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Case Report

Isolated Osteochondroma of the Ilium: Case Report with Review of the Literature

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Abstract: Osteochondroma or exostosis is the most common benign bone tumor. It is not a true neoplasm. In osteochondroma, subperiosteal physeal cartilage germ grows and matures by enchondral ossification. Most commonly occur in second decade of life or early with more males to female ratio. Here we present a case of isolated osteochondroma of pelvic wing along with the review of international literature for this entity and its complications.
Keywords: Osteochondroma, Swelling, Multiple hereditary exostosis, Pelvis.

INTRODUCTION

Osteochondroma also known as exostosis is the most common benign bone tumor accounting for 20 – 50% of benign bone tumors [1, 2]. It is not a true neoplasm rather it is a developmental aberration in which subperiosteal physeal cartilage germ grows and matures by enchondral ossification [1, 3]. It ultimately develops as a bony protuberance at the metaphyses which is covered by a cartilaginous cap [3]. It may be pedunculated having a stalk or sessile which lacks stalk [2]. Most cases present in second decade of life or early and is twice more common in males as compared to females [3, 4]. Osteochondromas may be solitary or they may be multiple with autosomal dominant inheritance also known as multiple hereditary exostosis (MHE) [1, 2, 5]. Exostois most commonly involves long bones with distal femur, proximal humerus and proximal tibia the most common predilection site [4, 6]. Flat bones of pelvis and scapula are usually involved in MHE [1]. Overall 5% osteochondromas involve pelvis [5]. Isolated osteochondromas of pelvis is a rare entity [4]. We present a case of isolated osteochondroma of pelvic wing and also review the international literature for this entity and its complications.

CASE REPORT

A 16 year old male student presented with two years history of swelling on posterior aspect in the right waist region. The swelling was symptomless. The only thing that bothered the patient was local irritation by the belt of the trouser. There was no history of fever, weight loss, anorexia or similar swelling in any other part of the body or in other family members. General physical examination was unremarkable. On local examination there was a smooth globular swelling, bony hard in consistency at postero-lateral aspect of right iliac crest (Fig. 1). Local temperature over swelling was not raised and skin over it was freely mobile. On deep palpation the globular swelling had a stalk that was directed posterior and inferior from the globular swelling. Neurological examination of lower limb was unremarkable and there was no vascular deficit distally.

Routine baseline investigations were within normal range. Antero-posterior radiograph of pelvis had a swelling with bone trabeculations arising from right iliac wing suggestive of osteochondroma (Fig. 2). Skeletal survey was done to rule out similar lesions in other parts of the body. CT scan of pelvis with three dimensional reconstruction was advised but parents refused because of financial constraints. Excision biopsy was planned. Under spinal anaesthesia and through incision along posterior aspect of iliac crest a flap along with muscles attached to outer surface of ilium was raised and swelling was excised. Rim of outer table of ilium around the stalk was also removed. Specimen was sent for histopathology. Microscopy of the specimen showed no features of malignancy and columns of chondrocytes forming a cartilage cap underneath which were osteocytes forming bony trabeculae, feature characteristic of osteochondroma.

Postoperative period was uneventful and there was no recurrence over a follow up period of one year after which follow up was lost.

Fig. 1: Clinical photographs showing lateral and posterior view (black line showing boundary of the swelling; black arrows demarcate main body of the mass; and white arrows demarcate the pedicle)

Fig. 2: Antero-posterior radiograph of pelvis showing osteochondroma arising from right iliac wing (white arrows)

DISCUSSION

Pelvis is a rare site for isolated osteochondroma [4, 5, 6]. In our extensive international review we retrieved only 15 published cases (Table 1). However, Saglik Y *et al*. (2006) in their review of 313 patients of isolated osteochodromas at their institute from 1986 to 2003 had pelvic involvement in 3.8 % [1]. This discrepancy may be due to fact that most of asymptomatic lesions of pelvis never get published. In our review 11 patients with pelvic osteochondromas had complications. Complications in pelvic osteochondromas arise due to compression of vital structures related to pelvis. The most common site in pelvis was the ilium followed by ischium. Pubis is the rarest site of involvement. Two cases of acetabular intra-articular isolated osteochondroma have also been reported [8, 11].

