Research Paper

Volume : 5 | Issue : 3 | March 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Giant Solitary Osteochondroma of Iliac crest- a Case Report

Medical Science

KEYWORDS : Osteochondroma , iliac crest , benign bone tumour.

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ABSTRACT

Introduction: An osteochondroma or exostosis is a benign bone tumour consisting of a bony outgrowth covered by a cartilage cap that affects mostly the long bonesmainly the distal femur, proximal tibia and proximal humerus. Involvement of iliac crest by solitary osteochondromas is a relatively uncommon condition.

Case Presentation: The present report represents a case of symptomatic giant osteochondroma of right iliac crest causing gait abnormality and mechanical discomfort in certain postures.

Intervention: After clinical examinations, radiological investigations and FNAC done, the patient was admitted in hospital and complete surgical excision of the tumour was done.

Outcome: The patient's symptoms gradually resolved after gross total tumour removal.

Conclusions: Benign solitary large osteochondroma can be symptomatic and surgery results in complete relief of symptoms as demonstrated in this case.

Introduction

Osteochondroma is the most common benign bone tumor.[1] These tumours are outgrowthsof growth plate and are made up of both bone and cartilage.They generally occur in long bones of the appendicular skeleton and are most commonly seen around the knee.[2, 3]Osteochondromas grow during childhood through adolescence, but usually growing ends when the epiphyseal plates close.[2, 4]They are typically described in patients younger than 20 year-old and extensive osteochondroma growth into adulthood is rarely reported.[4, 5] In an adult, growth of an osteochondroma suggests the diagnosis of malignant transformation to a chondrosarcoma.[4, 6]Mostosteochondromas are asymptomatic, but they can cause mechanical symptoms depending on their location and size.The treatment of choice for symptomatic osteochondroma is surgical removal of solitary lesion or partial excision of the outgrowth.[7]In this study we describe the clinical and radiological findings and surgical treatment of a giant solitary osteochondroma arising from iliac crest which is relatively a rare site of involvement.[8,9]

Case presentation

History : A 41 year old housewife presented in orthopaedic OPD with complaints of pain in her right iliac crest region with gait abnormalty and mechanical discomfort while squatting, turning posture in bed. There was a bony mass of approximately 12 cm x 10 cm size at right iliac crest which gradually developed over last 20 years. She had no other comorbidities.

Workups: Plain radiographs of pelvis revealed a huge mass (11cm x7 cm) arising from right iliac crest and FNAC suggested low grade chondroidneoplasia. Chest x-ray showed no signs of metastasis.Complete hemogram, ESR, PT/INR, FBS/PPBS, Na+, and K+, urea, creatinine, viral profile and ECG were done after admitting the patient for surgical excision of the mass. Symptoms and further investigations confirmed the tumour to be a benign one.

Figure 1.Pre-operativex-ray AP view of pelvis showing the tumour arising from iliac crest.

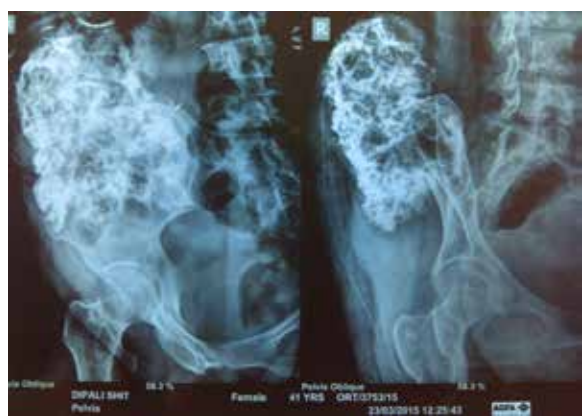

Figure 2.Pre-operative x-ray lateral view of the right pelvis.

Intra-operative procedure: After spinal anaesthesia and proper dressing draping in supine position an oblique 15 cm incision was given over the right iliac crest andexposure done up to acartilaginous capped cauliflower like giant mass arising from the outer table of the iliac crest. Due to the huge size of the mass it was removed inpiece meals. The outer table of the iliac crest was cleared after complete removal of the mass. Inner table of the crest was intact. Tissue was sent for biopsy. Wound was closed in layers after proper haemostasis.

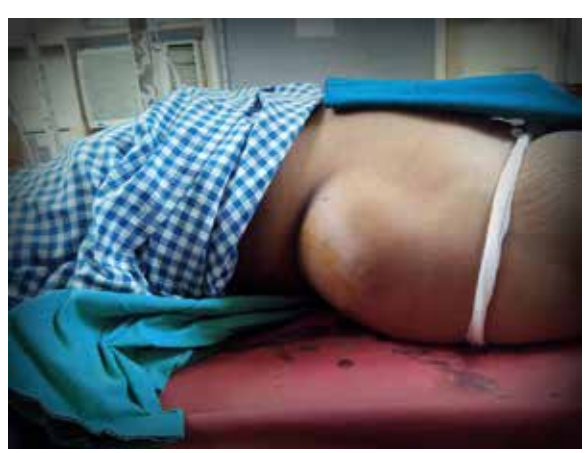

Figure 3. Patient in supine position on OT table with the huge iliac mass.

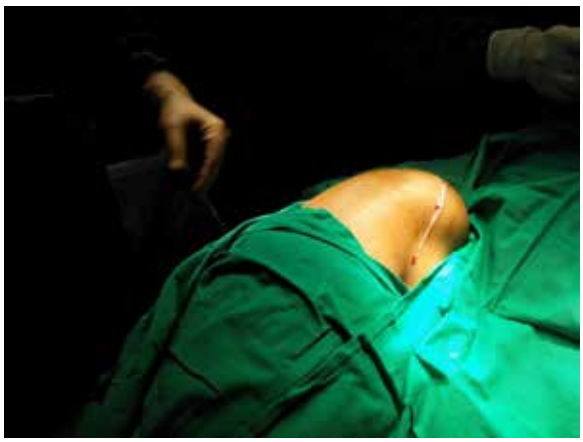

Figure 4.15 cm long curved incision over the mass over right iliac crest.

