

Enchondroma in Flat Bone : a Rare Case Report

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ABSTRACT

Enchondroma represents a common bone tumor of the hand. The flat bone is a rare location. We report a case of flat bone (rib) enchondroma presenting as swelling in right lower chest. The diagnosis is suggested by radiological study and then confirmed by histological study after biopsy. The clinical and radiological aspects of this rare condition are discussed.

Keywords: Enchondroma, chondrosarcoma.

INTRODUCTION

Enchondroma is a common benign cartilaginous turnout that grows from the medullary cavity (1). Typically, enchondroma is discovered on an X-ray scan. Enchondromas have a characteristic appearance on Magnetic Resonance Imaging (MRI) as well (2). The exact etiology of it is not known. An enchondroma most often affects the cartilage that lines the inside of the bones. The bones most often involved with this benign tumor are the miniature long bones of the hands and feet. It may, however, also involve other bones such as the femur, humerus, or tibia (1). It may affect an individual at any age, it is most common in adulthood. The occurrence between males and females is equal. It is not very likely that the enchondroma will grow back in the same spot; the rate is less than ten percent. We report a rare case of an enchondroma of the flat bone (rib) presenting as swelling in her right chest for many years .

CASE REPORT

A 35 year old female complained from swelling in her right lower chest wall for many years. There was no reported history of previous major trauma, collagenous or infectious disease. She was referred to us for Ultrasound imaging of a swelling in her right lower chest wall. Primarily on ultrasound examination of the swelling: a soft tissue lesion is evaluated, which is hard in consistency, solid, mixed echogenic with internal calcifications (Figure 1).



Figure 1: Ultrasound imaging of right lower chest wall showing a mass with mixed echogenicity with internal calcifications.

Later her X-Ray chest, shows a lytic expansile lesion of characteristic “popcorn appearance” at right 8th rib position (Figure 2).



Figure 2: Popcorn appearance on X-ray right lower chest wall



Figure 3: Tc99m Methylene diphosphonate (MDP) bone scan shows focal increased radiotracer in right lower chest (8th rib)

Bone scan, shows increased uptake of that lesion (Figure 3). The diagnosis is confirmed by histological study after Fine Needle Aspiration Cytology (FNAC) showing abundant chondrocytes and by CT Scan (Figure 4).

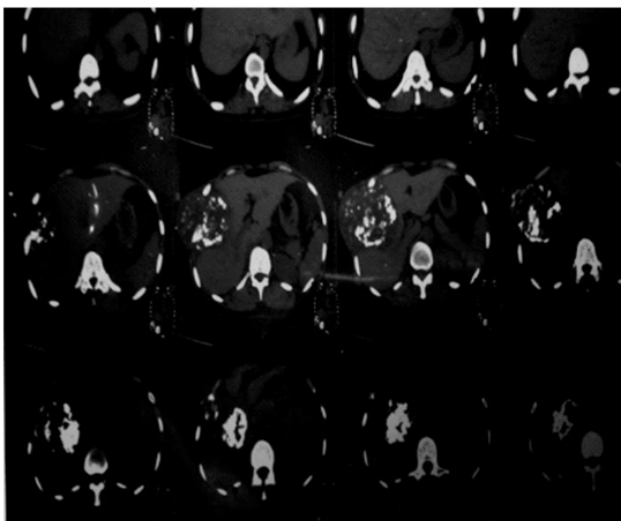


Figure 4: CT scan shows focal calcification in right lower chest wall corresponding the swelling.

DISCUSSION

Enchondroma is a benign tumor of hyaline cartilage and represents the second most common benign chondral tumor after osteochondroma. It is assumed that enchondromas arise due to the displacement of embryonic remains of cartilage growth plate in the metaphysis. Regarding the location, around 40–65% of enchondromas are found in the small bones of the hand especially the

proximal phalanx (1). All other locations are rare. The flat bone like rib is another very rare location of occurrence for enchondromas (2). Takigawa (3) reported 110 cases of hand enchondromas, only 2 cases were involving the carpal bones (scaphoid, lunate). On the other hand, enchondromas are even uncommon within all carpal lesions. Enchondroma is usually symptom free, the growth of the associated bone however causes cortical thinning and endosteal resorption, with a high predisposition to pathologic fracture (4). Malignant transformation of solitary enchondroma is very rare. Although the standard X-ray findings are essential in the diagnosis of enchondroma of the flat bone, the diagnosis of enchondroma may require further investigations such as CT scan or MRI. MRI is particularly helpful in identifying enchondroma, demonstrated by a low signal intensity on T1 sequences and a high signal intensity on T2 sequences (5). Surgery followed by bone grafting has excellent result with good prognosis. Treatment aims to prevent recurrence with an appropriate excision of the lesion and reconstruction of the flat bone with a grafting procedure with minimal morbidity (6). A vascularized bone graft is better than conventional grafting methods (6)

CONCLUSION

The enchondroma is a well-known benign bone tumor. Its location in the rib is exceptional. The pathologic fracture is the most common way of revelation. Enchondroma in flat bone is a rare condition which has no known etiology, can be diagnosed accidentally. Radiology is the best option of diagnosis & nuclear medicine has significant role for conformation with other modalities.

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