

A rare case of para-articular chondroma of the hip joint in an adolescent

Gurumurthy B¹, Supreeth Nekkanti^{2,*}, Prakash M³, Harish S⁴, Abhilash G⁵

^{1,3}Assistant Professor, ²Senior Resident, ⁵Junior Resident, Dept. of Orthopaedics, ⁴Assistant Professor, Dept. of General Surgery, JSS Hospital, Mysore

***Corresponding Author:**

Email: drsupreethn@gmail.com

Abstract

Extraskeletal chondromas are unusual benign skeletal tumors which do not arise from the bone or periosteum. They are predisposed to occur in adults usually around the knee joint. We report a rare form of Extraskeletal chondroma arising from the outer layer of the capsule of the hip joint in an adolescent male which was excised surgically and it turned out to be a para-articular chondroma of the hip joint. In conclusion, ESPAOC lesions are extremely rare. It requires a thorough clinical examination and radiographic investigation to diagnose these tumors. The treatment is surgical excision of the tumor mass. A total excision might not be possible in all patients such as ours. In these cases, the part of the tumor causing symptomatic disconcert might be excised to allow functional range of movements of the affected joint.

Access this article online

Website:

www.innovativepublication.com

DOI:

10.5958/2395-1362.2016.00055.4

Introduction

Extraskeletal chondromas are extremely rare benign tumors which do not arise from the bone or surrounding periosteum.^[1] In our review of literature, they have been described to present to the treating surgeon in one of three forms- synovial chondromatosis, soft tissue chondroma and para-articular chondroma.^[1,2] Synovial chondromatosis has been more frequently diagnosed and treated, however the latter two present atypically with uncharacteristic histological and radiological features, making them difficult to diagnose and treat.

We present a rare case of para-articular chondroma arising from the capsule of the hip joint in a 19 year old male which was treated by surgical excision.

Case Report

We report a 19 year old adolescent male who presented to us with complaints of swelling over the right hip since 8 years. He complained of inability to squat and sit cross legged since 18 months. The restriction of movements of the hip was accompanied with pain since 2 years. He had no history of trauma or constitutional symptoms. On palpation, a hard, non-tender, lobulated swelling of around 6x5 cm was palpable over medial aspect of the hip joint.(Fig. 1) The swelling was mobile in the horizontal plane, irreducible, non-transilluminant, non-fluctuant margins were palpable. There was pain with restriction of the movements (rotation and flexion) of the right hip.

Patient underwent a hernioplasty surgery on the affected hip one year back.

Radiographs of the hip joint revealed a diffuse lobulated calcified mass present all around the hip joint. (Fig. 2, 3, 4) There was no involvement of the articular surface of the hip joint. The mass was present extrarticularly which was confirmed by Computed Topography of the hip too. The patient was taken up for surgery. Two approaches were used to access this diffuse mass- one was the anterior approach and the other was the medial approach. (Fig. 5) The tumor however could not be completely excised given its expansile nature. The authors observed intra-operatively under the guidance of the C-arm that medial and anterior masses were responsible for restriction of his movements. Upon surgical dissection, it was found that the tumor mass was attached to the outer layer of the capsule of the hip joint. The mass was dissected out anteriorly and medially and the mechanical block provided by this tumor was excised. (Fig. 6) A posterior approach to access the posterior tumor mass was not preferred by the authors in view of compromising the vascularity of the femoral head and neck. (The hip joint was already dissected anteriorly and medially) Furthermore, the excision of the posterior mass would not restore the movements of the hip joint significantly.



