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COMMON TUMOUR AT RARE SITE OSTEOCHONDROMA OF THE TALUS AND FEMUR NECK AN UNUSUAL LOCATION

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Abstract : Osteochondroma is the most common benign bone tumour and occurs most frequently in the proximal humerus, tibia and distal femur. It rarely affects talus and femoral neck. Therefore, we report two patients with osteochondroma of the talus and femoral neck. Excision is a successful method of treatment for symptomatic osteochondromas with a low morbidity. Precise surgical planning will prevent the recurrence of this lesion.

Keyword : Osteochondroma, diagnosis, surgery, talus, femoral neck, tumour

INTROUCTION:

Osteochondroma is the most common primary benign bone tumour. This is not a true neoplasm but rather an abnormal growth of cartilaginous focus on the surface of the bone. The tumour is composed of mature bone with a cartilaginous cap and the lesion is in continuation with the medullary cavity of a long bone1. Growth of the tumour depends on the patient's age and the lesion often becomes quiescent after the closure of the growth plate2. Osteochondromas slowly enlarge and cause symptoms like pain, swelling and restriction of joint movement3. Although they occur most frequently at the ends of the long bones, the involvement of osteochondroma in the talus and femoral neck are very rare, and only <2% of cases have been reported1,2,8. Osteochondroma of the talus was first reported in 1984 by Fuselier et al. They reported a solitary osteochondroma of the dorsum of the talus in a 22-year-old female presenting with ankle discomfort. They found 2.0 cm long pedunculated osteochondroma, protruding from the dorsolateral head of the talus with multiple toe deformities. In 1987, Chioros et al reported an atypical osteochondroma that originated from the posterior aspect of the talus in a 34-year-old male. In 2003, Erler et al reported a case of an osteochondroma located on the dorsum of the talus, which is similar to these cases, in 6-year-old boy without other foot deformities1,3. Turan Ilica et al reported a case of a 34-year-old man with a femoral neck osteochondroma that was causing sciatic nerve compression. Computed tomography (CT) and MRI were used to determine size, origin, and extent of the osteochondroma and to plan strategies for surgery. In that case, the patient also demonstrated signs of sciatic nerve compression including weakness of toe and ankle dorsiflexion and a diminished Achilles tendon reflex. The osteochondroma in that case as seen on 3D CT and MRI had a sessile structure and extended outward broadly in the region of the lesser trochanter. This contrasted with the osteochondroma presented here, which was substantially more pedunculated, larger, and extended directly from the posterior femoral neck. Although Turan Ilica et al discussed treatment strategies such as "early removal" to provide relief, they did not discuss the treatment of the presented patient nor did they discuss surgical approach and potential complications such as avascular necrosis9. Siebenrock and Ganz have described 4 patients with osteochondromas around the femoral neck. Their patients had restriction of hip motion as well as a positive Trendelenburg sign in 3 patients. Two of the patients had solitary osteochondromas and the others had multiple osteochondromas9 (multiple hereditary exostoses). We are reporting a series of cases of osteochondroma of talus and femoral neck presented with ankle swelling and hip impingement respectively to our institution.

AIM:

To analyse the outcome and complications of surgical intervention in the form of excision of lesion through our experience with two cases.

MATERIALS & METHODS:

In our Institute of Orthopaedics & Traumatology, Rajiv Gandhi Government General Hospital, we encountered 2 cases of osteochondroma presenting in the sites of talus and femoral neck respectively. We have investigated with x rays, computed tomography, magnetic resonance imaging and routine blood investigations. Both the cases had surgical indications and was treated surgically in the form of excision biopsy. Excised mass has been sent for histopathological evaluation. We obtained positive histopathological report for both the cases. We followed up the patients for a period of one year after surgery.

CASE REPORT :

CASE 1:

A 9yr old boy admitted with complaints of swelling over the left ankle region for 6 months. The swelling was Insidious in onset,

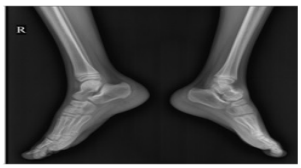
gradually increasing in size, associated with pain while walking. He has no history of previous trauma and swelling elsewhere, no family history of similar swelling.

LOCAL EXAMINATION:

No local warmth or rise in temperature, swelling was hard in consistency, immobile, skin over the swelling was pinch able, swelling moves along with ankle movements and appears to arise from talus. There was no restriction of ankle joint movements. Routine blood investigations were within the normal limits.

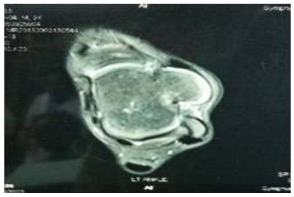
PRE OP CLINICAL PICTURE:


PRE OP X RAY:

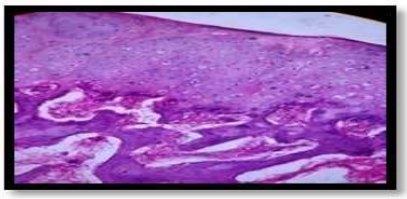
PRE OP CT:


PRE OP MRI :



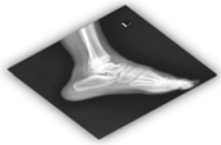

INTRA OPERATIVE: **EXCISED MASS:**


HISTOLOGY OF LESION :



FOLLOW UP (6rd month):


FOLLOW UP (ONE YEAR):

CASE 2:

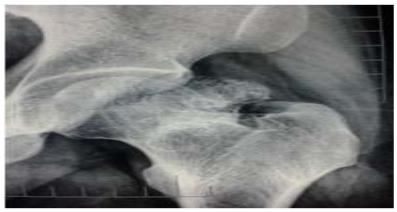
A 43yrs old male admitted with complaints of pain over the left hip region for 6 months. The pain was insidious in onset, gradually increasing in intensity, dull ache in nature, aggravated by walking, relieved by taking rest and medications. He has no history of previous trauma and swelling elsewhere, no family history of similar swelling.

