



## Solitary osteochondroma of the elbow causing ulnar nerve compression: a case report

### *Dirsekte soliter osteokondroma baęlı geliřen ulnar sinir basısı: Olgu sunumu*

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Otuz dörd yaşındaki erkek hastada sağ dirsek yerleşimli soliter osteokondroma baęlı ulnar sinir basısı saptandı. Olekranon medialinden ve humerus medial epikondilinden kaynaklanan iki adet osteokondrom, dirsek hareketlerini ileri derecede kısıtlamakta ve ağrıya yol açmaktaydı. Hastanın dördüncü ve beşinci parmaklarında hipoestezi vardı. Lezyon cerrahi olarak eksize edildi ve ulnar sinirin anteriora subkutan transferi yapıldı. Ameliyat sonrası sekizinci aydaki kontrolde, hastanın parmaklarındaki uyumsuzluk dışında semptomların düzeldięi görüldü. Literatür arařtırmamızda, soliter osteokondroma baęlı periferik sinir basısı bildirilen sadece bir olguya rastlandı.

**Anahtar sözcükler:** Kemik neoplazileri/komplikasyon/cerrahi; dirsek eklemi/patoloji; sinir sıkıřma sendromları; osteokondrom/komplikasyon/cerrahi/radyografi; ulnar sinir sıkıřma sendromları/cerrahi/radyografi.

We report ulnar nerve compression caused by solitary osteochondroma of the right elbow in a 34-year-old man. Two osteochondromas were detected originating from the olecranon and medial humeral epicondyle, respectively. The patient had severely restricted elbow motion, pain, and hypoesthesia of the fourth and fifth fingers. The lesions were surgically removed, together with subcutaneous anterior transposition of the ulnar nerve. At the end of the postoperative eight months, complaints of the patient disappeared except for slight hypoesthesia in the fingers. Literature search revealed only a single case of solitary osteochondroma associated with peripheral nerve compression.

**Key words:** Bone neoplasms/complications/surgery; elbow joint/pathology; nerve compression syndromes; osteochondroma/complications/surgery/radiography ulnar nerve compression syndromes/surgery/radiography.

Osteochroma is the most frequently seen benign bone tumor. It usually develops at the metaphysis of the long bones.<sup>[1]</sup> There are two types of osteochondroma, one is solitary osteochondroma and the other is genetically transmitted osteochondromatosis.<sup>[1,2]</sup> Nerve pressure is one of the rarely seen symptoms and generally observed in osteochondromatosis.<sup>[3,4]</sup> Although nerve pressure due to solitary osteochondroma is reported (4-9), ulnar nerve pressure in cubital tunnel is not reported.

In this article, a case is reported in whom ulnar nerve pressure and elbow motion limitation due to solitary osteochondroma originating from olecranon and medial humerus epicondyle was developed.

### Case report

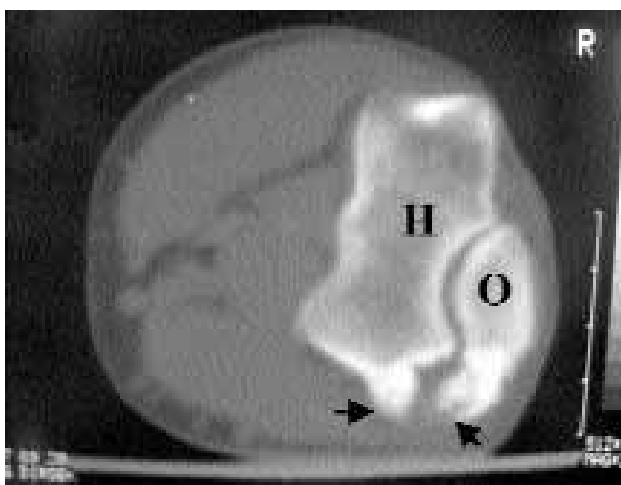
Male subject, aged 34 year-old was admitted to hospital due to motion limitation, pain in right elbow, numbing and difficulty in holding gun (as he was a policeman) in right hand. Patient was reported an elbow pain rising with motion and an increase in pain for the last 5 months together with motion limitations in elbow and numbness of 4th and 5th fingers on the right side. Case could not be diagnosed in another center which was following the case for the last 5 months. In physical examination 60° of flexion deformity was observed. Range of motion of the elbow was 20° (distribution 60° and 80° of flexion) and there was pain with motion. In palpation, a



