

Ulnar Schwannoma Causing Cubital Tunnel Syndrome: A Case Report

Kübital Tünel Sendromuna Neden Olan Ulnar Schwannom: Olgu Sunumu

Turan Kandemir¹, Zeki Serdar Ataizi¹, Müge Sezer²

¹ Eskişehir Yunus Emre State Hospital, Department of Neurosurgery, Eskişehir, Turkey

² Eskişehir Yunus Emre State Hospital, Department of Pathology, Eskişehir, Turkey

ABSTRACT

The most common place of compression during the anatomical course of the ulnar nerve is the cubital groove at the elbow level. Chronic compression and trauma are the most common etiology of cubital tunnel. In addition, nerve sheath tumors are also found. Schwannomas are benign nerve sheath tumors developing from schwann cells. In our case is a 45 year-old female patient presented to our neurosurgery outpatient clinic with numbness in finger 4th and 5th of right hand. Physical examination revealed a 3 cm-diameter, mobile mass lesion located in the medial epicondyle of the right elbow. The patient underwent surgery. Under general anaesthesia, the tumor was completely resected. The histopathological examination of the lesion was reported as Schwannoma. Peripheral schwannomas sometimes can cause entrapment neuropathies. Careful dissection during surgery will prevent us from causing neural damage.

Key words: Ulnar nerve, Cubital tunnel syndrome, Schwannoma

ÖZET

Ulnar sinirin anatomik seyri sırasında basıya uğradığı en sık yer dirsek düzeyindeki kübital oluktur. Kübital tünel sendromu etyolojisinde en sık kronik bası ve travma yer almaktadır. Sinir kılıfı tümörleri de etyolojide yer almaktadır. Schwannomlar schwann hücrelerinden gelişen benign sinir kılıfı tümörleridir. Olgumuz 45 yaşında bayan hasta olup sağ el 4. ve 5. parmaklarda meydana gelen uyuşma şikayeti ile polikliniğimize başvurdu. Fizik muayenede sağ dirsek medial epikondil komşuluğunda mobil yaklaşık olarak 3 çapında kitlesel lezyon saptandı. Cerrahiye alınarak kitle tamamen çıkarıldı. Histopatolojik incelemesi schwannom olarak geldi. Periferik schwannomlar bazen tuzak nöropatilere neden olabilir. Cerrahi sırasında dikkatli diseksiyon hastaya nöral hasar vermemizi önleyecektir.

Anahtar Kelimeler: Ulnar nerve, Cubital tunnel syndrome, Schwannoma

INTRODUCTION

Entrapment neuropathy of ulnar nerve known as cubital tunnel syndrome is the second most common entrapment neuropathy after carpal tunnel syndrome (1). The most common localization where ulnar nerve is damaged or pressurized due to different causes during its anatomic course is cubital tunnel at elbow level (2). Elbow flexion is the position in which ulnar nerve is the most stretched. Thus individuals keeping their elbows constantly in flexed position at work and sportsmen/women dealing with throwing sports have a tendency for this syndrome (3). Chronic pressure and trauma are the most common factors in cubital tunnel etiology and there are also

nerve sheath tumors.

Schwannoma known as neurilemma are benign nerve sheath tumors formed by schwann cells (4). They were first defined by Verocay in 1908 (5). Schwannomas are generally seen in the third and fifth decades and don't differ based on race and gender (6). They are solid, invasive and slowly growing tumors capsulated by epineurium (7). Schwannomas constitute 12 to 19% of upper extremity tumors (8). They are mostly seen in the flexor sides of extremities, especially in wrist and elbow areas. Ulnar nerve is their most common place in upper extremity (9). These tumors can easily be mistaken with lipomas, neurofibromas,

Corresponding author: Turan Kandemir, Eskişehir Yunus Emre State Hospital, Department of Neurosurgery, Tepebaşı, 26200 Eskişehir, Turkey
E-mail: turankandemir26@gmail.com

Eskişehir Med. J. 2021; 2(3):224-227.

Received date:07.06.2021 Accepted date:11.10.2021

Authors: Turan Kandemir (ORCID: 0000-0002-6230-0645), Zeki Serdar Ataizi (ORCID: 0000-0001-5960-3082), Müge Sezer (ORCID: 0000-0001-6226-8801)

hemangiomas and synovial cysts (10).