Fig. 1: Clinical photograph of the right hip



Fig. 4



Fig. 2



Fig. 5: Intra-operative photograph of the incisions used anteriorly and medially

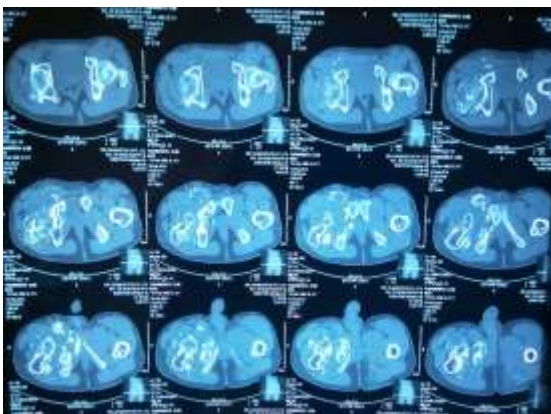


Fig. 3





Fig. 6: Photograph of the tumor excised intra-operatively

The post-operative period was uneventful. Patient was able to achieve functional range of movements of the hip after surgery and there was significant reduction in the pain. There was no local recurrence at six months follow-up.

The excised mass was sent for histopathological studies, which revealed a grayish nodular cartilaginous tissue measuring 5x3x2.5 cm. The second mass measured 2.4x 1.8 x 1cm. (Fig. 6) Microscopic studies revealed well circumscribed lobulated tumor, composed of hyaline cartilage with benign chondrocytes lying in lacunae. These features were suggestive of soft tissue chondroma.

Discussion

Para-articular and intracapsular chondroma are rare tumors seen around large joints. They have been described by many names such as capsular osteoma, osteochondroma or chondroma. These names were used variably following histological studies of the specimens depending on the percentage of cartilage or bone found in them.^[1,3] Jaffe et al in 1958 first introduced the term ESPAOC (Extraskelatal para-articular osteochondroma)^[1,4,5,6] to describe such Extraskelatal benign tumors irrespective of the proportion of bone or cartilage in them. Milgrim and Dunn in studied extensively these lesions and introduced the terms para-articular osteochondroma and differentiated them from synovial chondromatosis.^[4] It was found in our review of literature that the most common site for the ESPAOC was the knee joint.^[1,4,7,8] Among the various sites around the knee, the infrapatellar fat pad was described to be the most common site.^[1,4,10,11]

The pathogenesis of these tumors has been hypothesized to cartilaginous metaplasia of the outer layer of the capsule of the joint, which could explain the lesion in our patient. Other schools of thoughts suggest that metaplasia of pluripotent cells derived from joint synovium, tenosynovium or connective tissue can give rise to these benign tumors.^[4,12] Trauma

seems to have limited or no role in the pathogenesis of these tumors.^[1,4]

There is no particular age group susceptible to these tumors, and patients aged 12 to 75 years have been reported with these tumors.^[1] Adults seem to be more often affected.^[4] Our patient was diagnosed at the age of 19 years with complaints from 8 years. The probable age of initial presentation was likely when he was eleven years old which is an unusual age of presentation.

Radiographic analysis of these tumors have been found to consist of a well circumscribed, lobulated mass with dense central calcification or areas of ossification.^[4,14,15] CT scan usually reveals the Extraskelatal nature of these tumors and central dense calcification. MRI scans demonstrate inhomogenous lesion with areas of ossification.

When considering a diagnosis of ESPAOC, a differential diagnosis should be considered. Myositis ossificans, synovial chondromatosis, tumor calcinosis and synovial sarcoma could be considered as an alternative diagnosis when dealing with similar soft tissue tumors. "Zonal phenomenon" of peripheral calcification is pathognomic of myositis ossificans.^[4,11] Variation in size happens over few weeks.^[4,15] Synovial chondromatosis demonstrate multiple osteochondromatous nodules in the synovium with loose bodies in the joint.^[4,16,17,18] A well-defined calcified mass with layers seen in horizontal beams is characteristic of tumor calcinosis.^[2,13] Synovial sarcoma usually presents along with a neighboring bony lesion.^[2,17]

The treatment of choice for these tumors is surgical excision. In our patient a complete excision was not possible due to the diffuse nature of the tumor. However the part of the tumor that was providing a mechanical block to the movements of the hip was excised thereby relieving the patient of his symptoms. His hip was scored as a satisfactory outcome (78.15) as per Harris Hip Score six weeks after surgery. (Fig. 7, 8, 9)



Fig. 7



Fig. 8



Fig. 9

Conclusion

We report a rare case of para-articular chondroma of the hip joint arising from the outer layer of the capsule in an adolescent male. ESPOAC lesions are difficult to diagnose and they commonly present around the knee joint. They are extremely rare around the hip joint especially in adolescents. While considering the diagnosis of these lesions, differential diagnosis of

myositis ossificans, synovial chondroamrtosis and osteochondroma should be kept in mind. The complete surgical excision of these tumors may not be possible in all cases such as our patient and hence excision of the part of the tumor producing symptoms becomes critical.