**Figure 1.** Osteochondroma in the radiography of right elbow (marked with arrow).

solid mass was observed filling the cubital tunnel and tunnel symptom was positive. Hypoesthesia was positive at the 4th and 5th fingers of the right hand. A sclerotic lesion was observed originating from the medial of olecranon through cubital tunnel in radiography (figure 1). In computerized tomography (CT) narrowing of cubital tunnel by exocytosis originating from medial epicondyle and medial olecranon was observed (figure 2). Operation was planned for the case base on the pre-diagnosis of osteochondroma.

Longitudinal incision was performed under the tourniquet and general anesthesia. Retinaculum of cubital tunnel was cut and ulnar nerve revealed. Two



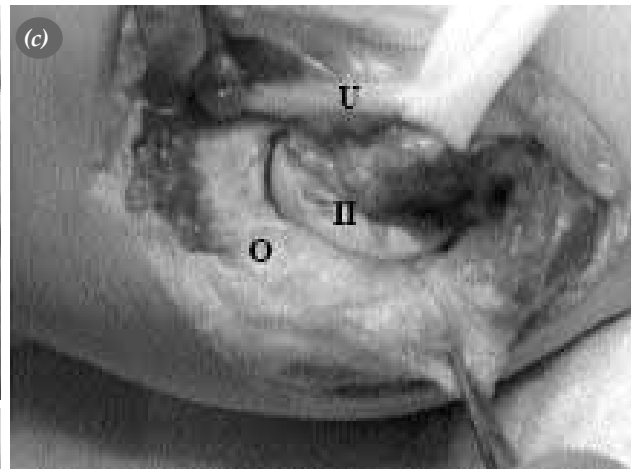
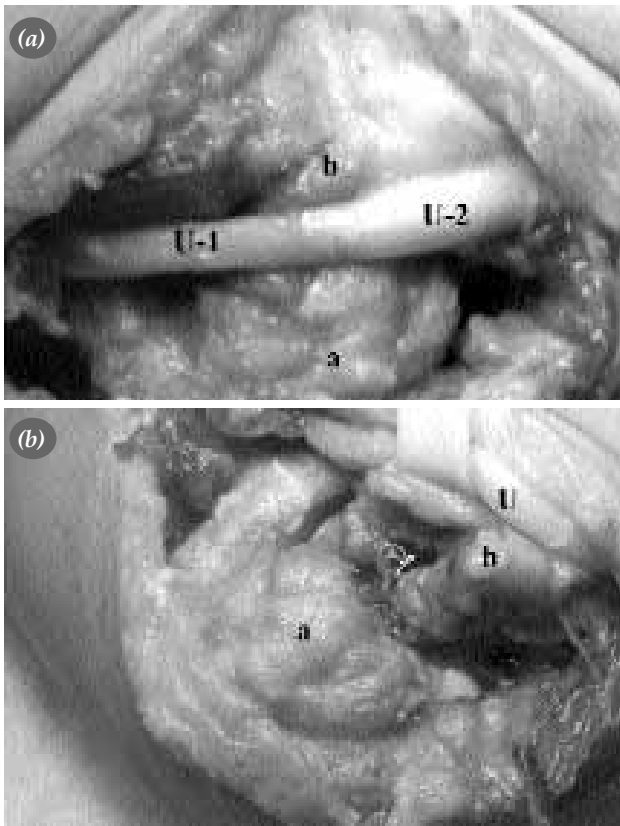
**Figure 2.** Osteochondroma originating form medial of olecranon (O) and the medial of humerus epicondyle (H) was observed narrowing the cubital tunnel (marked with arrow) in computerized tomography.

lesions of which the big one was at the medial of olecranon and the other was at the medial epicondyle in the view of cartilage tissue were observed pressuring the piece of ulnar nerve in the cubital tunnel (figure 3a). Ulnar nerve was lifted up by penrouis drain and lesion was evaluated better (figure 3b). Bony tissue was observed at the base of the lesion after the removal of the lesion in the olecranon and medial epicondyle (figure 3c). The sclerotic part of the lesion seen in olecranon was not touched in order not to cause any weakness in the olecranon. Subcutaneous transposition of the ulnar nerve through anterior was performed. Long arm casting plaster was performed while elbow was at complete extension after closing the layers of the wound. After three weeks of fixation by casting plaster, active elbow movements were started. Osteochondroma of olecranon and humerus was reported after the histopathological investigation of the material removed during the surgery.