CASE REPORT

A 45-year-old female patient was admitted to our clinic with numbness complaint in the fourth and fifth fingers of her right hand. She had the same complaint for four months and had no previous trauma. Nearly 3*3 cm mobile mass lesion was detected in the right elbow medial epicondyle vicinity in the physical examination. In the neurological examination, Tinel sign was regarded as positive since there was numbness and tingling in the fingers in lesion palpation. Muscle strength was detected as 3/5 in right hand finger abduction. Based on the electromyography of the patient, ulnar nerve entrapment was detected between sulcus ulnaris and its 4 cm distal on the right side. The lesion was excised through surgery (Figure 1).



Figure 1. Image of the lesion before intraoperative resection

The ulnar nerve was observed to be atrophic and cyanotic following the pressure it was exposed to and a very careful dissection was performed to prevent any possible neural damage. Temporary paresis may occur due to nerve traction sometimes. It was observed that patient's complaints ended completely in postoperative early period. In the

histopathological examination of the lesion, compact areas formed by fusiform cells with a palisading pattern (Antoni A) and a tumoral structure formed by loose and hypocellular areas (Antoni B) were observed. Cells with eosinophilic cytoplasm, indefinite borders and elongated nucleus were observed in Antoni A areas and the lesion was reported as schwannom (Figure 2).

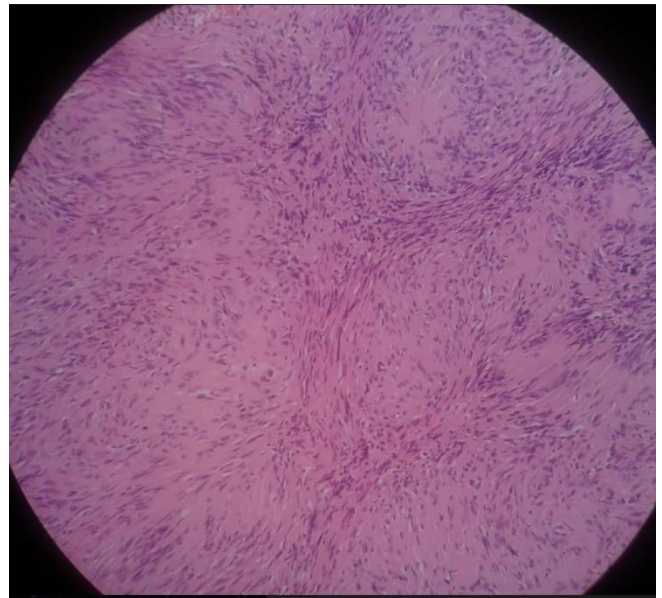


Figure 2. Microscopic image of the lesion during histopathological examination

DISCUSSION

The prevalence of entrapment neuropathies increases with age. Ulnar neuropathy around the elbow is observed 3-5 times more commonly in males than the females (11). Apart from chronic pressure and trauma, lipoma, synovial cyst, ganglion osteophyte and nerve sheath tumors also cause cubital tunnel. In our case, a mass was detected through palpation in a middle-aged female patient admitted with entrapment neuropathy clinic and distinctive diagnosis was performed.

Schwannoma constitute 5% of soft tissue tumors in adults. It is also observed more in upper extremity compared to the lower extremity. It involves ulnar, median and radial nerves more in the upper extremity. While there is pain complaint in 30-70% of all extremity schwannoma, paresthesia complaint is present in 20% (12). Our patient was admitted with numbness complaint in the fingers and we detected muscle strength loss in finger abduction. Also the lesion was palpated in the physical examination of our patient. Peripheral nerve sheath tumor possibility should be considered in distinctive diagnosis in superficial tissue lesions in the extremities. Although Tinel sign positivity and paresthesia are observed in most of these tumors, lipoma, neurofibroma, ganglion cyst and xanthoma should also be considered in distinctive diagnosis (13). Ultrasonography can be our first preference for evaluating this kind of superficial lesions but the most effective imaging method is magnetic resonance imaging. Complete malign-benign distinction of the lesion is not possible through imaging. Size over 5 cm, irregular borders, having surrounding edema, necrotic areas with homogenous appearance, presence of calcifications and immobility in palpation are criterias increasing malignity suspicion. Electromyography is another method which can be used in diagnosis. As in our case, electromyography provides us information on which nerve the lesions are affiliated to.

