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Iliac Wing Osteochondroma in a 19-year-old boy Treated with En-Bloc Resection: A Case Report

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Abstract:-
Osteochrondromas, also called exostosis, are the largest group of benign bone tumors arising in the bones preformed by cartilage. Commonly seen in the long bones of the lower extremity. Ilium is a rare site.
We present a 19-year-old boy with swelling in the right side of waist region for 9 months. After clinical and radiological evaluation, it was diagnosed as osteochondroma of right iliac wing which was managed by En-bloc resection. This case is published for the rarity of location of the osteochondroma.

Keywords: *Exostosis, Osteochondroma, En-bloc excision.*

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I. Introduction :-

Osteochondroma is the commonest of all benign bone tumors.[1]Osteochondromas are of two types: pedunculated and broad based or sessile. Osteochondromas may occur on any bone preformed in cartilage but usually are found on the metaphysis of a long bone near the physis . They are seen most often on the distal femur, the proximal tibia, and the proximal humerus. [2] Incidence of pelvic osteochondroma is about 5% and ilium is the rare site.[3,4]

These tumors are comprised of subperiosteal bone projections which are superficially covered by a cartilaginous cap. Defects in *EXT1* and *EXT2* genes, which are involved in the development of solitary, sporadic, and hereditary multifocal forms of the disease .[5,6]

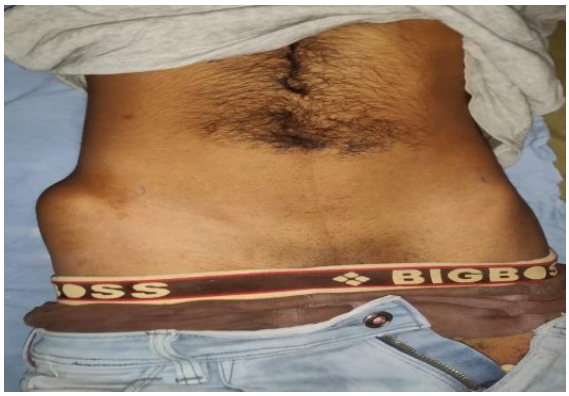
A hard swelling, usually of many years duration, is the most common symptom. In rare cases a fracture, usually at the base of the stalk, can be a presenting symptom. A bursa may be present over the cap, which may become inflamed or accumulate synovial fluid or loose bodies, thereby producing symptoms. Nerve or blood vessel impingement also may call attention to the presence of an osteochondroma.[6]

We report a case of 19-year-old boy with right iliac wing osteochondroma managed with En-bloc resection with no recurrence in 9 months follow-up.

II. Case Report :-

A 19-year-old male presented solitary swelling in the right side of waist for 9 months swelling was insidious in onset that gradually increase in size.(figure 1)

Patient did not complain of similar swelling in any other part of the body. There was no history of fever, loss of appetite or loss of weight. There was no history of trauma , No medical treatment was taken and no history of local massaging with analgesic oil and patient was not exposed to any kind of radiation and no history of previous surgery. The family, occupational & personal histories were insignificant.

