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Case Report

An atypical manifestation of a common familiar tumour: the unforeseen occurrence of osteochondroma

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ABSTRACT

A solitary osteochondroma in the lesser trochanter is an exceedingly rare occurrence. The nature of osteochondromas as benign osteocartilaginous tumours is typically regarded as a developmental anomaly rather than a neoplastic condition. Patients afflicted with this condition may experience a range of symptoms dependent upon the size of the tumour, with limited range of motion being a common manifestation. The present case study pertains to a distinctive instance of a benign solitary osteochondroma of the lesser trochanter, which was diagnosed and treated through an excisional biopsy using a Hardinge approach.

Keywords: Osteochondroma, Lesser trochanter, Benign, Neoplasms, Excision

INTRODUCTION

Osteochondromas are benign osseous neoplasms, predominantly recognized as being more developmental rather than true neoplastic entities.[1] Emerging as cartilaginous nodules within the periosteum, they evolve into an osseous mass through endochondral ossification. Their growth closely parallels that of the individual and generally stabilizes upon reaching skeletal maturity. Typically identified during periods of rapid skeletal growth, approximately 90% of cases present as solitary lesions.[2] Osteochondromas are commonly situated on long bones such as the distal femur, proximal tibia, and proximal humerus, with infrequent intra-articular occurrences. Trevor disease, or dysplasia epiphysealis hemimelia, represents a variant of intra-articular osteochondroma, often inducing unilateral joint manifestations.

We would like to report a rare case pertains to a distinctive instance of a benign solitary osteochondroma of the lesser trochanter, which was diagnosed and treated through an excisional biopsy using a Hardinge approach.

CASE REPORT

A 38-year-old male construction worker by occupation presented with chief complaints of pain in his left hip for the past 5 months. Patient developed pain over his left hip, which was insidious in onset, progressive in course, dull aching type of pain, intermittent, mild to moderate intensity, aggravated on activities like walking, sitting cross legged on floor and while squatting and relieved by rest and medications. He gives history of limping due to pain for the past 4-months duration. There were no constitutional symptoms.

On examination, an immobile mass of approximately 4×4 cm of bony hard consistency was palpable over the anteromedial aspect of left hip. Visible pulsation noted on the anterior aspect. Patient had a fixed flexion deformity of hip of 20 degrees with restriction of Flexion, adduction and internal rotation. There were no distal neurovascular deficit. There was no palpable mass elsewhere in the body.

On radiographic evaluation, plain radiograph of pelvis with bilateral hip-antero-posterior (AP) and lateral views

showed a solitary ill defined, sessile, exophytic lesion arising from the lesser trochanter with corticomedullary continuity. 3D computed tomography (CT) scan of pelvis showed well defined bony projection of 5.5×4.0×5.55 cm with cortical irregularity from the anteromedial aspect of lesser trochanter growing away from the hip joint with corticomedullary continuity and narrow zone of transition. We proceeded with magnetic resonance imaging (MRI) pelvis which confirmed an exophytic T2/STIR heterogenous lesion from the meta diaphyseal region of left proximal femur with cartilage cap of 2.4 mm suggestive of osteochondroma.

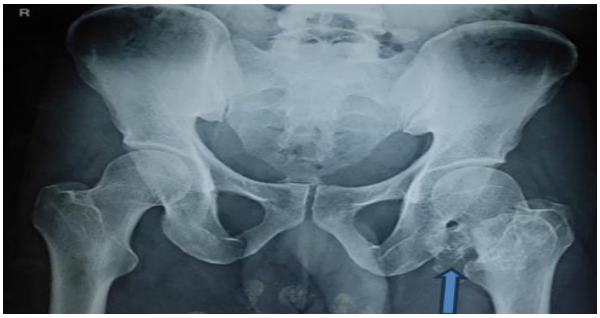

Figure 1: Pre-operative anteroposterior view of left hip with osteochondroma lesion over the lesser trochanter.

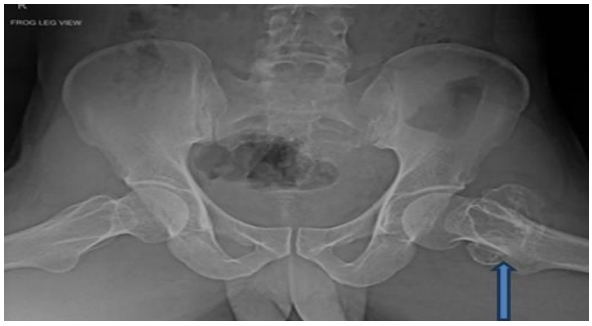

Figure 2: Pre-operative frog leg lateral view of left hip with osteochondroma lesion over the lesser trochanter.

