



Bilateral humeral simple bone cyst coming with pathological fracture in mature individual: case report

Matür bireyde patolojik kırık ile gelen bilateral humerus basit kemik kist: olgu sunumu

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Abstract

Simple bone cysts are benign bone lesions commonly seen in childhood, and it is rare after the first two decades of life. Many factors are implicated in etiopathogenesis of bone cyst. Because etiologic factors are not certain, it is not possible to mention about a certain way of treatment either. In adolescence, once the bone maturation is complete, spontaneous regression of the cysts are expected. Many methods were applied in the treatment of these lesions. Mechanical treatment involving curettage and grafting, injectional treatment (steroids) especially applied in the 1st decade, decompression of the cyst (multi-drilling, pin, screw), decompression with structural support (intramedullary nails) can be mentioned among the methods. In this study, we have attempted to present diagnosis and treatment of case of 25 year old adult's simple bone cyst with metaphyseal-diaphyseal complete involvement of both humerus which was identified in assessments after pathological fracture caused by a simple fall.

Keywords: Bone Cyst; Pathological Fracture; Allograft.

Öz

Basit kemik kistleri daha çok çocukluk döneminde görülen benign kemik lezyonları olup, hayatın ilk iki dekadından sonra görülmesi nadirdir. Kemik kistlerinin etiopatogenezinde birçok faktör suçlanmaktadır. Etiyolojik faktörler kesin olmadığı için, tedavide de kesin bir yöntemden söz edilmesi mümkün olmamaktadır. Erişkin dönemde kemik matürasyon tamamlandığında kistlerinde spontan regresyonu beklenir. Bu lezyonların tedavisinde pek çok yöntem uygulanmıştır. Küretaj ve grefonajı içeren mekanik tedavi, özellikle 1. dekatta sık uygulanan enjeksiyonel tedavi (steroidler), kistin dekompresyonu (çoklu drilleme, pin, vida), yapısal destekle birlikte dekompresyon (intramedüller çiviler) gibi yöntemler sayılabilir.

Bu çalışmada, 25 yaş erişkin hastada basit düşme ile meydana gelen patolojik kırık sonrası değerlendirmelerinde her iki humerus metafizyo-diafizler komplet tutulumlu basit kemik kisti olgusunun tanı ve tedavisi sunulmaya çalışıldı.

Anahtar Kelimeler: Kemik Kisti; Patolojik Kırık; Allograft.

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INTRODUCTION

Simple bone cysts (SBC) mostly prefer to settle in the metaphyseal region of long tubular bones. It is seen more frequently in proximal humerus and proximal femur (1). Although there is not an absolute consensus in etiopathogenesis, intramedullary venous drainage defect theory is one of the most common hypotheses (2). Patients usually refer to orthopedic surgeons with the detection of cysts in graphy taken in childhood and after a pathologic fracture or another complaint. In radiological examination it displays as concentrically located, with clean boundaries, lightly expanded and in the form of unicameral or multicular lytic lesions thinning the cortex (3). In adolescence, once the bone maturation is complete, spontaneous regression of the cysts are expected. In these patients treatment is required in the presence of pathological fracture and symptomatic lesions. Generally the purpose is to kill the pain, prevent the pathological fracture, and if that exists, to heal the fracture (4). In our study presented is the patient who admitted to our clinic because of left humerus pathological fracture and operated on for bilateral humerus cysts after further investigations.

CASE REPORT

In the radiological examinations of a 25 year old patient, who was referred to our clinic from an outside center because of pathological fracture, pathological humerus fracture displaced in proximal left humerus and complete cystic lesions extending from metaphysis to diaphysis in right humerus were detected. Diagnosis was made based on clinical and radiological findings. In addition to the direct graphy (Figure 1),

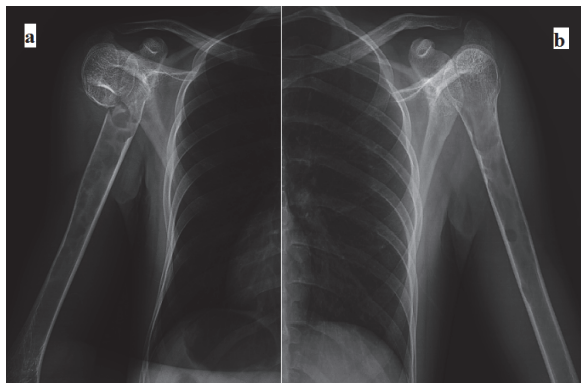


Figure 1. Patient preoperative plain radiographs humerus. Left pathologic humeral shaft fracture and extending cystic lesions(1a), the right humeral metaphyseal-diaphyseal complete multiple cystic lesions, hypodense areas(1b).