There was a 10° of flexion deformity and range of motion was 90° (distribution 10°-100°) at the elbow at the postoperative 8th month. Patient could maintain his occupation with his right hand without any pain. Numbness in 4th and 5th fingers was continuing. Recurrence was not seen in radiography. The sclerotic lesion observed in the olecranon was the part which was not removed during the operation (figure 4).

## Discussion

Nerve pressures due to osteochondromas placed on vertebra, pelvis or extremities.<sup>[3-9]</sup> Most of spinal



**Figure 3.** (a) The vision of osteochondroma (a-olecranon, b-humerus) and ulnar nerve (U-1 pathological, U-2 normal ulnar nerve) during the operation. The part of ulnar nerve in cubital tunnel has thinned and turned into opaque-gray color by losing its normal bright yellow color. (b) Osteochondromas in olecranon and humerus are being seen. Cartilage dominance is being observed in lesion (a-olecranon, b-osteochondromas placed on epicondyle). (c) The vision of the elbow after the removal of osteochondroma at the olecranon. Bony tissue forms the base of the lesion and humeroulnar joint reveals (O-olecranon, H-humerus).

osteochondromas are in type of osteochondromatosis and may cause pressure on spinal cord.<sup>[4]</sup> Spinal cord pressure is reported rarely and good results may be achieved in these cases by the decompression of spinal cord and the excision of osteochondroma.<sup>[4,5,9]</sup> L<sub>3</sub> radical pressure due to solitary osteochondroma placed on pelvis and cauda equine syndrome due to solitary osteochondroma were reported.

<sup>[6,7]</sup> We could find out only two cases of peripheral nerve pressure due to osteochondroma in the literature. In one of these cases, peroneal, ulnar and median nerves pressures due to osteochondromatosis were observed simultaneously.<sup>[3]</sup> The other case was the pressure on the sural nerve due to solitary osteochondroma.<sup>[8]</sup> In our case, we assessed the situation as solitary osteochondroma although it orig-



**Figure 4.** (a) anteroposterior and (b) lateral radiographic visions of the right elbow 8 months after the operation.

inated from both olecranon and medial epicondyle, because there was no osteochondroma in other body parts and two lesions were very close to each other. Also, the age of the patient was convenient for the solitary type. The pressure on ulnar nerve like in our case is being reported for the first time.

The reasons for the pressure on ulnar nerve in cubital tunnel are reported as ganglion, lipoma, hematoma, chondromatosis, synovitis, pieces of fractures, callus, heterotropic bone and arthrosis.<sup>[10]</sup> In our case in whom osteochondroma pre-diagnosis was dominant since beginning, the plain radiographic signs were resembling chondromatosis and heterotropic bone. In differentiation diagnosis, we thought about osteophytic processes in computerized tomography. Extensive cartilage view during the operation and the existence of bony tissue on the base of the lesion was typical for osteochondroma and the histopathological investigation confirmed the diagnosis. Computerized tomography or magnetic resonance imaging (MRI) are the important aid tools for the diagnosis of osteochondroma.<sup>[1,4,5]</sup> Final diagnosis has to be done by histopathological investigation. Delay in diagnosing solitary osteochondroma is possible.<sup>[4]</sup> Reported case was tried to be treated in another center and directed to our clinic undiagnosed. We think experience plays an important role besides theoretical knowledge.

Solitary osteochondroma can cause the symptoms of pressure on peripheral nerves, rarely. Suspected cases due to plain radiography should be confirmed by

CT or MRI and histopathological investigation should be performed for final diagnose. The lesion should be removed without any delay and pressure on the nerve should be eliminated.

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