A rare case of Osteochondroma from diaphysis of proximal Humerus involving ulnar nerve

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ABSTRACT

Osteochondromas represent the most common primary bone neoplasms. They probably are developmental malformations rather than true neoplasm and are thought to originate within the periosteum as small cartilaginous nodules. The lesions consist of a bony mass, often in the form of a stalk, produced by progressive endochondral ossification of a growing cartilaginous cap. They are commonly found in the metaphysis of long bones near the physis. Most commonly seen on the distal end of femur, proximal tibia, and proximal humerus most commonly on posterolateral area. Malignant degeneration is extremely rare. Here we present a rare case of osteochondroma in a 22 years male patient arising from the diaphysis of proximal humerus on anteromedial side, extending till brachial plexus and causing ulnar nerve impingement. It was resulting in dragging type of pain which was radiating towards right shoulder with numbness over the medial aspect of the arm and ulnar aspect of the forearm.

Keywords: Osteochondroma, penduculated, benign bone tumours

INTRODUCTION

Osteochondromas are common benign bone tumours[1] and are developmental lesions rather than true neoplasm.They reportedly present 20-50% of all benign bone tumours and 10-15% of all bone tumours[2,3]. They can be present at birth and continue to appear and grow throughout childhood and puberty. Sometimes spontaneous regression of an Osteochondroma is seen which is an infrequent event. Most of the lesions cause no symptoms and are found out incidentally. Some cause mechanical symptoms by impinging the surrounding structures. They usually are found on the metaphysis of long bone near the physis[2,3,4]. Osteochondromas arising from the diaphysis are rare; and nerve palsy arising in the setting of a diaphyseal Osteochondroma is even rarer[1]. Most commonly seen on the distal end of femur, proximal tibia, and proximal humerus most commonly on posterolateral area[5].

Osteochondromas are of two types: pedunculated and broad-based or sessile[4]. Malignant degeneration is extremely rare; if the malignant transformation occurs, it usually takes the form of a low-grade chondrosarcoma. Here we present a case of osteochondroma arising from diaphysis and on the anteromedial side of proximal humerus involving the ulnar nerve and the difficulties encountered in managing this case.

CASE REPORT

A 22 years male patient presented with complaints of pain over proximal part of right arm. The patient was asymptomatic 20 days back, then he developed pain over proximal part of right arm. The pain was sudden in onset, associated with swelling of upper limb, dragging type and unable to use upper limb, radiating to the right shoulder associated with numbness over the ulnar aspect of the forearm and hand. The pain was aggravated by movement and relieved by taking rest and medication. Pain was more at night time. The primary challenge was to know the location and exact extension of the Osteochondroma in which CT scans played a critical part.

First time swelling was observed by patient parents at age of 4yrs. Orthopedics consultation was done and he was advised surgery after 8yr of his years. After the age of 12 years there was a sudden increase in the size of swelling and it was not associated with any history of trauma, fever, loss of weight, loss of appetite. On examination right arm was by the side of the chest, elbow was in flexion. In that location were no scars, sinus, and engorged veins, no apparent lengthening or shorting, no local rise of temperature.

A single swelling was present over proximal part of the right arm on the anteromedial side which was tender in nature. It was irregular in shape, hard in consistency, edge distinct, and immobile and raised from bone. Skin was pinchable and skin over swelling was normal and no pulsation felt over the swelling. There was no other swelling on the body. Terminal movement of rotation, adduction and abduction was restricted painfully. There were no distal neurovascular deficiencies and no axillary lymphadenopathy.

Plain radiographs of the right arm with shoulder were taken in AP and lateral views. It showed swelling over proximal part of arms which was pedunculated. The swelling was directed away from the upper arm. CT scan was performed to discover out the accurate location and extension of swelling [Figure 1]. After exact location and extent was known a Deltopectoral approach was used and it was excised with its capsule. Surgical excision relieved the symptoms completely. The aim of this case report was to draw attention to an unusual etiology of ulnar nerve involvement caused by an Osteochondroma arising from the diaphysis of humerus which is a rare site, and to emphasize its importance.

Figure 1: 3D CT scan of humerus showing penduculated growth on anteromedial side

As with all clinical findings were suggestive of Osteochondroma we decided to go for excision. Deltopectoral approach was used and it was excised with its capsule [Figure 2]. The specimen was transported to laboratory for final diagnosis which also unveiled a rare osteochondroma arising from the diaphysis of proximal humerus.[Figure 3]

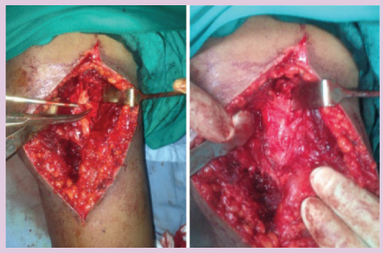

Figure 2: Showing the deltopectoral approach for excision of the Osteochondroma

Figure 3: Excised growth taken out and the report from the laboratory confirming our diagnosis.

DISCUSSION

Osteochondroma has been reported to represent 20-50% of all benign neoplasms. Arising from the diaphysis of bone is a very rare entity, with extension to brachial plexus causing nerve root compression especially ulnar nerve involvement. Its clinical and radiological features are often pathognomic, making diagnosis easier. Osteochondroma is either sessile or penduculated and they vary in size and numbers. Most of the Osteochondromas are sessile, where in our example we encountered penduculated type. Humerus accounts for 11% of occurrence of Osteochondroma. Malignant transformation of Osteochondromas in recent analyses is 0.6% to 2.8%[6]. In the literature also most common presenting symptoms were pain (86%), swelling (12.5%), limited range of motion (6.25%), compression of peripheral nerve (5%), cosmetic abnormalities (2.5%), and vascular compromise (1.25%) [7,8].

In our case there was pain associated with limited range of motion and sign of ulnar nerve involvement. There are no studies assessing the issue after the excision of symptomatic Osteochondroma. In our case report pre-operative symptoms resolved after surgical operation. Marrow and cortical continuity with underlying parent bone is the feature of the lesion. Major complicationss and local recurrence are rare.

CONCLUSION

Great result was obtained after excision of the osteochondroma. Symptoms which were present during preoperative stage were completely relieved. Range of shoulder movements was now normal without pain[Figure 4]. Difficulties faced during treatment were intra- operative bleeding, chances to nerve injuries were high, due to medial side extension; proper and complete excision was a trouble.

Figure 4: Post operative images after 15 days of suture removal showing excellent range of movements.

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