INTRODUCTION

Osteochondroma is the most common bone tumor constituting 10 - 15% of all bone tumors and 20 - 50% of all benign bone tumors. Most of them are solitary and arise from metaphyseal region of long bones as they are more of growth disturbances or developmental lesions of growth plate rather than being true neoplasms that result from the separation of a fragment of epiphyseal growth plate, which subsequently herniates through the peristeal bone cuff that normally surrounds the growth plate. Therefore, an osteochondroma can arise in any bone that develops from enchondral ossification.

We are presenting a rare case report of a solitary osteochondroma arising from diaphysis of left humerus in a 10 years old boy, which resulted in median nerve palsy. Surgical excision relieved the symptoms completely. The aim of this case report was to draw attention to an unusual etiology of median nerve palsy caused by an osteochondroma arising from the diaphysis of humerus which is a rare site, and to emphasize its importance.

CASE REPORT

A 10 years right hand dominant male child presented with complaint of painless swelling over his left mid arm. The swelling was present for 2 years and was gradually increasing in size. Patient had developed progressively increasing weakness of flexion of index finger along with hypoesthesia on index and middle finger for 4 months. There was no history of trauma, night pain, fever, sweats, chills, weight loss or any swelling in other parts of body. The family history and past medical history were unremarkable. Physical examination revealed a well defined immobile palpable mass, bony hard in consistency, on the antero-medial aspect of middle third of left arm measuring approximately 4 x 3 x 3 cm² with no active signs of inflammation. There was no pulsation or thrill with auscultation. The muscle functions of the arm, forearm and shoulder as well as range of motion of shoulder and elbow were normal. All peripheral pulses were palpable. Pointing index sign was present, Oschner’s clasp test was positive, there was weakness of flexion at proximal inter-phalangeal and distal inter-phalangeal joints of second and third digits, weak abduction of thumb and numbness with decreased sensations were present over thumb, index and middle finger.

On plain radiographs at presentation, a solitary pedunculated osteochondroma was identified arising from the middle third of the humeral shaft (Figure 1 a). No changes of malignant transformation were present. There was no clinical or radiographic evidence of hereditary multiple exostosis. On the basis of clinical and radiographic examination, provisional diagnosis of solitary osteochondroma was made. We, worked up our case and performed nerve conduction velocity (NCV) and electromyography (EMG) studies in our patient. NCV showed increased latency in median nerve with the site of lesion to be in the middle third of left arm measuring approximately 4 x 3 x 3 cm² with no active signs of inflammation. There was no pulsation or thrill with auscultation. The muscle functions of the arm, forearm and shoulder as well as range of motion of shoulder and elbow were normal. All peripheral pulses were palpable. Pointing index sign was present, Oschner’s clasp test was positive, there was weakness of flexion at proximal inter-phalangeal and distal inter-phalangeal joints of second and third digits, weak abduction of thumb and numbness with decreased sensations were present over thumb, index and middle finger.

On plain radiographs at presentation, a solitary pedunculated osteochondroma was identified arising from the middle third of the humeral shaft (Figure 1 a). No changes of malignant transformation were present. There was no clinical or radiographic evidence of hereditary multiple exostosis. On the basis of clinical and radiographic examination, provisional diagnosis of solitary osteochondroma was made. We, worked up our case and performed nerve conduction velocity (NCV) and electromyography (EMG) studies in our patient. NCV showed increased latency in median nerve with the site of lesion to be in the middle third of left arm. EMG was unremarkable. MRI could not be done due to financial constraints of the patient’s family. After informed consent, patient was planned for surgery.
The tumour was exposed using anterior approach of Henry. After skin incision and superficial soft tissue dissection, the tumour mass was exposed and freed from surrounding tissues. It was found that the median nerve is in continuity but was stretched over the osteochondroma (Figure 1 b). There were no adhesions between the nerve and the mass. Multiple drill holes were placed around the base of the tumour. These holes were connected using an osteotome. This osteochondroma was removed and the nerve made free from its pressure effect (Figure 1 c). This technique avoided a possible fracture through the humerus. Wound was closed in layers over vacuum suction drain, which was removed on second postoperative day. No surgical complication occurred. The arm was maintained in arm pouch sling postoperatively. Active pendulum shoulder exercises and elbow range of motion exercises were begun at first postoperative week.

The histopathological examination confirmed diagnosis of osteochondroma. Within 3 months of surgery, patient gained full power in flexors of fingers and thumb leads to complete resolution of the symptoms, as in this case.7 Various complications of osteochondromas have been described in literature including pathological fracture of stalk, overlying bursitis, cosmetic or bony deformity, neurovascular deficit and malignant transformation.8 Humeral metaphyseal osteochondromas have additionally been linked with subscapularis tear,9 and quadrilateral space syndrome,10 a condition in which the axillary nerve and posterior humeral circumflex artery become entrapped in the quadrilateral space. However, in this case, the diaphyseal osteochondroma was cause of median nerve palsy giving an alarming message that the surgeon excising the lesion must be careful to avoid accidental injury to the median nerve. To the best of authors’ knowledge, no case of osteochondroma of humeral diaphysis causing median nerve palsy has been reported in English literature.

Emphasis should be given to the fact that this benign tumour may rarely arise from diaphyseal location as well, possibly from cartilage cell nest present at tendinous insertions like deltoid insertion11 in this case, diaphyseal humeral osteochondroma had lead to median nerve palsy which recovered post-excision. As far as prognosis of such lesions is concerned, there was no recurrence of either the lesion or the nerve palsy for 3 years post-surgery.

In conclusion, this case is a rare combination of osteochondroma arising at an unusual site (diaphysis of humerus) and having an unusual presentation (median nerve palsy). Although rare, osteochondroma should be considered as a differential diagnosis in benign diaphyseal swellings. In setting of nerve compression symptoms excision is indicated, which, almost always leads to complete resolution of the symptoms, as in this case.

REFERENCES