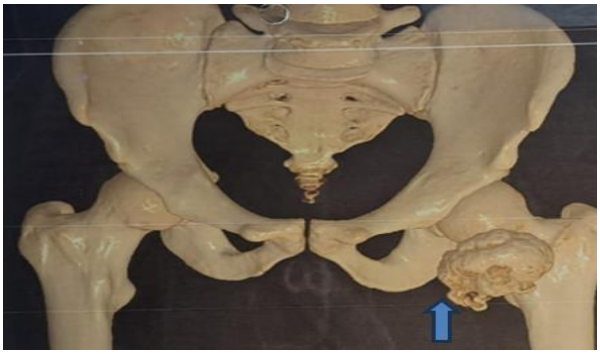

Figure 3: CT scan of left hip with 3D reconstruction with bony lesion over the lesser trochanter.

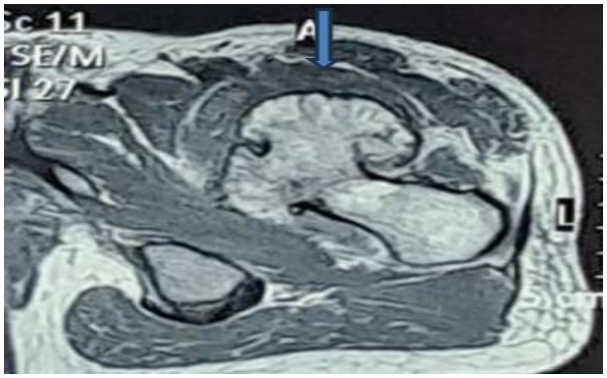

Figure 4: MRI scan of left hip with bony lesion over the lesser trochanter and cartilage thickness of 2.4 mm.

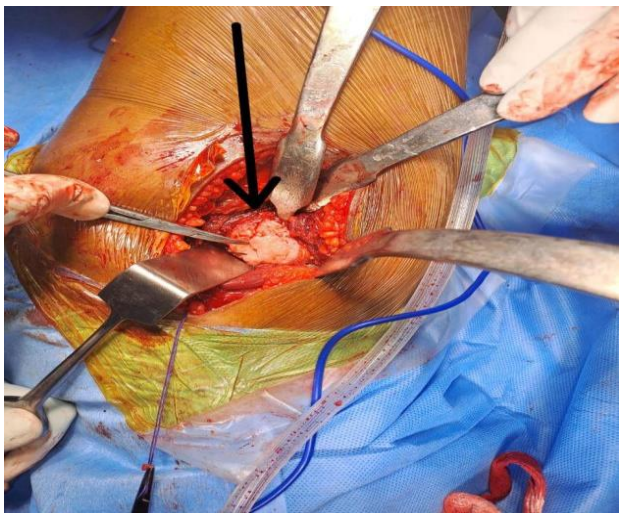

Figure 5: Intraoperative image of osteochondroma lesion over lesser trochanter.

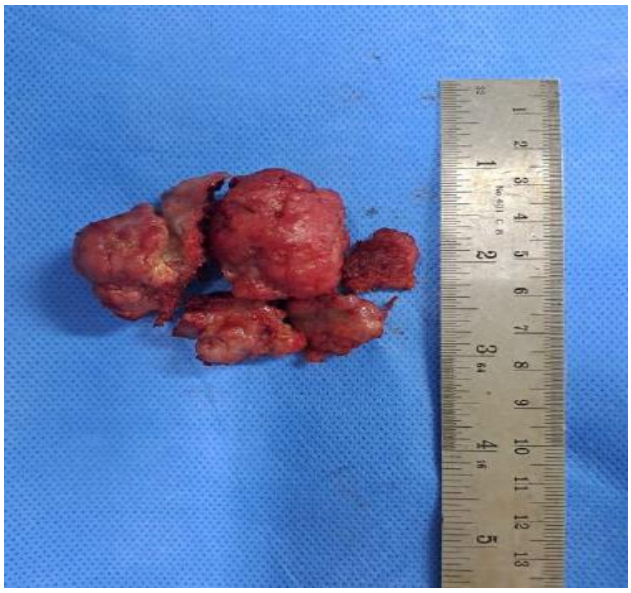

Figure 6: Excised osteochondroma from the lesser trochanter.