References

1. Milan Samardziski, Marta Foteva, Aleksandar Adamov et al. Intracapsular and para-articular chondroma of knee: a report of four cases and review of the literature. *Radiol Oncol* 2006;40(4):205-9.
2. Gayle EL, Morrison WB, Carino JA, Parsons TW, Liang CY, Stevenson A. Extrasceletal osteochondroma of the foot. *Skeletal Radiol* 1999;28:594-8.
3. Sakai H, Tamai K, Iwamoto A, Saotome K. Para-articular chondroma and osteochondroma of the infrapatellar fat pad: a report of three cases. *Int Orthop* 1999;23:114-7.
4. Roop Singh, Mantu Jain, Ramchander Siwach et al, Large para-articular osteochondroma of the knee joint: a case report. *Acta Orthop Traumatol Turc* 2012;46(2):139-143.
5. Jaffe HL. Tumors and tumorous conditions of the bones and joints. Philadelphia: Lea and Febiger; 1958. p. 558-67.
6. Jaffe HL. Intracapsular and para-articular chondroma. In: Henry L, Jaffe, editors. *Tumors and tumorous conditions of the bones and joints*. Philadelphia: Lea & Febiger; 1958. p. 567-9.
7. Gonzales-Lois C, Garcia-de-la-Torre JP, SantosBriz-Terron A, Vila J, Manrique-Chico J, Martinez-Tello FJ. Intracapsular and para-articular chondroma adjacent to large joints: report of three cases and review of the literature. *Skeletal Radiol* 2001;30:672-6.
8. Steiner GC, Meushar N, Norman A, Present D. Intracapsular and para-articular chondromas. *Clin Orthop* 1994;303:231-6.
9. Reith JD, Bauer TW, Joyce MJ. Paraarticular osteochondroma of the knee: report of 2 cases and review of the literature. *Clin Orthop Relat Res* 1997;(334):225-32.
10. Oliva F, Marconi A, Fratoni S, Maffulli N. Extra-osseous osteochondroma-like soft tissue mass of the patella-femoral space. *BMS Musculoskelet Disord* 2006;7:57.
11. Rizzello G, Franceschi F, Meloni MC, Cristi E, Barnaba SA, Rabitti C, et al. Para-articular osteochondroma of the knee. *Arthroscopy* 2007;23:910.e1-4.
12. Li C, Arger PH, Dalinka MK. Soft tissue osteochondroma. A report of three cases. *Skeletal Radiol* 1989;18:435-7.
13. Hagan RF, Schoneker PL. Para-articular osteochondroma. *Am J Orthop* 1995;24:65-7.
14. Gayle EL, Morrison WB, Carrino JA, Parsons TW, Liang CY, Stevenson A. Extraskeletal osteochondroma of the foot. *Skeletal Radiol* 1999;28:594-8.
15. Sowa DT, Moor JR, Weiland AJ. Extraskeletal osteochondromas of the wrist. *J Hand Surg Am* 1987;12:212-7.
16. Li C, Arger PH, Dalinka MK. Soft tissue osteochondroma. A report of three cases. *Skeletal Radiol* 1989;18:435-7.
17. Mosher JF Jr, Kettelkamp DB, Campbell CJ. Intracapsular or para-articular chondroma. A report of three cases. *J Bone Joint Surg Am* 1966;48:1561-9.
18. Kautz FG. Capsular osteoma of the knee joint: report of four cases. *Radiology* 1945;45:162-167.