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A rare sessile variant of osteochondroma presenting at an unusual site of the iliac wing in a 15-year-old boy

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Abstract:

Osteochondromas rarely grow from flat bones such as scapula and pelvis. These tumors grow in sync with the growth of the child. They usually involve the growing ends of long bones, more commonly the distal end of the femur. We report a 15-year-old boy presenting to us with an osteochondroma of the iliac wing. It was a rare sessile variant. The tumor was causing him extreme pain and mechanical block to squatting, sitting cross-legged, and walking. The tumor was surgically removed by extraperiosteal resection. The patient was followed up for 1 year. He did not suffer from a recurrence or symptoms of pain or weakness after 1 year. Pelvis forms an unusual site of presentation for an osteochondroma. These tumors, should they arise from the pelvis, are notoriously dangerous as they may cause compression of lumbar nerve roots. Complete removal of these tumors extraperiosteally gives a drastic relief to the patient's symptoms. The patient should be followed up carefully to look for recurrence of this tumor.

Keywords:

Iliac bone, osteochondroma, pelvis

Introduction

Osteochondromas are common benign tumors seen in the metaphysis of long bones.[1] They usually occur in the second decade of life and grow during the adolescent growth spurt.[1,2] These tumors cease to grow after growth maturity. The most common complaints of patients with osteochondromas are pain, swelling, cosmetic deformity, and limitation of movements of adjacent joints. We report a case of a 15-year-old boy diagnosed with an osteochondroma arising from the iliac wing.

Case Report

A 15-year-old boy presented to our outpatient department with complaints of solitary swelling over the right pelvis. He was apparently normal 2 years back when he noticed a small swelling of the right pelvis 2 years back. The swelling progressed to the current size. The swelling caused his pain while walking for long distances and climbing steps. He had a significant discomfort on lying down in the right lateral position.

Clinical examination revealed a solitary bony hard swelling over the right iliac bone measuring around 4 cm × 3 cm in size. The borders were not well defined. There was no local rise in temperature or skin changes visible over the swelling [Figure 1]. He was screened for similar swellings in the body, and none were found. The swelling was fixed to the iliac bone. Radiographs of the pelvis revealed a solitary, sessile osteochondroma arising from the outer iliac wing just below the iliac crest [Figure 2].

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The tumor was excised entirely by extraperiosteal resection. Precautions were taken not to damage the outer table of the iliac bone [Figure 3]. The excised tumor was sent for histopathology studies, which confirmed the diagnosis of osteochondroma. Macroscopy showed bony fragment with soft-tissue attachments of size 4 cm × 3 cm × 1 cm. Microscopy revealed multiple sections of bone fragments with a cartilaginous cap with trabecular bone and fatty tissue [Figure 4].

Discussion

Osteochondroma form 43.7% of all bony neoplasms.[1] The incidence of these tumors in males to females is 1.6–3.4:1[1,3] The most common site of osteochondroma is distal femur[4] Osteochondromas of the iliac bone are extremely rare. They form about 5% of all osteochondromas occurring in the human body.[5] They are developmental lesions of the bone rather than primary bone neoplasms. The inactivation of the tumor suppressor genes EXT-1 is required for an osteochondroma to occur.[6,7]

The most commonly agreed cause for an osteochondroma to occur is an iatrogenic injury to the growth plate usually secondary to surgery or irradiation.[8,9] Virchow, Muller and Keith's theories have explained the origin of osteochondromas as well.[10] Pelvic osteochondromas are rare and are usually asymptomatic. Pelvic osteochondromas can compress the lumbar nerve roots, which then have to be surgically excised.[11-13] Our patient did not have symptoms of lumbar nerve root compression but had severe pain while squatting and sitting cross-legged. Pedunculated osteochondroma (88.2%) are more common compared to sessile variants.[2] our patient had a sessile osteochondroma, which further adds to its rarity.

These tumors are rarely malignant. About 1% of all osteochondromas become malignant lesions namely chondrosarcoma.[1] About 5% of multiple hereditary exostoses become malignant[1] Sessile, multiple osteochondromas are usually at high risk for malignant conversion. The height of the cartilaginous cap is also a sensitive indicator for malignancy. Cartilage caps thicker

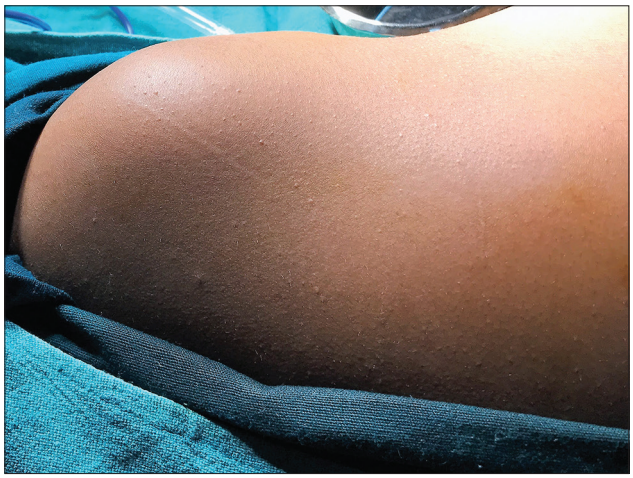

Figure 1: Clinical photograph showing the tumor mass - patient in the left lateral position and foot end to the right side of the photograph