CT of patient's pathologic humeral side (Figure 2) was also filmed in radiological examination. Diagnosis was confirmed by macroscopic and microscopic examination of the liquid obtained during operation. For the left humeral pathological fracture, firstly the patient was explored by deltopectoral approach and the fracture line was exposed and cyst content was aspirated when all the compartments in lesions divided by bone septa were reached to get to cystic cavity walls and medullary

canal, and then the cystic walls were scratched with long curette toward the humeral diaphysis in the same session. Cystic walls were cauterized for local adjuvant therapy. Large defects were filled with morselized allograft. Internal fixation was performed with proximal humerus plate (Figure 3). For the cystic lesions in the right humerus, after reaching all lesions and maintaining continuity by opening medullary canal by humerus nail with tubercle entry and performing reamerisation, it was locked by prophylactical intramedullary nailing (Figure 3). Both extremities were immobilized for 2 weeks. He was called for the annual follow-up check.

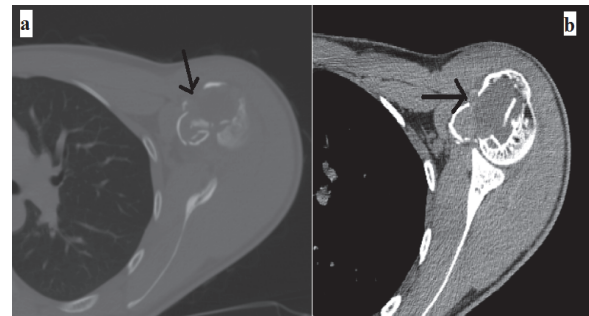


Figure 2. Pathologic fracture left humerus sagittal CT images taken before surgery(2a), fracture fragments and loculated areas are seen in cross-section (arrows mark the parts)(2b).

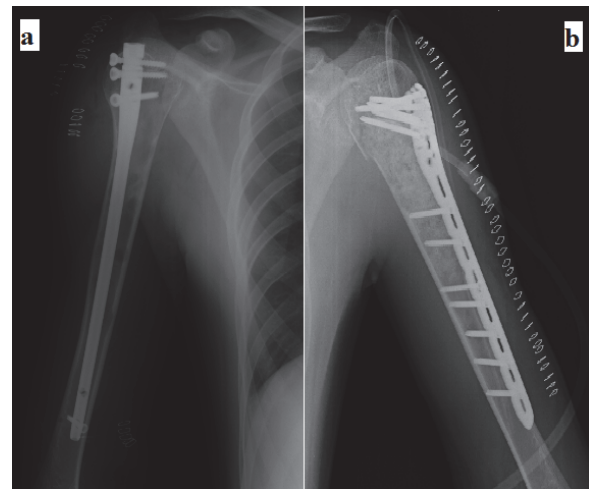


Figure 3. After the operation, the left(3a) and right(3b) humerus X-rays:

DISCUSSION

Many factors are implicated in etiopathogenesis of bone cyst (5). The opinion in the direction of a defect in venous drainage has started to gain weight among the authors in recent years. Because etiologic factors are not certain, it is not possible to mention about a certain way of treatment either (6). Many methods were applied in the treatment of these lesions. Mechanical treatment involving curettage and grafting, injectional treatment (steroids, bone marrow, demineralized bone matrix) especially applied in the 1st decade, decompression of the cyst (multi-drilling, pin, nail, screw), decompression

with structural support (elastic intramedullary nails) can be mentioned among the methods(7). The hypothesis that in steroid injection technique, the local prostaglandin E2 level is decreased by antiprostaglandin effect and thus the cyst is remitted, is suggested (8). In a study by Scaglietti et al., 90% success was reported after treatment of 82 patients with cortisone injections in 3 years monitoring. Wright and colleagues achieved 42% success in 16 of 38 patients that they treated with steroid injection technique (8) In cases which the injection therapy couldn't be applied, curettage, grafting and decompression application by maintaining medullary continuity give better results. Glowacki et al. reported as a result of their study, in which curettage and grafting treatments were compared in 132 patient series for 12 years, that complete recovery rate is higher in the curettage and grafting applied group and in both groups there was no meaningful correlation between the size of the cyst and recurrence (9). It is known that the continuity of the medullary canal is essential and intramedullary nail implementation in these patients prevents the canal to close and contributes to remission of the cyst (10,11). Bumci and Vlahovic reported that they opened intramedullary canal using Küntscher nail and the recovery time was shorter than indicated in the literature, in their study they treated 50 patients (12). In our case while the medullary continuity was maintained like and intramedullary nail was used Bumci and Vlahovic did, full recovery was achieved by internal osteosynthesis implemented after curettage and grafting of the left side with pathological fracture and annual follow-ups. In our opinion, in postadolescence patients with advanced age, as in our case, prophylactic nail implementations after maintaining intramedullary continuity instead of steroid injection continuity satisfies opinion, will give better outcomes.

It is obvious that open surgical procedures will yield more successful results with early recovery, filling of cystic cavity with higher ratio of new bone, low recurrence rate, no requirement of repeated surgeries and low rate of pathologic fracture.

For the second decade of life and beyond, we think that simple bone cysts may occur in long bones including humerus and all the extremities of the patients should be assessed more carefully in terms of pathological fractures.

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