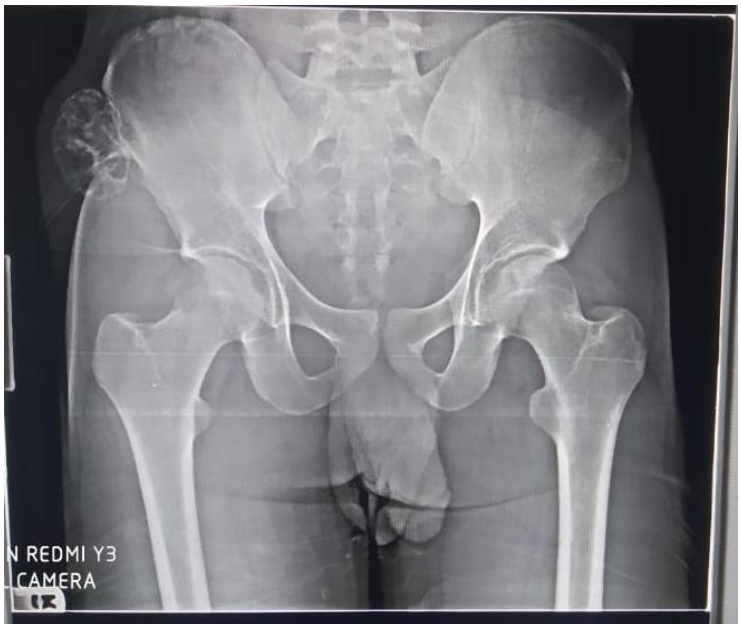


(Figure 1) Clinical pictures of the swelling in the right side of waist region.

The general physical and systemic examinations were within normal limits.

On examination there was a solitary, bony hard, globular swelling of about 7×4 cm just below the iliac crest . It was non-tender, non-mobile, normal local temperature, Overlying skin was normal in appearance and Examination of spine and contralateral lower limbs was normal.. No gluteal muscle atrophy was noticed.
All Haematological and serum biochemical investigastion were within normal limits. No regional lymph node enlargement was seen.

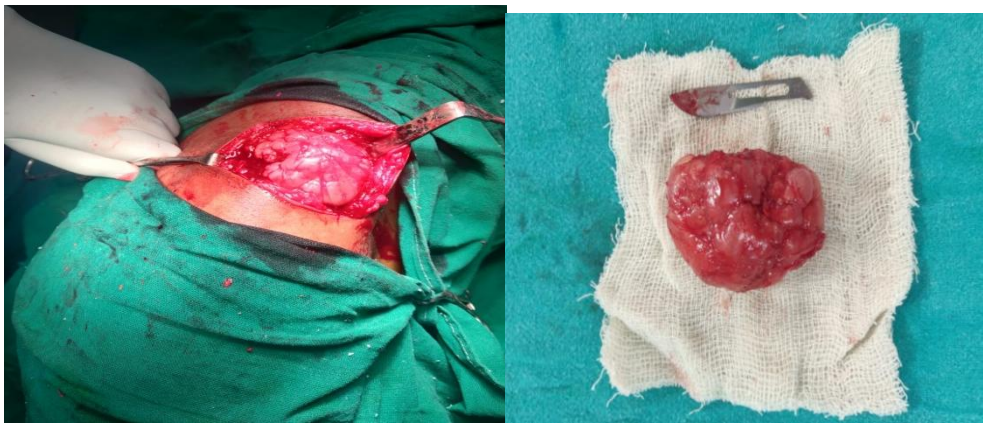
Plain radiograph AP view of pelvis with both hip shows a well-defined, sessile lesion size of 7 × 4 arising from the lateral aspect of the right iliac wing without any evidence of cortical destruction (figure 2)



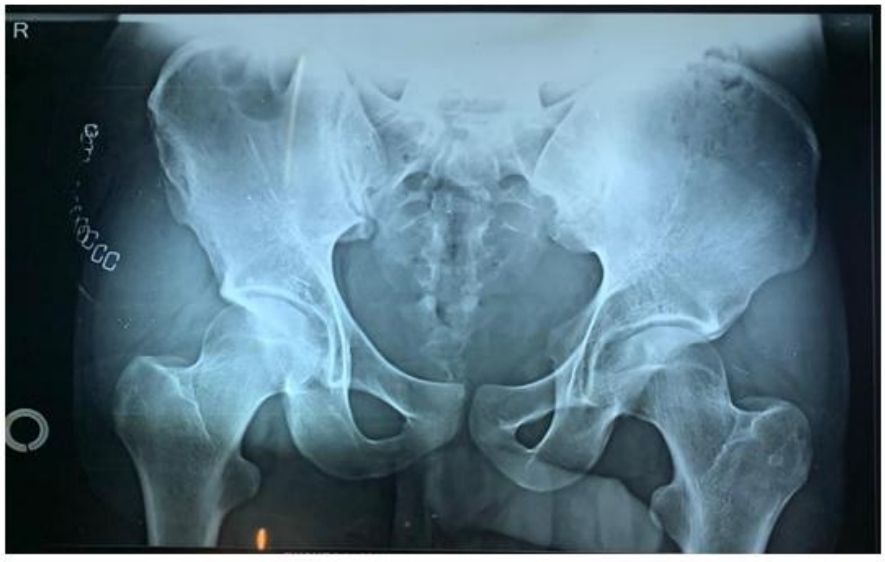
(Figure 2). AP Radiographs - a solitary, sessile lesion arising from the right iliac wing.