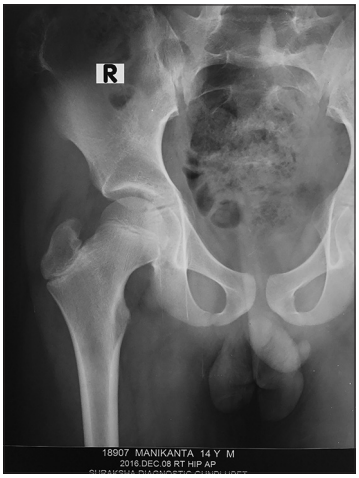

Figure 2: Radiograph demonstrating the sessile osteochondroma of the iliac wing

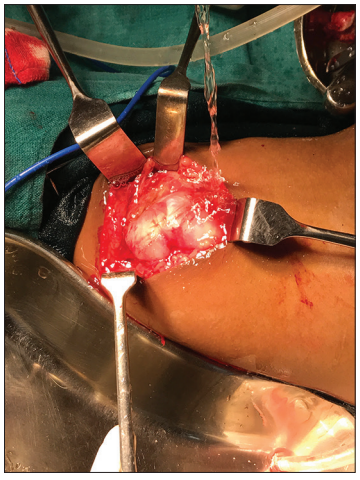

Figure 3: Intraoperative photographs of the tumor

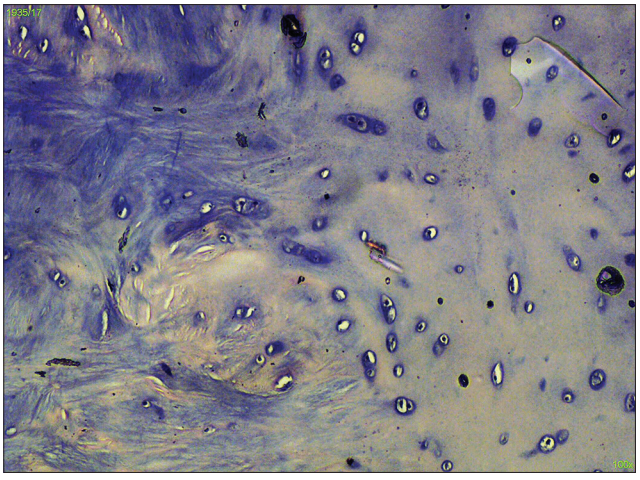

Figure 4: Histopathology photographs of the biopsy specimen excised

than 2 cm are at high risk for malignancy and should be approached cautiously.

Plain radiographs are usually sufficient to diagnose osteochondromas. The most consistent findings are a pedunculated or sessile bony outgrowth that extends to the medullary cavity. Pedunculated exostosis is more commonly seen. Computed topography usually reveals the extent and size of the tumor. Magnetic resonance imaging aids in demonstrating the thickness of the cartilaginous cap. A cap thickness of >2 cm increases the propensity of the tumor to become malignant.[2,10-12]

Definitive diagnosis is usually by histopathological examination. Cortical and cancellous bone is seen continuous with the corresponding components of the parent bone covered by a hyaline cap which is usually diagnostic.

Most tumors are asymptomatic and can be treated by observation and educating the patient about warning signs of malignancy. However, if there is a definite hindrance in performing daily activities such as difficulty in walking, sitting, squatting, or movement of his joint along with severe pain, such as our patient, an *en bloc* excision procedure might be opted for as treatment of choice. Pelvic osteochondromas involving iliac bone have been reported to cause lumbar nerve root compression.[2,13] Pubic symphysis osteochondromas have known to cause bladder outlet obstruction.[2,14] The presence of neurovascular deficit due to the tumor, a pathological fracture and a sudden spurt in the growth of the tumor are absolute indications for surgery. The cartilage cap must be excised entirely to avoid recurrence of the tumor. Our patient has severe pain while walking, squatting, and lying down. The tumor was therefore excised *en bloc*. Our patient was followed up for 1 year. There has been no evidence of recurrence of the tumor, and our patient is pain free and able to perform all her daily activities without pain.

Conclusion

Osteochondroma of the iliac wing is rare tumors. They usually present with a cosmetic deformity and pain. The treatment of these tumors is extraperiosteal excision. Excision usually demonstrates good results and symptomatic relief.

Clinical message

Pelvis forms an extremely unusual site for presentation of osteochondroma. Sessile variants are even rarer such as our patient. These tumors are asymptomatic but can cause compression of lumbar nerve roots, mechanical block to activities such as sitting cross-legged, squatting, or walking. Such patients recover well with excision of the tumor.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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