and radiological examination showed no evidence of recurrence, and there is no significant progression of arthritis (Fig. 7, 8, 9). The patient is f

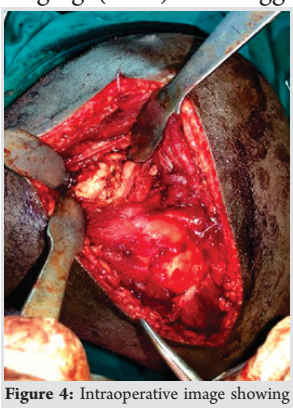

Figure 4: Intraoperative image showing the superior loose body.

Figure 5: Excised specimen of synovial chondromatosis loose bodies.

Figure 6: Immediate post-operative X-ray pelvis with both hips showing complete removal of loose bodies.

Figure 7: Follow-up X-ray (2 years) pelvis with both hips showing no recurrence.


Figure 8: Follow-up 2-year X-ray hip (lateral view).


Figure 9: Post-operative functional outcome of the patient.

ully satisfied with the chosen treatment and participating in running and other sports.

Discussion

Synovial chondromatosis is a benign osteochondral condition, appears as multiple ossified or cartilaginous nodules in the synovial joints [8]. It can be primary or secondary. The conditions causing secondary synovial chondromatosis are trauma, osteochondritis dissecans, inflammatory, and non-inflammatory arthropathies [9]. Milgram described three stages of synovial chondromatosis, Stage 1 – active intrasynovial stage with no loose bodies in the joint, Stage 2 – transition stage from intrasynovial lesions to loose bodies which contain both active synovial lesion and loose bodies, and Stage 3 – late-stage which has loose bodies with no synovial involvement [10]. According to the above staging, our patient was in Stage 3, having loose bodies without any synovial involvement. X-ray, CT scan, and MRI are very important diagnostic tools pre-operatively. Radiographs may be normal in the initial stages, makes the diagnosis difficult. MRI is very much useful in both early and late stages for diagnosing intra-articular loose bodies, synovial inflammation, joint effusion, and articular cartilage damage [11]. CT scan helps in diagnosis and also to know the exact location of the loose bodies in the joint, which, in turn, helps in preoperative planning. Synovial chondromatosis is usually seen in third to fifth decades [4], but still can occur in younger age as seen in our case. Shapira et al. described a synovial chondromatosis of the hip in a 14-year-old child with the previous history of Perthes disease [12] and Zhang et al. also described a hip synovial chondromatosis in 21-year-old male patient [13]. The differential diagnoses for this condition are synovial hemangioma, pigmented villonodular synovitis, synovial cyst, osteosarcoma, and synovial sarcoma [14, 15, 16]. The gold standard for diagnosis is histopathological examination. Surgical excision of loose bodies is the treatment of choice in symptomatic patients, which includes loose body removal by open or arthroscopic approach and synovectomy [1,2]. Early open or arthroscopic debridement, synovectomy, and loose body removal before the damage of the articular cartilage showed good results in the literature [17, 18], but open debridement and loose body removal require dislocation of hip, which may pose the risk of avascular necrosis of femoral head in future. Arthroscopic procedure is associated with relatively high recurrence rate and incomplete debridement. As our patient was in Stage 3 of the disease without any synovial inflammation and hip dislocation, open debridement having the risk of avascular necrosis, we considered for mini arthrotomy and removal of the loose bodies without synovectomy as the synovium was not inflamed. In spite of restricted joint movements and early arthritic changes in hip, we did not think of replacing the femoral head as the patient was too young for replacement. Replacement would have invited multiple revision surgeries, and it would not have over weighed benefit over salvage ability. Complete removal of the loose bodies helped to improve the arc of flexion-extension, abduction-adduction, and rotation. Terminal arc of motion was increased with cheilectomy of the overgrown femoral head. Traction for 6 weeks with 3 kg weight helped by distracting the joint surface apart and allowed healing of articular erosions caused due to mechanical damage by loose bodies. Early initiation of hip physiotherapy helps in the formation of fibrocartilage in getting a better outcome.

Conclusion

Although hip synovial chondromatosis are rare, early surgical intervention with complete removal of loose bodies, joint distraction for 6 weeks to allow healing, and early initiation of hip physiotherapy helps in getting better outcome even in patients with early stages of hip arthritis. The early surgical intervention also prevents the progression of the joint

degeneration, which, in turn, helps in postponing replacement surgeries in young patients. Satisfactory outcomes can be achieved by salvaging the natural hip joint.