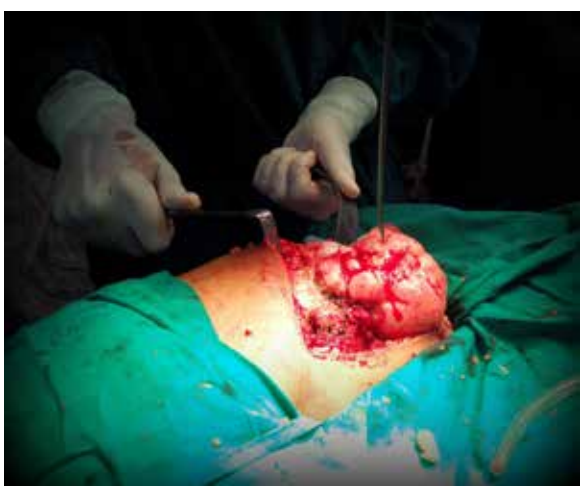

Figure 5.Exposure of the cauliflower like cartilage capped mass.

Figure 6. Complete removal of the tumour in pieces.

Post-operative workups: Patient was shifted to general orthopaedic ward after surgery. On post op day 1 she was allowed to walk and her gait was better than before. After 48 hr. of the operation dressing was done and the wound was healthy and dry. Patient was discharged on the 4thpost op day and advised to continue full weight bearing.

Follow up: Patient was reviewed after 7 days in OPD and stitches were removed. HPE report confirmed it to be an osteochondroma.Check x-ray showed clear right iliac crest and the patients gait was pain free.

Figure 7. Post-operative x-ray of pelvis.

Discussion

Osteochondromas are rather developmental lesions than true neoplasms and they may occur solitary or as multiple lesions, associated with the syndrome multiple hereditary exostoses.[2] Recent research has revealed that multiple osteochondromas is an autosomal dominant inherited disease and germ line mutations in EXT1 and EXT2 genes located on chromosomes 8 and 11 have been associated with the cause of this disease.[10]Osteochondroma is seen in the 2% to 3% of the general population and represents approximately 36% to 41% of the benign bone tumours.[11,12] The long bones of the lower extremities are most common sites[9,2,13]- the knee (40%)[8,13,14] followed by the humerus (10%-20%)[8,9,13] are more frequently involved. Other more unusual locations include the small bones of the hands and feet (10%), scapula (4%), pelvis (5%), and cranial base and jaw[8, 9, 13-15]; the spine is affected in 1.3% to 4.1% of cases.

Osteochondromas are usually asymptomatic, and are seen incidentally on radiography.[4]The most common symptom is a nontender, painless cosmetic deformity secondary to the slowly enlarging exophytic mass. Additional complications that cause symptoms include osseous deformity, fracture, vascular-nerve compression, neurologic sequelae, bursa formation, and malignant transformation.[4,11] Malignant transformation is seen in less than 1% to 2% of patients of solitary osteochondroma[3,16] and in 5%-25% of patients with multiple hereditary exostoses.[3,4,17]Clinical features suspicious for malignant transformation comprise new onset of pain in a previously stable lesion, rapid or new growth, growth after skeletal maturity, and/or large lesions.[3,18] These lesions are usually a low-grade chondrosarcoma or less often a secondary osteosarcoma.[19,20]

Although radiography is often diagnostic alone, other imaging modalities may be necessary for surgical planning and to exclude sarcomatous degeneration. The lesion is composed of native cortical and medullary bone protruding from and continuous with the underlying bone and they appear as sessile or pedunculated.[2, 3]

Ultrasonography can be used in the measurement of the hyaline cartilage cap thickness.[21, 22]Bone scanning is directly correlated with the degree of enchondral bone formation.[23, 24] Radionuclide uptake is usually more prominent in young patient. In older patients, it may not demonstrate any uptake. In addition, it has not been useful forevaluating malignant transformation.[3]

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MR imaging is the best radiologic imaging method evaluating hyaline cartilage cap. It also important for visualizing the effect of the lesion on surrounding structures and shows cortical and medullary continuity between the parent bone and osteochondroma.

Multiplanar reconstruction and three-dimensional imaging features of CT give important information of these lesions.Murpheyetal[2] believed that very thin sections available with CT are often superior to MR imaging, especially in complex areas of anatomy, in osteochondroma cases. Mineralization in the cartilage cap allows a correct CT measurement. However, it can be very difficult to correctly measure the thickness of a totally nonmineralized cartilage cap because it cannot be easily differentiated from surrounding muscle or bursa. Cartilage cap thickness greater than 1 to 2 cm in adults and 2 to 3 cm in growing children suggests malignant transformation.[2, 3, 25]

The treatment of osteochondromas is conservative or surgical (excision). Stable, small asymptomatic lesions can be treated conservatively. If the lesion is large and causes discomfort in daily activity or exhibits signs of malignant transformation should be treated surgically. A marginal resection is adequate and shows a low rate of recurrence. Any remaining cartilage cap may result in recurrence, especially in growing lesions.[2]

Conclusion

Benign osteochondromas can represent symptomatic growth in skeletally mature patients without malignant transformation and surgical excision gives complete symptomatic relief.

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