The most common complication in our review was compression of sciatic nerve or its nerve roots. Lumbar nerve roots are most commonly involved in lesions arising from posterior part of iliac crest adjacent to sacroiliac joint [5, 9, 10]. Sciatic nerve irritation or compression is related to ischial osteochondromas [3, 6]. There have been cases with bowel and bladder irritation. These lesions arise from inner table of iliac wing or crest and are giant in size [12]. Pubic lesions can present with urinary retention due to compression of urethra or bladder neck [2]. External iliac artery compression secondary to osteochondroma has been reported [13]. Intra-articular osteochondromas of acetabulum may present with mechanical restriction of the hip joint [8, 11]. Malignant transformation is a known complication of osteochondromas and the most common malignancy that can arise in it is chondrosarcoma. Risk of malignant transformation is less than 1 % in solitary osteochondroma while as in MHE it is as high as 5% [2]. There was one case of such transformation in solitary osteochondroma of pelvis [14]. Our case had local irritation from the belt of a trouser otherwise it was symptomless.

Osteochondromas have been reported as complication of total body irradiation or localized

radiotherapy [16, 17]. Iliac osteochondromas have also been reported after trans-iliac bone biopsy [18].

Table 1: Published cases of solitary osteochondromas of pelvis

S. No.	Author (Year)	Age (years)/ sex	Presentation	Site of osteochondroma	Complications
1.	Bleshman MH (1978)[8]	-	Hip pain	Acetabular intra-articular	Restricted hip movements
2.	Trotter D (1984)[9]	11/ M	Radiculopathy	Iliac crest	5th lumbar nerve root compression
3.	Larson J (2002)[10]	29/ M	Radiculopathy	Iliac crest	3rd lumbar nerve root compression
4.	Garcia RJ (2005)[11]	13/ F	Groin pain	Acetabular intra-articular	Resticted hip movements
5.	Buyukbebeci O (2006)[12]	21/ M	Nausea, vomiting, abdominal distension, hematuria	Iliac crest	Mechanical irritation of bowel and bladder
6.	Kumar S (2006)[7]	75/ M	Swelling hip	Iliac wing	None
7.	Kumar S (2006)[7]	20/ M	Swelling hip	Iliac wing	None
8.	Sharma S (2009)[4]	21/ M	Swelling waist	Iliac crest	None
9.	Kim WJ (2009)[5]	33/ M	Radiculopathy	Iliac crest	5th lumbar nerve root compression
10.	Kokavec M (2011)[13]	16/ M	Gait disturbance	Iliac crest	External iliac artery compression
11.	Gokkus K (2013)[3]	25/ M	Radiculopathy	Ischial ramus	Sciatic nerve compression
12.	Sayed M (2013)[2]	23/ M	Inguinal swelling, urinary retention	Pubis	Urethral compression
13.	Nystrom LM (2013)[14]	11/ F	Pain groin, limp	Superior pubic ramus	Secondary chondrosarcoma
14.	de Moraes FB (2014)[6]	42/ F	Radiculalgia	Ischium	Sciatic nerve compression
15.	Yilmaz S (In press)[15]	12/ M	Swelling, pain waist	Iliac wing	None
16.	Ali N (present case)	16/ M	Swelling waist	Iliac wing	None

M: Male; F: Female

CONCLUSION

Isolated osteochondroma most commonly originate from ilium. Pubis is the rarest site involved. Lesions from posterior part of the iliac crest can present with radiculopathy secondary to nerve root compression. Large lesions from inner table of ilium or from iliac crest can have bowel and bladder symptoms or even major vessel compression with lower limb ischaemia. Ischial osteochondromas can present with sciatic neuropathy. Pubic or ramus origin of osteochondroma can have urinary symptoms secondary to urethral of bladder neck compression.

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