Following the confirmation of our diagnosis, we proceeded with planning an excisional biopsy. The patient was positioned in the right lateral position, and we utilized the Hardinge approach to dissect the skin and subcutaneous tissue. A muscular plane was meticulously created between the tensor fascia lata and gluteus medius, and a cuff of muscle was securely tied using 1-o vicryl and then elevated from the bone using periosteum. This technique allowed us to circumferentially expose the tumour. We performed extra periosteal tumour resection and cauterized the base. The excised tumour was sent for histopathological examination. Following the excision, the patient achieved a full range of movements without any impingements.

DISCUSSION

In the pediatric and adolescent population, osteochondromas commonly manifest in the appendicular bones, representing 20–50% of benign neoplasms. The prevailing theory attributes the protrusion and subsequent endochondral ossification to an alteration in the growth plate.[3] In the context of solitary osteochondromas, somatic mutations in the EXT genes are known to occur sporadically. Certain studies indicate that heterozygous mutations in the EXT-1 gene are equally prevalent, suggesting a potential benign nature of these tumours.[4] Being a benign tumour, they harbour a malignant potential, with approximately 1% progressing to chondrosarcoma.[2] Delayed diagnoses is associated with an elevated risk of malignancy development, particularly in lesions proximal to the axial skeleton. The majority of these lesions are typically asymptomatic until they reach a size significant enough to exert pressure and cause compression of adjacent tissues, giving rise to painful hip motion, trochanteric bursitis, sciatic nerve compression, and hip dislocation. It is important to consider the presence of discomfort, tumour growth beyond skeletal maturity, significant flake-type calcification on radiographs, abnormalities in the tumour matrix, and a cartilage cap thickness exceeding 150 mm as indicators that necessitate further attention and investigation.[5] The majority of solitary osteochondromas are asymptomatic. Symptomatic cases typically correspond to the size and location of the exostosis. In the immature skeleton, the osteochondroma progresses slowly in conjunction with the affected bone, ceasing upon reaching skeletal maturity.[7] Intense pain may occasionally ensue, often linked to mechanical complications.[6]

The study by Saglik et al reported that proximal femur involvement occurred in approximately 4.8% of the 313 cases, with lesions around the hip joint comprising only 5.1% of the total cases.[7] He also found sarcomatous degeneration was noted in 2.2% (7 cases). Two of these cases were located in the proximal femur. It's crucial to consider surgery for patients with radiographic or imaging evidence of malignant change, even if it's minimal, as there is a high risk of malignant transformation. Moreover, timely surgical intervention is essential to optimize outcomes.

Given the high risk of malignant transformation associated with these lesions it is imperative to consider surgical intervention in patients presenting with even minimal radiographic or imaging evidence of malignancy. Furthermore, any delay in surgical treatment may have an adverse impact on the overall outcome.[8]

Several approaches have been delineated for accessing the tumour, encompassing the posterior approach, employed when the tumour projects posteriorly, the medial approach, and an extensive surgical approach involving the dislocation of the femoral Tschokanow.[9] Tschokanow delineated two distinct incisions in a one-stage or two-staged procedure to mitigate the rare complication of vascular damage during osteochondroma resection. In their study, Siebenrock and Ganz investigated the excision of an osteochondroma located on the femoral neck through the dislocation of the femoral head. Despite providing excellent exposure, this procedure carries an augmented risk of necrosis of the femoral head.[10] In this study, we utilized Hardinge approach for excision of osteochondroma and we were able to excise the tumour in toto without any neurovascular compromise.

CONCLUSION

Solitary osteochondromas rarely impact the lesser trochanter and are typically detected incidentally. However, they may elicit a range of symptoms. Patients harbouring solitary osteochondromas at high-risk sites should be apprised of the potential for malignant transformation and should undergo thorough monitoring. A meticulously planned surgical excision represents a safe and efficacious treatment. Notably, major complications and local recurrence are infrequent when the procedure is performed with precision. This case report is being presented due to the rarity of its occurrence site.

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