Patient was advised for CT and MRI of pelvis, however he was from a poor socio-economic background so it was not done.

The condition and its prognosis and treatment were discussed at length with the patient and his relatives. After taking written consent and fitness for surgery a decision to perform En-bloc resection of the tumour was taken due to progressively increasing swelling . The patient was taken up for surgery under spinal anaesthesia in left lateral position. An oblique incision measuring around 9-cm was taken along the right iliac bone centered over the swelling(figure3a). En-bloc resection of the osteochondroma was done(figure3b). The tumor mass consisted of a bony tissue capped with bluish cartilaginous mass thus confirming the diagnosis. Some normal bone was also removed just to be sure no recurrence occure in future.

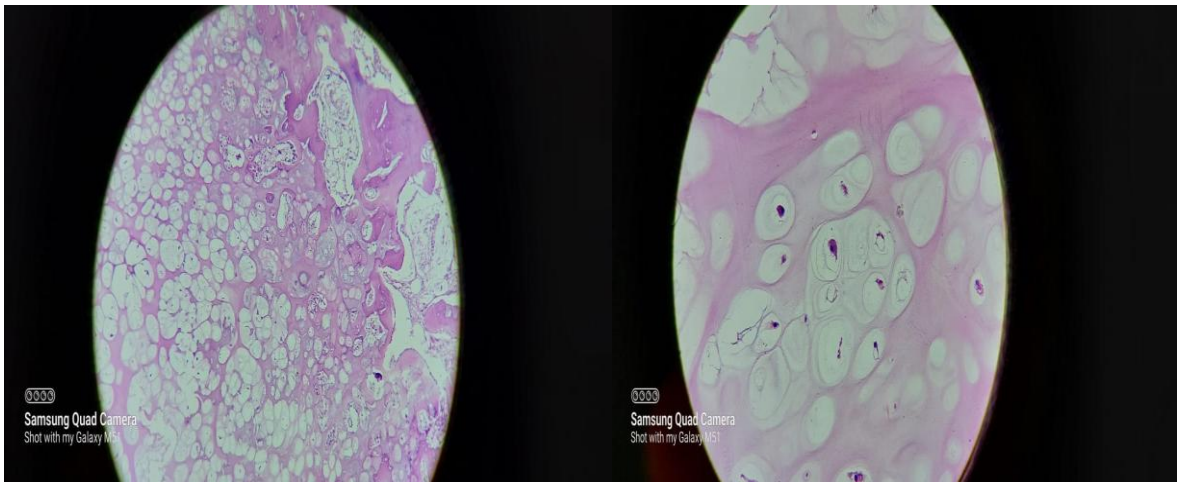


(Figure 3a,b) Intraoperative photographs of the tumor



(Figure 5): Post-operative radiograph.

The specimen was sent for histopathological examination. Histopathology report confirmed the diagnosis of osteochondroma without any evidence of malignancy. (figure 6a,b)



(Figure 6a,b) : Histopathology photographs of the biopsy specimen excised

The patient was asymptomatic after the surgery and the scar healed well with primary intention.
At 9 months follow up, there was no recurrence of growth at the operative site and patient was pain free.

III. Discussion:-

Osteochondromas are the most common benign bone tumors[7].Pelvis is a rare site for isolated osteochondroma[3,4,8].Osteochondromas, also known as exostoses account for 43.7% of all the bony neoplasms.[1] .

