

Isolated Osteochondroma of the Femoral Neck Presenting as Hip and Leg Pain. A Case Study

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SUMMARY

Osteochondromas, or exostoses, are overwhelmingly found as isolated lesions although they can be present within the context of multiple hereditary exostosis. Increased exostotic load associated with multiple hereditary exostosis can lead to limb-length discrepancy, increased femoral anteversion, valgus angulation, and acetabular dysplasia. Solitary osteochondromas have been linked with bursal inflammation and pain, compression on neurovascular structures, and malignant degeneration, groin and lower extremity pain. Isolated exostosis involving the femoral neck is a rare entity which is often diagnosed late when the patient is being investigated for other problems. We present a young female with a history of hip pain for 3 years with restriction of movements around the hip joint and radicular pain which turned out to be a solitary osteochondroma of the femoral neck. Surgical excision relieved the symptoms.

Key words: isolated osteochondroma, femoral neck, hip and leg pain

BACKGROUND

Osteochondroma is the most common benign bone tumor, and although it may appear as part of multiple hereditary exostosis, it is present as a single lesion in 90% of cases [1,2]. Although lesions are typically asymptomatic, mechanical signs of volume increase leading to bursal inflammation and pain, significant cosmetic deformity, compression on vital neurovascular structures, as well as concern of malignant degeneration have led some to advocate the excision of these lesions in certain cases [2-6]. Bony deformity, decreased hip range of motion, and gross acetabular dysplasia are characteristic of lesions in multiple hereditary exostosis [7-11]. Solitary exostoses of the proximal femur are documented in cases involving trochanteric bursitis, external snapping of the hip, and sciatic nerve compression. These are features which can be confused with spinal pathologies and indeed patients with sciatic pain may turn out to have such exostoses. Isolated osteochondromas arising from the femoral neck are quite rare and often diagnosed incidentally. Their location generally precludes early diagnosis, and it is only when the tumour causes neurovascular compression, impingement, restriction of movement or malignant change that attention is directed to the site of pathology.

CASE STUDY

A 22-year-old woman presented with right posterior buttock and anterior groin pain of 3 years duration with associated lower back pain and right lower

extremity numbness and paresthesias. She also complained of some restriction of movement which was initially ascribed to her back pain radiation. Imaging of her spine demonstrated no significant pathology. She was given a course of conservative treatment including rest, nonsteroidal anti-inflammatory drugs, activity modification, and physical therapy. At 3-month follow-up, with continued symptoms, a pelvic radiograph was ordered (Fig. 1,2) which demonstrated a large calcified mass arising from the base of the right femoral neck adjacent to the greater trochanter consistent with osteochondroma. Due to persistent symptoms of pain, restriction of movements and numbness despite nonoperative treatment for 3 months and the potential for malignant degeneration, the patient elected to undergo surgical treatment to excise the tumor. In the operating room, the patient was placed in a lateral decubitus position, and a long posterolateral approach to the femur was performed. The tumor mass was palpated directly posterior to the gluteus medius insertion of the greater trochanter at the base of the neck. Following exposure and identification of the sciatic nerve, the base of the mass was osteotomized off the posterior femoral neck (Fig. 3,4). The patient made an uneventful recovery and she was relieved of her symptoms. There has been no recurrence.

DISCUSSION

An exostosis is a benign bone tumour caused by endochondral ossification of an abnormal island of



Fig. 1. AP view of the hip showing the osteochondroma arising from the base of the femoral neck

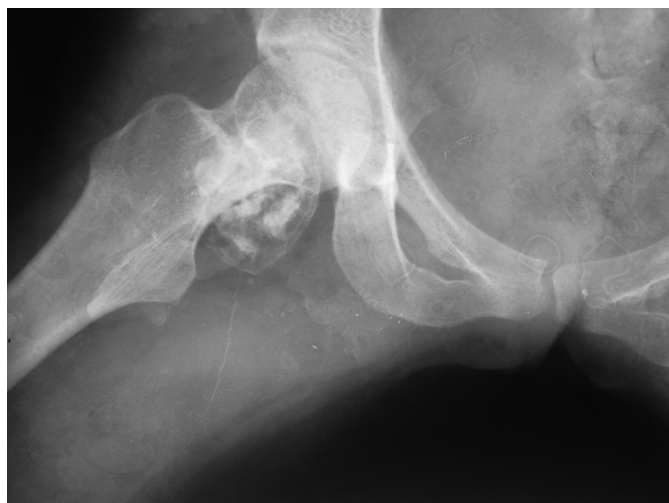


Fig. 2. Lateral view of the hip showing the osteochondroma arising from the base of the femoral neck and adjacent to the acetabular margin



