Acta Orthop. Belg., 2005, **71**, 115-118

CASE REPORT

Extraskeletal osteochondroma of the thigh : A case report

Yash GULATI, Aditya MAHESHWARI, Vijay SHARMA, Rakesh MATTOO, Deepshikha ARORA, Nupur GUPTA

From Indraprastha Apollo Hospital, Sarita Vihar, New Delhi, India

A case of histopathologically proven extraskeletal osteochondroma of the thigh is presented along with its radiographic, CT and MRI findings. This is the first such case reported, to the best of our knowledge. The diagnosis of extraskeletal osteochondroma should be considered when a discrete ossified mass is localised in the soft tissue.

INTRODUCTION

Osteochondromas are the most common bone tumours ; they usually originate near the end of long bones, grow away from the joint and are cured by marginal excision. Osteochondromas of soft tissues are rather unusual. To the best of our knowledge, extraskeletal osteochondroma of the thigh has never been reported.

CASE REPORT

A 16-year-old male presented with non traumatic painless progressive fullness in the region of his left proximal thigh over the last three years. This had doubled in size during the last one year. His only disability was that he could not lie down on that side because of discomfort.

On examination, there was an obvious fullness and a mobile, non tender, hard palpable mass on the anterolateral aspect of the proximal thigh. It did not limit range of motion and there was no distal neurovascular deficit. Radiographs revealed a well-circumscribed lobulated mass with dense central mineralisation situated between the proximal femur and the pelvis (fig 1). CT and MRI suggested that the mass was of soft tissue origin and was not in continuity with any bone (fig 2). A fine needle aspiration cytology was unsuccessful as the needle could not be negotiated in the bony hard mass.

An excisional biopsy was performed. It was confirmed during surgery that the mass did not involve the joint space or synovium or any bone. It was located in the intermuscular plane between the tensor fasciae latae and the glutei muscles. Macroscopically it was a bilobulated mass measuring 14 $\times$ 10 $\times$ 6.5 cm. The cut section showed a bony structure with ill-defined margins involving most of the excised lump (fig 3). Microscopically the sections showed a sharply demarcated lesion. The lesion showed zonation with a cartilage cap

■ Yash Gulati, M. Ch, Senior Consultant.
■ Aditya Maheshwari, MS, Senior Registrar.
■ Vijay Sharma, MS, Senior Registrar.
■ Rakesh Mattoo, MS, Junior Consultant.
Department of Orthopaedics, Indraprastha Apollo Hospital, Sarita Vihar, New Delhi, India.
■ Deepshikha Arora, MD, Senior Consultant.
■ Nupur Gupta, DNB, Registrar.
Department of Pathology, Indraprastha Apollo Hospital, Sarita Vihar, New Delhi, India.
Correspondence : Aditya V. Maheshwari, M-64, Ramakrishna Vihar Apartments, 29 I.P. Extension, Patparganj Society, Delhi-110092, India.
E-mail : adi_maheshwari@rediffmail.com.