They probably are developmental malformations rather than true neoplasms and are thought to originate within the periosteumas small cartilaginous nodules. The lesions consist of a bony mass, often in the form of a stalk, produced by progressive endochondral ossification of a growing cartilaginous cap.[2] Majority of the patients present in the second decade and male to female ratio is about 1.7:1.[1,9]

They most commonly occur as a solitary lesion, but approximately 15% of patients have multiple lesions characteristic of multiple osteochondromas, an autosomal dominant condition.Osteochondromas can be associated with a few hereditary disorders, including multiple hereditary exostosis. The mode of transmission is autosomal dominant and results from germline inactivating mutations or deletions of the *EXT-1* and *EXT-2* genes and, less commonly, *EXT-3*. It seems that mutations in these genes lead to abnormalities in the IHh/PTHrP pathway, which controls chondrocyte differentiation and proliferation. [10]

Injury to the growth plate (traumatic or iatrogenic), exposure to irradiation, haematopoietic stem cell transplantation are the important risk factors for the development of osteochondroma. Radiation damages the resting layer of the cartilage in the epiphyseal plate leading to the migration of the cartilage cells into the medullary cavity which in turn leads to osteochondroma[11,12].

Osteochondroma commonly involves the metaphyseal or metaphyseo-diaphyseal regions of the long bones of the lower extremity. About 40% of these are seen around the knee joint, distal femur being the most common site. Short tubular bones and flat bones are very rarely involved. Incidence of pelvic osteochondroma is about 5%. Involvement of the ilium is rare but not unusual. To the best of our knowledge, less than 20 cases of pelvic osteochondroma have been reported in the past four decades. [2,9,13]

Pedunculated osteochondroma (88.2%)are more common compared to sessile variants.[3] our patient had a sessile osteochondroma, which further adds to its rarity. [14]

Most of the lesions are asymptomatic and are diagnosed accidentally on radiographs. Others present as painless bony swelling. Very rarely they may cause lumbar nerve root compression. The cause of pain in osteochondroma may be due to the neurovascular compression, fracture at the neck of the pedunculated lesion or due to the malignant transformation. [15,16,17]

Plain radiographs are diagnostic most of the times. 'Trumpet shaped deformity' is noted on x-ray due to metaphyseal widening, extension of the medullary canal into the osteochondroma is the most characteristic feature.

Computed topography (CT) usually reveals the extent and size of the tumor. Magnetic resonance imaging(MRI) aids in demonstrating the thickness of the cartilaginous cap. A cap thickness of >2 cm increases the propensity of the tumor to become malignant. [2]

Definitive diagnosis is usually established on histopathological examination. The presence of cortical and cancellous bone, both of which are continuous with the corresponding components of the parent bone, covered by a hyaline cartilaginous cap is diagnostic.

Malignant transformation into secondary chondrosarcoma can be seen in about 1% of cases with solitary osteochondromas and 5% of cases with multiple hereditary exostoses. Sudden and rapid enlargement, continued growth after skeletal maturity and development of pain in an otherwise painless swelling are important clinical signs indicative of malignant transformation. Radiological signs of malignant transformation include focal radiolucencies and destruction of the adjacent bone [2,19]

As most of the lesions are asymptomatic, they can be managed conservatively. In certain cases, En-bloc resection is the treatment of choice. Important indications for surgery are cosmetic deformity, intractable pain, swelling compression of the surrounding neuro-vascular bundle, abnormal growth, decreased range of movements in the adjacent joint, and malignant transformation. [2]

In our patient the swelling had increased in size over a period of one year and was cosmetically unappealing. Hence, we have considered surgical resection of the lesion in our patient. The base of the tumor was reached and En-bloc resection was performed with saucerization of the base of the tumour to ensure that no cartilage remnants are left behind. Recurrences after complete surgical resection are rare and are probably caused by failure to remove the entire cartilaginous cap.

IV. Conclusion:-

Osteochondroma of the iliac wing is rare tumors.They usually present with a cosmetic deformity and pain. The treatment of these tumors is En-block resection.It usually demonstrates good results and symptomatic relief.

Conflict of interest: No conflict of interest .

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