



A rare cartilaginous tumor in the phalangeal bone: enchondroma protuberans

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Enchondroma protuberans is a very rare benign cartilage tumor. Unlike intramedullary enchondromas; they originate from medulla and expands exophytically outside the cortex. We present a 19-year-old male patient with an enchondroma protuberans treated surgically, with excision and intramedullary curettage. The patient was asymptomatic and no recurrence was recorded in the 1 year follow-up.

Key words: Cartilaginous tumor; enchondroma protuberans.

Enchondroma protuberans is a rare, benign cartilage tumors which grow out in the medulla and expand exophytically outside the cortex. Sixteen cases are reported up to date in the literature; 8 of them in the bones of the hand, 5 of them in the humerus, 2 of them in the costal bones and one of them in the ulna.^[1-12]

We report a case of a surgically treated enchondroma protuberans in the 5th proximal phalanx of the left hand.

Case report

A 19-year-old male patient attended to our clinic with pain and swelling in 5th finger of the left hand with duration of approximately one year. In the physical examination there was a swelling of approximately 0.5x0.8 cm on the radial side of the 5th finger of the left hand. The range of motion of the hand was normal; also there was no neurovascular deficit. An exophytic radiolucent mass with a dimension of 8x5 mm that expands from cortex on the radial side was seen on the plain radiographs (Fig.

1a). The lesion was hypointense on T1 weighted images, and hyperintense on T2 weighted images with a smooth edge that disrupts the cortical integrity. The center of the lesion was hypointense on T2 weighted images. The lesion was seen as an exophytic protruding mass that extends to the medullary cavity (Fig. 1b-d).

The lesion was treated surgically. Pneumatic tourniquet was applied to left arm. Under general anesthesia longitudinal incision was made on the dorsoradial part of the 5th digit of the left hand and extensor tendon was retracted to the ulnar side. The lesion was excised marginally using an osteotome for the resection of the part that extends from the cortex and using a curette for the intramedullary part. There was no large defect requiring bone grafting. Histopathological examination revealed the diagnosis of enchondroma protuberans (Fig. 2). Short arm splint was applied for two weeks after the operation. Range of motion exercises started after two weeks and full range of motion was gained by six weeks

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Fig. 1. (a) Exophytically located radiolucent lesion at the proximal radial part of the 5th proximal phalanx of the left hand. (b) T2 weighted axial image showing hyperintense lesion with a hypointense appearance in its central part. The lesion has smooth edges. (c) T2 weighted spaired coronal image showing hyperintense lesion that disrupts cortical integrity. (d) T2 weighted axial image showing hyperintense lesion that disrupts cortical integrity.

after the surgery. There was no recurrence at one year follow-up.

Discussion

Enchondromas are benign tumors of cartilaginous origin, that are commonly seen in hand.^[1] 35% of all enchondromas are seen in bones of the hand. They constitute 90% of all bone tumors of the hand.^[6] However enchondroma protuberans is rare form of enchondroma. It is first described by Caballes in 1982 in 2 cases seen in proximal humerus.^[11] Up to date there have been 15 cases described in the literature, 8 of them were described in the hand bones.

Two of the cases described in hands are located in metacarpal bones and 6 of them are located in phalangeal bones. Our case is the ninth enchondroma protuberans described in hand bones. In the differential diagnosis of enchondroma protuberans; enchondroma, periosteal chondroma, osteochondroma and chondrosarcoma must be kept in mind. Enchondromas are primarily located in the medullary cavity, and rarely invades the cortex. However enchondroma protuberans primarily originates from medullary cavity and enlarges outside the cortex, causing an expansile mass and they some-

times have calcification.^[4] Our case which is located on the 5th proximal phalanx of the left hand also originate from medulla and disrupts the integrity of the cortex then enlarges outside the cortex.

Osteochondroma has typically a cartilaginous cap outside the lesion and does not contain cartilaginous

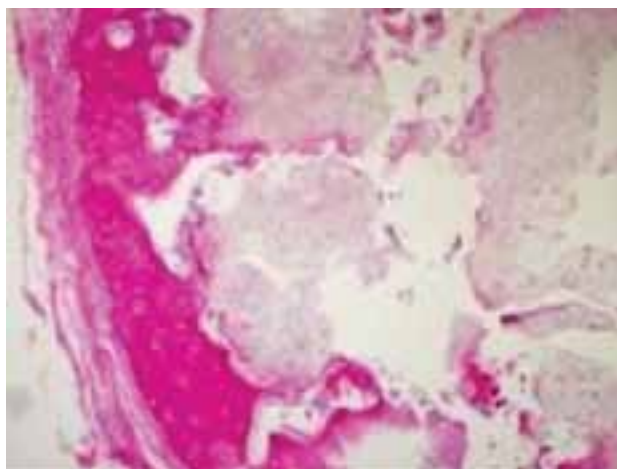


Fig. 2. Lobulated islands of proliferating chondrocytes encased by bone (HEX100). [Color figure can be viewed in the online issue, which is available at www.aott.org.tr]

tissue in its base or in the medullary cavity. However enchondroma protuberans has cartilaginous tissue both in the medullary cavity and in the expansile mass outside the cortex; but it does not contain a cartilaginous cap like osteochondroma.^[4-7] In periosteal chondroma the lesion is usually subperiosteally located.^[4] They have typical radiological view and they do not have any connection with the medullary cavity like enchondroma protuberans. Chondrosarcoma must be kept in mind in the differential diagnosis especially in the cases seen in costal bones.^[2,10] Marginal excision, marginal excision with intramedullary curettage, marginal excision with intramedullary curettage and bone grafting are the surgical treatment options. Marginal excision and intramedullary curettage was performed in our case. There was no large bone defect requiring grafting. In the literature only 2 of the cases described in hands were treated with bone grafting. Lesions in phalangeal bones are small and they usually do not require grafting.^[4-8,12]

Only one case had a relapse in the long term follow-up and re-excision was performed.^[5,8] Other cases in the literature have no relapse. Generally the basic principle in all treatment modalities is a careful curettage after removal of the lesion. The main cause of relapse in classical cartilaginous tumors is usually incomplete resection.

In conclusion enchondroma protuberans should be considered in the differential diagnosis of expansile bone lesions in long bones of the hand. Physical examination, plain radiographs and magnetic resonance imaging (MRI) will help to confirm the diagnosis. Treatment options are marginal excision, intramedullary curettage and bone grafting.

Conflicts of Interest: No conflicts declared.

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