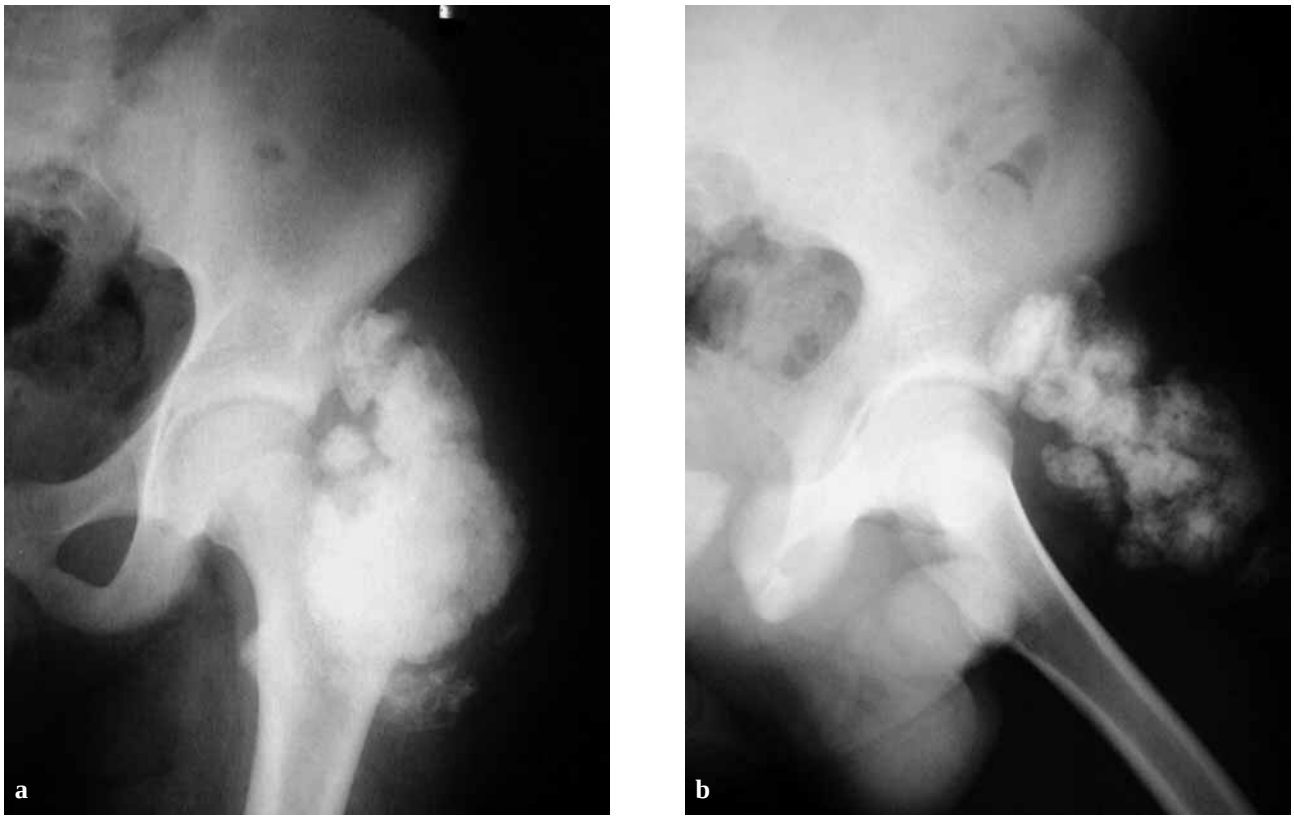

Fig. 1. — Anteroposterior (a) and lateral (b) radiographs showing a large mineralised lesion within the soft tissues of the proximal left thigh.

surrounding the periphery, endochondral calcification and ossification in the middle and fully developed mature trabecular bone in the center (fig 4). No nuclear atypias or mitoses were observed, and the surrounding soft tissue appeared unremarkable. The lesion was excised en bloc with a minimum clearance of 2 mm. These features were suggestive of the very rare extraskeletal osteochondroma. The patient has no clinical or radiographic evidence of recurrence 25 months after surgery.

DISCUSSION

Osteochondromas represent the most common bone tumours and are developmental lesions rather than true neoplasms. They constitute 20 to 50% of all benign bone tumours and 10 to 15% of all bone tumours (*3*). However, soft tissues osteochondromas are uncommon and most of them arise from synovial tissues in joints, tendon sheaths, or bursae. Approximately 75% of these tumours are found in the hands and 25% in the feet (*1*). Few para-articular osteochondromas have been reported, with the knee being the most common site (76%), followed by the foot (19%) and ankle (5%) (*4, 5*). Very rarely extraskeletal osteochondromas with extensive ossification occur elsewhere. To date, only two such lesions have been described, both in the buttock region (*2, 6*). Both of them had been excised uneventfully. No such report is available regarding an extraskeletal osteochondroma in the thigh and we presume that this is the first case report.