LOCAL EXAMINATION:

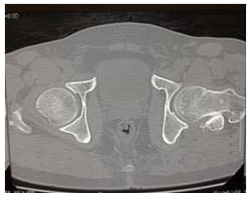
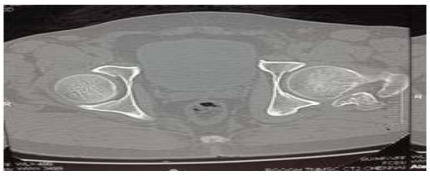
No local warmth or rise in temperature, no visible swelling in left hip, skin over the left hip appeared normal. No sinus or scar over the left hip region. There was no restriction of left hip joint movements. Routine blood investigations were within the normal limits.

PRE OP X RAY :





PRE OP CT SCAN – AXIAL

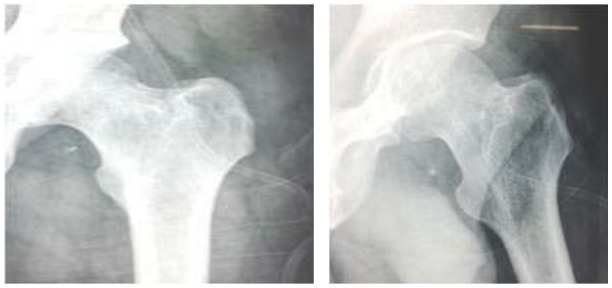
PRE OP CT SCAN – 3D VIEW

POST OP X RAY :

POST OP CT SCAN - AXIAL:

POST OP CT SCAN – 3D VIEW

FOLLOW UP (6th month)



FOLLOW UP (one year)

DISCUSSION :

Osteochondroma is the most common benign bone tumour and occurs most commonly in the proximal humerus, tibia and distal femur. Osteochondromas can occur in any bone that is preformed from cartilage. The most common locations are the long bones at the metaphyseal region2. A focal herniation of the medial or lateral component of the epiphyseal plate results in the formation of an aberrant, cartilage-capped, eccentric small bone. Several theories have been proposed to explain this phenomenon. Virchow in 1891 put forth the physeal theory, according to which a portion of the physeal cartilage becomes separated from the parent tissue, rotates 90 degrees, and grows in a direction transverse to the long axis of the bone. However, he did not provide an explanation for the separation and rotation of the detached physeal cartilage. In 1920, Keith proposed that the cause was a defect in the perichondral ring surrounding the physis. Müller in 1913 theorized that the exostoses were produced by small nests of cartilage derived from the cambium layer of the periosteum. By producing osteochondroma using physeal cartilage transplantation, D'Ambrosia and Ferguson provided support for the physeal plate defect theory. Current thought is that the cause is misdirected growth of a portion of the physeal plate, with lateral protrusions causing the development of the eccentric cartilage-capped bony prominence2,4. It is rarely found in femoral neck and bones of the foot, and is even less common in the talus.

Osteochondromas are usually discovered during the first and second decades of life. However, Osteochondroma of talus and femoral neck are usually discovered in the third to fifth decades5,9. Osteochondroma in the talus may represent with variable symptoms, including pain, ankle swelling, painless mass and a limited range of ankle motion. Pain is usually caused by pressure and friction against the nerves and bones resulting in possible nerve irritation or a restriction of joint motion. The mass can be in the form of an intraarticular loose body. which is accompanied by severe painful limitation of motion. An osteochondroma can occur in the talar origin if it takes the form of an intraarticular loose body2,6. Osteochondromas of the femoral neck may lead to mechanical restriction of hip motion. Mechanical blocking can occur through direct contact of the widened and enlarged femoral neck against the ischium or the acetabular rim . This mechanism can lead to pain and damage to the hip labrum and the adjacent articular cartilage. Non skeletal extrinsic complications can also occur from osteochondroma of the femoral neck. This scenario can result due to mass effect on the adjacent tissues including muscles, tendons, nerves and vascular structures9. Radiologically, osteochondroma of the talus and femoral neck can be visualized as a protrusion from the host bone in a pedunculated or sessile manner as in the long bone3,7,9. Both cases were the pedunculated types. Computed tomography of diagnosis of the

medullary and cortical continuity between the lesion2. The treatment of an asymptomatic osteochondroma of the talus and femoral neck might be just observation. However, surgical excision is a good treatment method for a symptomatic osteochondroma of the talus and femoral neck, as in our cases6,8,9. Osteochondroma is rarely found in the ankle and femoral should be included in a differential diagnosis with a painful or painless lump. Osteochondroma can detach from the stalk and can be found as an intraarticular loose body in an ankle and hip joint. Complete excision is the key to complete eradication and for preventing a recurrence5,7.

DIFFERENTIAL DIAGNOSIS

O Calcified bursitis /Bone tumour /Calcified mass/Loose bodies

CONCLUSION:

Osteochondroma of talus and femoral neck cause symptoms and radiological findings consistent with swelling of ankle and restriction of hip movement. Following surgical excision, symptoms improved post operatively, and they returned to normal activity. Awareness of this relationship may lead to a better understanding of patient's symptoms and expectations associated with treatment. Orderly evaluation of musculoskeletal neoplasm will help in clinical and radiological diagnosis. Though it is a rare tumour at these sites, it should be included in the differential diagnosis. Tissue diagnosis of the swelling is usually by histopathology. This helps in attempting proper surgical intervention. Complete excision of the lesion is the key to complete eradication and for preventing a recurrence.

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