Foot Drop Following Smith Peterson Approach For Greater Trochanter Osteochondroma Excision: a Case Report

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Abstract

Hereditary osteochondromatosis is an autosomal dominant disorder with incomplete penetrance. We did not find a single case of sciatic nerve palsy resulting in foot drop following Smith Peterson approach to hip for osteochondroma excision at extensive internet search. The cause still remains to be determined.

Introduction

Osteochondromas are common benign bone tumours. Classified by some authorities amongst the bone dysplasias, multiple osteochondromata, also known as multiple osteocartilaginous exostoses, familial or hereditary osteochondromatosis, or diaphyseal aclasis, represents an autosomal dominant, hereditary disorder, with incomplete penetrance in females (1, 2). Approximately 66% of affected individuals have a positive family history. The specific genetic abnormalities have recently been detected, with three distinct loci on chromosomes 8, 11, and 19. There is 2:1 male predilection. The lesions are usually discovered at about 2 years of age. The knees, hips, ankles, and shoulders are the most commonly affected sites and growth disturbances are often present, primarily in the forearms and legs (3). There is evidence of defective metaphyseal remodeling, with deformation of affected bones and asymmetric retardation of longitudinal bone growth. The radiologic features are similar to those of a solitary osteochondroma; the sessile form of the lesion is more common.

Case Report(s)

A fourteen years old male child came to our outpatients-department with complains of pain, limp and deformity in the left hip of three months duration. The child was able to ambulate unaided with full weight bearing. Pain was insidious in onset, localized, dull aching in character with no aggravating or relieving factors and relieved with oral analgesics. Pain was followed by limp and there was no history of trauma, fever, weight loss, or decreased appetite. There was history of swelling on antero lateral aspect of bilateral knee and bilateral shoulder and a similar family history (brother, and sister) was revealed. On clinical examination, child was able to walk with barely discernable limp. There was atrophy of the left thigh and tenderness just superior and medial to the greater trochanter. Although full extension of the left hip joint was possible, terminal 30 degrees limitation of flexion, as compared with that on the right was present. Internal rotation, abduction were also slightly limited. A 10X7 cm discrete swelling in the antero medial aspect of the left hip joint extending to greater trochanter was palpable. Similar discrete swellings were also discernable on anterolateral aspect of both knee and shoulder. There was no limb length discrepancy.

Radiographically, the lesion was located eccentrically at hip, knees and shoulders. It was radiolucent and well defined, usually with a thin sclerotic border. The margins were smooth, internal trabeculations were observed, the cortices and marrow of the parent bone were in continuity with the growth with minimal periosteal reaction. CT scan delineated the extent of the lesion from greater trochanter to neck of femur and also established unequivocally the continuity of cancellous portions of the lesion and the host bone. These characteristics distinguished this lesion from the occasionally similar-appearing bone masses of osteoma, juxtacortical osteosarcoma, soft tissue osteosarcoma, and juxtacortical myositis ossificans. On MRI, the cartilaginous cap showed a high signal intensity on T2-weighted and gradient echo sequences. A narrow band of low signal intensity surrounding the cap representing the perichondrium was also seen. Small areas of various degrees of signal void and low signal intensity representing cartilage calcifications was also noted.

Under regional anaesthesia, using Smith Peterson approach, a 10 cm curvilinear incision was made along anterio third of iliac creast through anterior border of
the tensor fscia latae muscle, curved posteriorly across the insertion of this muscle into ilio tibial band in the subtrochanteric region. Fascia was incised along the anterior border protecting lateral femoral cutaneous nerve of thigh. Carrying out dissection between muscle planes, capsule was reached and incised. After making out margins of the osteochondroma, it was excised from base. Wound was thoroughly washed with saline, capsule repaired and closed in layers with negative suction drain.

Post-operatively, the limb was kept in abduction and internal rotation. Amazingly patient was found to have foot drop on operated side by smith Peterson approach (anterior approach to the hip joint).

Discussion

Hereditary multiple exostoses constitute an autosomal dominant condition with variable penetrance. In this disease, osteochondroma of many bones are caused by an anomaly of skeletal development (4,5). The most striking feature is the presence of many exostoses, and disturbances in growth also occur, such as abnormal tubulation of bones, producing broad and blunt metaphyses, and sometimes bowing of the radius and shortening of the ulna, producing ulnar deviation of the hand. The disease occurs only about 5% to 10% as often as solitary osteochondroma and is more common in males (6,7). It is usually discovered at about the same age as the solitary lesion, but closer examination of the children in families with the disease might lead to earlier discovery. Malignant degeneration is extremely rare (6,7,8). Large series have estimated the incidence of malignant degeneration to be approximately 1% for patients with a solitary osteochondroma and 5% for patients with multiple hereditary exostoses. The true incidence of malignant degeneration probably is much lower than these figures suggest because the true prevalence of osteochondromas is unknown (most patients are asymptomatic and never seek medical attention), and there is inherent selection bias in the series of patients with secondary chondrosarcomas (5,7). Malignant transformation should be suspected when a previously quiescent lesion in an adult grows rapidly; it usually takes the form of a low-grade chondrosarcoma. In these cases, the cartilage cap usually is more than 2 cm thick. Malignant transformation is best evaluated by CT or MRI. Our case report is peculiar in the sense that hip arthroscopy performed by anterior approach (smith Peterson ) for osteochondroma excision devolved sciatic nerve palsy and hence foot drop. Cause is still to be searched and learnt about.

Conclusion

Foot drop following Smith Peterson approach to hip for symptomatic osteochondroma excision is extremely rare and its underlying cause still remains to be deciphered.

References

Illustrations

Illustration 1

FIGURE 1: Radiograph showing an osteochondroma on antero-medial aspect of greater trochanter

FIGURE 1: Radiograph showing an osteochondroma on antero-medial aspect of greater trochanter
Illustration 2

FIGURE 2: Post-op Radiograph after osteochondroma excision
Illustration 3

FIGURE 3: Photograph depicting Smith Peterson approach to hip
Illustration 4

FIGURE 4: Clinical photograph showing foot drop

FIGURE 4: Clinical photograph showing foot drop
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