The pathogenesis of such lesions is unknown. Metaplasia from mesenchymal cells is considered the origin of these lesions (*5*). Sood *et al* concluded that they arise from metaplastic change from adipose tissue, which was lipoma to begin with. The long list of tissues that are capable of undergoing

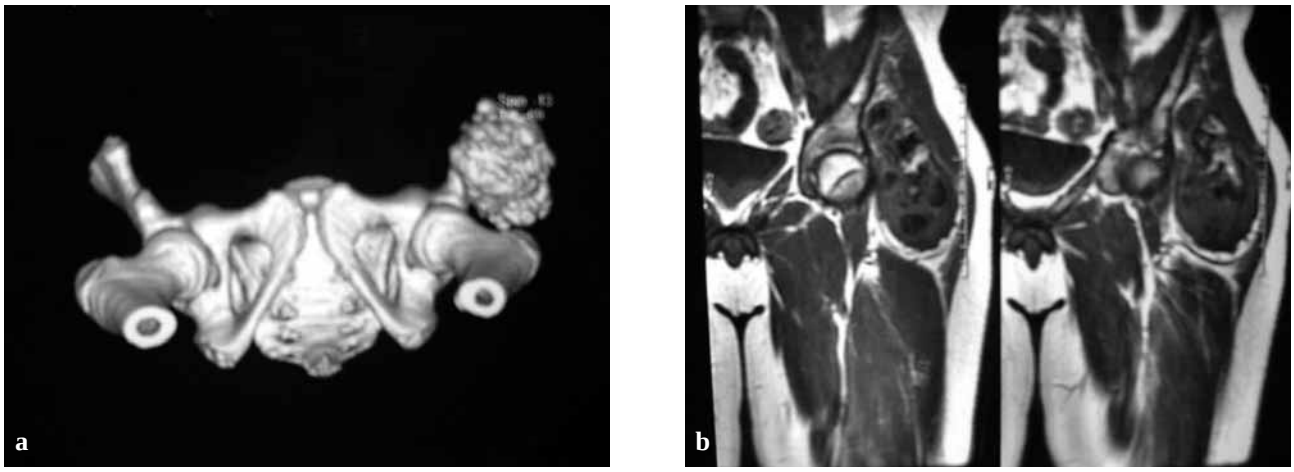

Fig. 2. — 3-dimensional CT (a) and MRI (b) showing the extraskeletal origin of the lesion

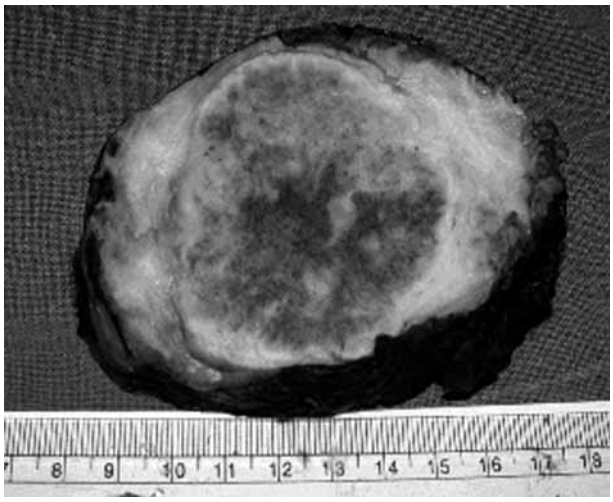

Fig. 3. — Photograph of the cut surface of the well-circumscribed lesion after en bloc excision.

such metaplasia reveals the complexity of influences that may determine the chondromatous and osseous transformation of connective tissues (*6*). Although the exact biological nature of these tumours is not well characterised, limited data suggest that they behave in a benign fashion (*4*) and local recurrence is rare (*5*).