Fig. 3. Intraoperative photograph of the exostosis

cartilage adjacent to a physis [1,2]. The incidental radiographic finding of these osteochondral lesions may be as high as 2% [1], and 9% of these exostoses involve the proximal femoral physes [12].

Although their frequency and presence may be difficult to characterize due to their asymptomatic nature, osteochondromas can be found as palpable bony masses that may cause pain due to overlying bursitis, fracture, limitation of motion or impingement on an overlying structure [12]. The anatomic effects of solitary exostoses of the proximal femur have been well described in cases involving trochanteric bursitis, external snapping of the hip, and sciatic nerve compression, leading to either local treatment or surgical excision [1,6,13].

Although some of these fixed volume effects of solitary exostoses have been described in the litera-

ture, there is a lack of observations of the dynamic growth of the proximal femur related to these lesions. In the context of multiple hereditary exostosis, deformity involving limb-length discrepancy and version of the proximal femur has been characterized. A larger neck-shaft angle has been associated with extensive exostoses, and femoral malformation due to increased anteversion and valgus angulation have been associated with lesions adjacent to the lesser trochanter [11]. Additionally, femoral offset due to local mass effects of these lesions in multiple hereditary exostoses has been shown to cause deformity leading to insufficient acetabular coverage and developmental hip dysplasia necessitating surgical reconstruction [7,8,11,14].

Many hypotheses have been postulated to explain the development of solitary exostoses. In vitro im-



Fig 4. Postoperative radiograph of the hip

plantation of physal tissue to adjacent cortical bone reliably reproduces osteochondromas. Also, several cases of osteochondromas formed by surgical transplantation of growth plate cartilage during epiphysiodeses have been noted [1]. Arrest of the capital and greater trochanteric epiphyses due to trauma leading to limb-length discrepancy and angular deformity is well documented [15]. Many traumatic conditions result in abnormal relationships between the proximal femur and acetabulum and thus may lead to impingement. These etiologies include previous femoral neck fracture, Legg-Calve-Perthes disease, and slipped capital femoral epiphysis [14,15]. History of prior injury to the proximal femur may be exclusively evident by the presence of an osteochondroma. This manifestation of previous damage may also be a display of radiographically undetectable signs of injury to other physes of the hip articulation. Such injury may lead to subtle changes in the shape of the proximal femur and abnormal resultant contact within the joint. These structural changes may further contribute to the development of femoral acetabular impingement and further progression of osteoarthritis. Indications for excision of solitary osteochondromas include unacceptable cosmetic deformity, loca-

tion that leads to recurrent injury or discomfort, development of a painful overlying bursa, compression of adjacent vital structures (nerves, arteries, joints), or radiographic signs of malignant degeneration [2]. In our case, symptoms of hip pain and sciatic nerve compression led the patient to elect for surgical excision.

SUMMARY

Pelvic exostoses are generally asymptomatic until they compress some adjacent neurovascular structure or undergo malignant change. The incidence of chondrosarcomas in the proximal femur or pelvis is significantly higher in adolescents [16], which necessitates a keen follow up and early resection. Although osteochondromas of the proximal femur and acetabulum are mainly followed up because of the risk of malignant change, a periacetabular osteochondroma may cause acetabular dysplasia and a proximal femoral osteochondroma may cause coxa valga and overgrowth of the femoral neck. Since the risk of malignant transformation of these lesions is high, it is important to consider surgery in patients with radiographic or imaging evidence of malignant change, however minimal. Also, delay in surgery may jeopardise the outcome with disastrous results.

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