In this case, we excised ulnar schwannoma through surgery. Percutaneous fine-needle biopsy for diagnosis is not recommended in such cases. This is due to the risk of neurological deficit formation during biopsy. In the study by Levi et al, neurological deficit

prevalence was observed to increase in patients who were undergone preoperative biopsy (14).

As schwannoma are generally benign, chemotherapy and radiotherapy are not suggested after excision. They rarely recur after total excision. Antoni A and Antoni B type neoplastic cells are present in collagen matrix in histopathological examination. Atypical cells with abundant mitosis and large eosinophilic cytoplasm are observed in malign schwannoma (15).

As a result, peripheral schwannoma are not very common. Sometimes they can cause entrapment neuropathies. Thus, careful neurological and physical examination would prevent this kind of lesions from being unnoticed. Careful dissection during the surgery would prevent neural damage.

Informed Consent: Informed consent was taken from the patient.

Conflict of Interest: All authors declare that they have no conflict of interest.

Funding: No funding was received for this research

REFERENCES

1. Cutts S. Cubital tunnel syndrome. *Postgrad Med J.* 2007;83:28-31.
2. Elhassan B, Steinmann SP: Entrapment neuropathy of the ulnar nerve. *J Am Acad Orthop Surg.* 2007;15: 672- 81.
3. Bednar MS. Ulnar tunnel syndrome. *Hand Clin* 1996; 12: 657-64.
4. Gosk J, Zimmer K, Rutowski R. Peripheral nerve tumours--diagnostic and therapeutical basics. *Folia Neuropathol.* 2004;42(1):31-5.
5. Zhou J, Man XY, Zheng M, Cai SQ. Multiple plexiform schwannoma of a finger. *Eur J Dermatol.* 2012 Jan-Feb;22(1):149-50.
6. Pilavaki M, Chourmouzi D, Kiziridou A, Skordalaki A, Zarampoukas T, Drevlengas A. Imaging of peripheral nerve

- sheath tumors with pathologic correlation: pictorial review. *Eur J Radiol.* 2004 Dec;52(3):229-39.
7. Tang CY, Fung B, Fok M, Zhu J. Schwannoma in the upper limbs. *Biomed Res Int.* 2013;2013:167196.
 8. Kransdorf MJ. Benign soft-tissue tumors in a large referral population: distribution of specific diagnoses by age, sex, and location. *AJR Am J Roentgenol.* 1995 Feb;164(2):395-402.
 9. Enzinger FM, Weiss SW: Benign tumors of peripheral nerves. In: Enzinger FM, Weiss SW (ed). *Soft Tissue Tumors*, 3rd ed. St. Louis: Mosby-Year Book, 1995: p. 821-88.
 10. Gupta G, Maniker A. Malignant peripheral nerve sheath tumors. *Neurosurg Focus.* 2007;22(6):E12.
 11. Richardson JK, Gren DF, Jamieson SC, Valentin FC. Gender, body mass and age as risk factors for ulnar mononeuropathy at the elbow. *Muscle Nerve.* 2001;24(4):551-4.
 12. Ichikawa J, Sato E, Haro H, Anayama S, Ando T, Hamada Y. Posterior interosseous nerve palsy due to schwannoma: case report. *J Hand Surg Am.* 2008; 33:1525-8.
 13. Kang HJ, Shin SJ, Kang ES. Schwannomas of the upper extremity. *J Hand Surg Br.* 2000;25(6):604-7.
 14. Levi AD, Ross AL, Cuartas E, Qadir R, Temple HT. The surgical management of symptomatic peripheral nerve sheath tumors. *Neurosurgery* 2010;66:833-40.
 15. Jiménez-Heffernan JA, López-Ferrer P, Vicandi B, Hardisson D, Gamallo C, Viquer JM. Cytologic features of malignant peripheral nerve sheath tumor. *Acta Cytol* 1999;43:175-83.

Cite as: Kandemir T, Ataizi ZS, Sezer M. Ulnar Schwannoma Mimicking Cubital Tunnel Syndrome: A Case Report. *Eskisehir Med J.* 2021;2(3):224-227.