The diagnosis of soft tissue osteochondroma should be considered when a well-developed osseous mass is localised in soft tissue. Several other lesions may be considered in the radiograph-

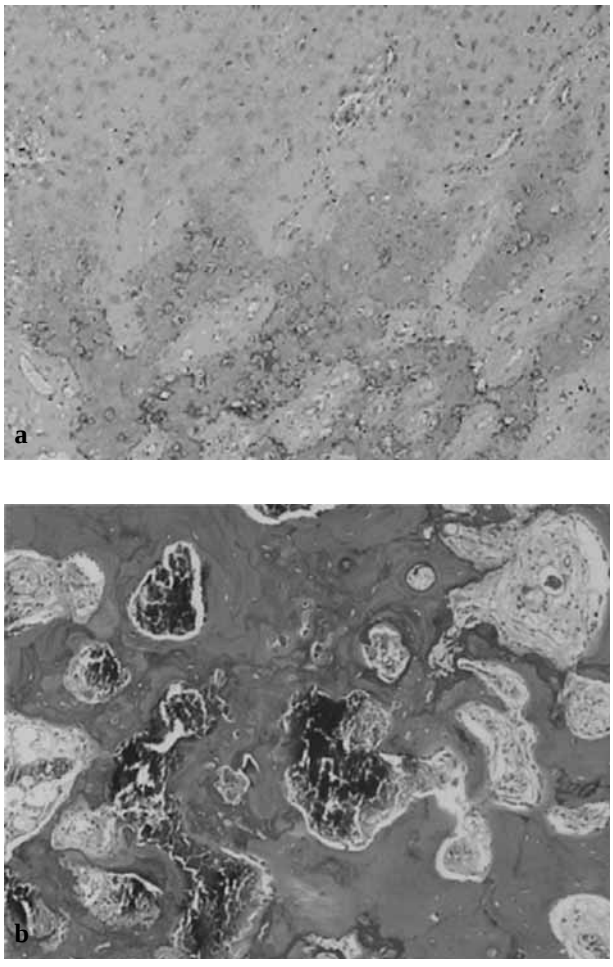

Fig. 4. — Histopathological picture showing : (a) the cartilaginous cap and (b) the endochondral ossification, H&E.

ic differential diagnosis, including myositis ossificans, extraskeletal osteosarcoma, pseudotumoral crystal deposition disease, synovial sarcoma, heterotopic ossification or any other ossified soft tissue tumour. Because marginal excision is an adequate management, it is important to distinguish extraskeletal soft tissue osteochondroma from other malignant lesions (*4*). As with other bone lesions, clinical and radiographic findings in addition to those of histologic examination, are essential for correct diagnosis.

REFERENCES

1. **Gayle EL, Morrison WB, Carrino JA *et al.*** Extraskeletal osteochondroma of the foot. *Skeletal Radiol* 1999 ; 28 : 594-598.
2. **Lim SC, Kim YS, Moon YR.** Extraskeletal osteochondroma of the buttock. *J Korean Med Sci* 2003 ; 18 : 127-130.
3. **Murphey MD, Choi JJ, Kransdorf MJ *et al.*** Imaging of osteochondroma : variants and complications with radiologic-pathologic correlation. *Radiographics* 2000 ; 20 : 1407-1434.
4. **Reith JD, Bauer TW, Joyce MJ.** Paraarticular osteochondroma of the knee : report of 2 cases and review of literature. *Clin Orthop* 1997 ; 334 : 225-232.
5. **Sakai H, Tamai K, Iwamoto A, Saotome K.** Paraarticular chrondroma and osteochondroma of the infrapatellar fat pad : A report of three cases. *Int Orthop* 1999 ; 23 : 114-117.
6. **Sood ID, Mudbhatkal NS.** Extraskeletal osteochondroma : A case report. *Indian J Pathol Bacteriol* 1967 ; 10 : 72-76.