Clinical Message

Synovial chondromatosis around hip joint even though rarely seen is less aggressive than other joints. They are self-limiting in behavior. Once the stage of synovial proliferation and ossification is over, the goal of surgery is to relieve pain and improves the arc of motion. In our case, the complete relief of pain was achieved with reducing inflammation and healing of articular erosion using traction and active physiotherapy. The range of motion was restored by removing mechanical block caused by loose bodies and overgrown bony parts. Injured cartilage should be given chance of healing and survival. Sacrificing the natural articular cartilage by early joint replacement is not justified in young individuals.

References

1. Tuncer K, Izgi E, Cankaya B, Ogul H, Kantarci M. Huge bursitis and bursal synovial osteochondromatosis associated with scapular osteochondroma mimicking a giant calcific mass of the chest wall. Am J Phys Med Rehabil 2019;98:e1-3.
2. Ropars M, Hervé A, Stock N, Guillin R, Guggenbuhl P. Giant synovial chondromatosis of the metacarpophalangeal joint. Joint Bone Spine 2016;83:351.
3. Serbest S, Tiftikçi U, Karaaslan F, Tosun HB, Sevinç HF, Balci M. A neglected case of giant synovial chondromatosis in knee joint. Pan Afr Med J 2015;22:5.
4. Forsythe B, Lou J, States L, Guttenberg M, Dormans JP. Painless ankle mass in a 12-year-old boy. Clin Orthop Relat Res 2004;422:263-9.
5. Zini R, Longo UG, De Benedetto M, Loppini M, Carraro A, Maffulli N, et al. Arthroscopic management of primary synovial chondromatosis of the hip. Arthroscopy 2013;29:420-6.
6. Horner NS, MacDonald A, Simunovic N, Ghert MA, Philippon MJ, Ayeni OR. Arthroscopic surgery for synovial chondromatosis of the hip: A systematic review of rates and predisposing factors for recurrence. Arthroscopy 2014;30:1499-504.
7. Krebs VE. The role of hip arthroscopy in the treatment of synovial disorders and loose bodies. Clin Orthop Relat Res 2003;406:48-59.
8. Sumida K, Kobayashi N, Nambu A, Tago M, Shibuya I, Kawamoto M. Solitary synovial chondromatosis arising in the gluteus maximus bursa: Computed tomography and magnetic resonance imaging findings. Acta Radiol Open 2016;5:2058460115617352.
9. Schofield TD, Pitcher JD, Youngberg R. Synovial chondromatosis simulating neoplastic degeneration of osteochondroma: Findings on MRI and CT. Skeletal Radiol 1994;23:99-102.
10. Milgram JW. Synovial osteochondromatosis: A histopathological study of thirty cases. J Bone Joint Surg Am 1997;59:792-801.
11. Robinson P, White LM, Kandel R, Bell RS, Wunder JS. Primary synovial osteochondromatosis of the hip: Extracapsular patterns of spread. Skeletal Radiol 2004;33:210-5.
12. Shapira-Zaltsberg G, Highmore K. Synovial osteochondromatosis in a 14-year-old boy with a history of Legg-Calve-Perthes disease. Radiol Case Rep 2017;12:405-8.
13. Zhang YM, Liu X. Surgery of a rare case of multiple synovial osteochondromatosis of the hip joint. J Orthop Case Rep 2016;6:51-4.
14. Khandwala K, Waheed AA, Alvi MI, Mirza WA, Umer M, Khurshid E. Bursal synovial chondromatosis secondary to underlying osteochondroma in a child. Cureus 2017;9:e1944.
15. Leite PC, Tolentino ES, Yamashita AL, Iwaki LC, Iwaki Filho L. Surgical treatment of synovial chondromatosis in the inferior compartment of the temporomandibular joint with articular disc involvement. J Craniofac Surg 2018;29:e199-203.
16. Dwidmuthe S, Sharma M. A case report of primary synovial chondromatosis with bilateral genu valgum. J Orthop Case Rep 2017;7:92-5.
17. Ng VY, Louie P, Punt S, Conrad EU. Malignant transformation of synovial chondromatosis: A systematic review. Open Orthop J 2017;11:517-24.

18. Acharya BM, Devkota P, Shrestha SK, Pradhan NS, Ahmad S. Bilateral symmetrical synovial chondromatosis of shoulder: A case report. Rev Bras Ortop 2017;53:647-50.

Conflict of Interest: Nil
Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Mahajan NP, Prasanna GS, Marfatia A, Mane AV, Gop A, Patil TC. Synovial Chondromatosis of Hip in a Young Patient Salvaged With Mini Arthrotomy Without Hip Dislocation – A Case Report. Journal of Orthopaedic Case Reports 2021 January;11(1):28-32.