



EDİTÖRE MEKTUP / LETTER TO THE EDITOR

Secondary carpal tunnel syndrome caused by space-occupying lesion- lipoma

Yer kaplayan lezyon- lipom nedenli sekonder karpal tünel sendromu

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To the Editor,

Lipomas are the most common benign soft tissue tumor originating from adipose tissue¹. Although they are in many parts of the body, they are rarely in the hand². Lipomas are mostly asymptomatic, but if there is a nerve compression, they become symptomatic³.

Carpal tunnel syndrome (CTS) is the most common peripheral neuropathy of the upper limb⁴. Etiology of carpal tunnel syndrome is various. One of the causes of carpal tunnel syndrome is the presence of a mass in the canal. Such as intraneural lipoma, fibro-lipoma, lipofibromatous hamartoma⁵. These space occupying lesions are rare in the hand. So this situation can cause misdiagnosis and treatment errors.

Only limited series and case reports have been reported in the literature. In this paper we presented a case and shared the experience of surgery and follow up that may provide contribution.

A 30-year-old female patient presented with complaints of paresthesia and pain in the first three fingers of the right hand (dominant hand). It was learned from the history of the patient that her complaints had continued for 3 years and increased in the last 6 months. She was a housewife. She has no history of trauma. On physical examination, she had thenar muscle atrophy and paresthesia in the first three fingers of the right hand.

Two point discrimination and vibration examinations were normal but sense of temperature was decreased in the first three fingers of the right hand. There was a painless soft tissue mass of 2X2 cm in size with a soft consistency on the palmar side of the right wrist. Tinel's sign and Phalen's test were positive in the right wrist. Laboratory findings and x-ray were normal. On ultrasonographic examination, there was a soft tissue mass of a diameter of 25 mm in the proximal of the carpal tunnel. In magnetic resonance imaging (MRI), there was a hyperintense lesion in the T1 sequence and hypointense lesion in the T2 sequence inside of the carpal tunnel and it was compatible with the lipoma (Fig.1). The diagnosis of secondary carpal tunnel syndrome was considered and surgery was planned. Under general anesthesia, the incision extended proximally was made on palmar side of the right wrist and the transverse carpal ligament was released. A lipoma-like soft tissue mass was seen adjacent to the median nerve in the carpal tunnel (Fig. 2a). This lipoma-like soft tissue mass was carefully resected over the median nerve (Fig. 2b). The median nerve was compressed and flattened by the soft tissue mass (Fig. 2c). The lesion was reported as lipoma on histopathological evaluation. 1 month after surgery, the patient's complaint of paresthesia regressed. During one year after surgery, she had no complaints and no recurrence was determined by clinical examination and imaging modalities.

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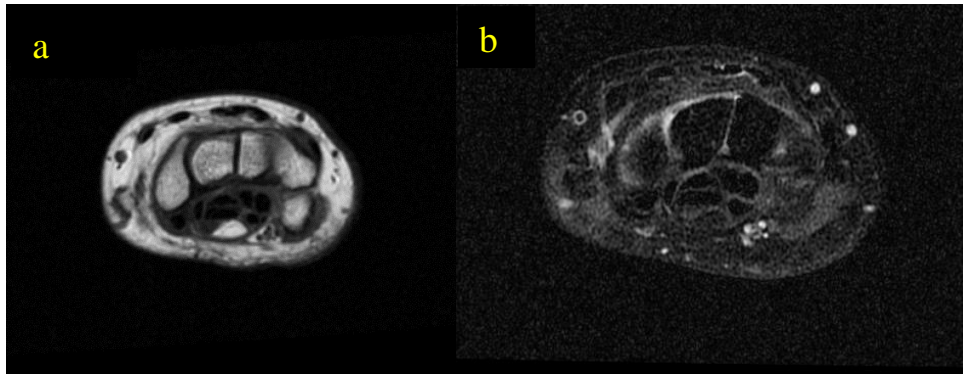


Figure 1. T1-weighted axial MRI image showing an occupying-space lesion with hyperintense in the carpal tunnel (a). T2-weighted axial MRI image showing an occupying-space lesion with hypointense in the carpal tunnel (b).



Figure 2. Intraoperative images. Soft tissue mass compatible with lipoma on the median nerve (a). Excised mass compatible with lipoma (b). The image after mass excision, compressed and flattened median nerve (c).

Secondary carpal tunnel syndrome due to space-occupying lesions is a rare clinical entity and is %5 of all carpal tunnel cases⁶. These lesions can be lipoma, fibrolipoma, intraneural lipoma, hibernoma, synovial sarcoma^{5,6,7}.

Space-occupying lesions are more common in unilateral carpal tunnel syndrome than bilateral carpal tunnel syndrome. Therefore, in cases where there is unilateral CTS and the etiology is uncertain, a space-occupying lesion should be suspected⁶.

Lipomas are tumors consisting of fat cells and they can be located subcutaneously and intramuscularly. Although they are in many parts of the body, they are rarely in the hand². Lipomas located in the hand can be symptomatic because of they may cause median nerve compression in the carpal tunnel, ulnar nerve

compression in the guyon canal or digital nerve compression in the palm^{8,9}. They are usually round when there is no limiting fascia. But they can take a variety of shapes and sizes in the presence of limiting fascia.

Lipoma rarely causes carpal tunnel syndrome, only limited number of cases have been reported in the literature^{3,6,10}. Chen reported 2 lipomas in 23 space occupying lesions out of 779 patients with carpal tunnel syndrome¹⁰.

CTS is a clinical diagnosis and electroneuromyogram (ENMG) can be useful to support this diagnosis^{5,6}. But ENMG is not required for the diagnosis of CTS in the presence of palpable mass^{3,7,10}. In our case, we didn't need to ENMG for diagnosis of CTS and we diagnosed CTS with clinically.

Ultrasonography (US) and MRI imaging are useful for diagnosis and etiology of CTS when a space-occupying lesion is suspected. Ultrasound examination is easily accessible and cost effective. It makes the distinction between solid or cystic tumor. High sensitivity of MRI imaging specifies the nature of the lesion. It also provides a preoperative planning by measuring the dimensions of the tumor and studying relationship of the tumor with the neurovascular structures.

After the presence of space-occupying lesions causing CTS is determined, the treatment is surgery. Surgical treatment is excision of the mass, release of transverse carpal ligament and removal of compression on the nerve. Care should be taken to avoid iatrogenic injuries during dissection and identification of anatomical structures.

In conclusion, lipomas are rarely in the hand and rarely cause CTS. A space-occupying lesion should be suspected in idiopathic unilateral CTS. ENMG, US and MRI imaging may be necessary for diagnosis. The aim of the treatment is resection of the mass and removal of the compression on the nerve. Complete and successful surgical resection provides excellent functional improvement.

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