

A rare cause of median nerve compression: A fibroma originating from the tendon sheath in the carpal tunnel

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Abstract. Carpal tunnel syndrome is a widespread clinical condition, the cause of which is compression of the median nerve in the tunnel. For a large proportion of patients, the surgical release of the median nerve in the carpal tunnel is sufficient treatment. In some cases, the cause of this condition may be due to a mass along the median nerve path. These could be lipomas, ganglia, rarely tendon sheath origin fibromas. In such conditions, the symptoms are not alleviated by a simple release of the transverse carpal ligament; an excision of the mass may be required.

Fibromas originating from the tendon sheath are rare benign tumors. When this causes compression of the median nerve, the presentation is similar to carpal tunnel syndrome. In our study, a patient developing median nerve compression due to a fibroma stemming from the tendon sheath has been presented and mass-presenting cases in literature have been reviewed.

Key words: Fibroma stemming from tendon sheath, carpal tunnel syndrome, median nerve

1. Introduction

Carpal tunnel syndrome is a widespread clinical condition. For the majority of patients, the surgical release of the transverse carpal ligament is sufficient treatment. However, some space-occupying mass lesions that compress the median nerve could be the cause of similar symptoms. In such conditions, the symptoms are not alleviated by a simple release of the transverse carpal ligament, an excision of the mass is necessary (1,2).

Fibromas originating from the tendon sheath are rare benign tumors. When this causes compression of the median nerve, the presentation is similar to carpal tunnel syndrome (1). In our study, a patient developing median

nerve compression due to a fibroma originating from the tendon sheath has been presented and mass-presenting cases in literature have been reviewed.

2. Case report

A 28-year-old male patient was presented with the complaints of numbness in the fingers of the left hand and pain with movement for 5 months. The physical examination revealed minimal weakness of the thenar muscles, numbness in the areas relevant to those covered by the median nerve and pain when pressure was applied to the palm. An EMG showed a focal lesion at the level of the left median nerve that has led to partial axonal destruction.

Due to these physical examination findings, the possible presence of a solid mass prompted an MRI. The MRI results identified a smooth-contoured 22x13x9 mm lesion (fitting the description of a giant cell tumor of the tendon sheath) located between the flexor tendons at the distal end of the carpal tunnel and the palmar muscles in the wrist (Figure 1).

With these results, the patient was operated under local anesthesia. An incision was made inside the palm and the transverse carpal ligament was reached. It was incised and freed. After that,

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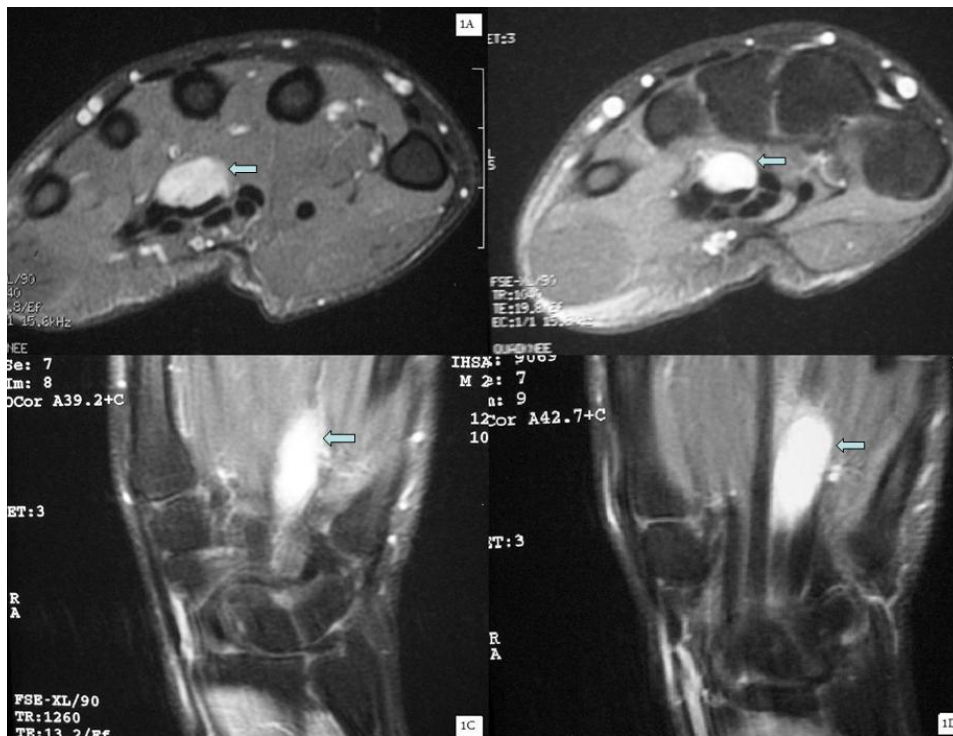


Figure 1 (a-b). MRI of axial imaging of the mass, (c-d). MRI of coronal imaging of the mass.

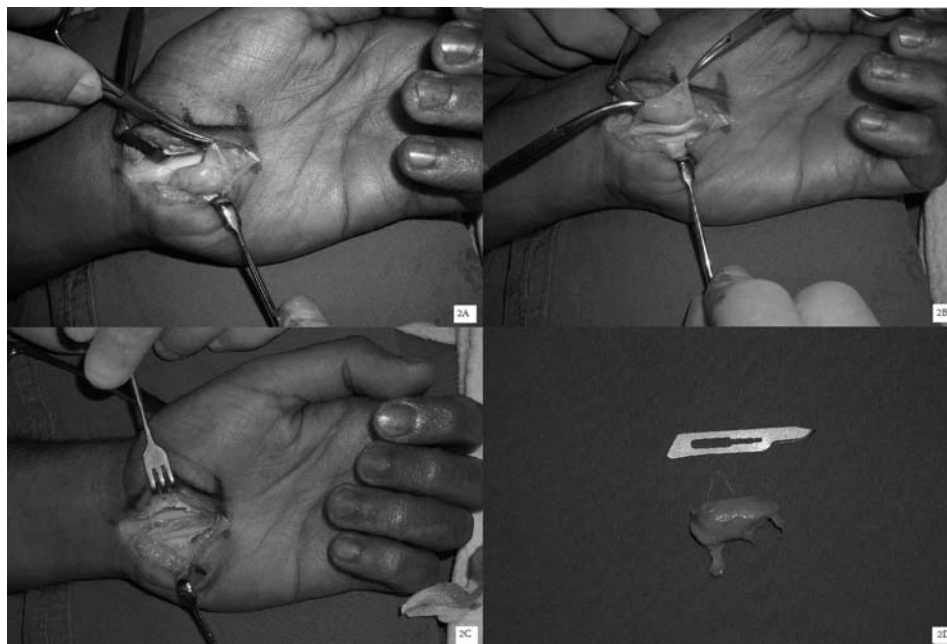


Figure 2 (a). Intraoperative relation of tumoral mass with median nerve, (b). Image of tumoral mass stemming from tendon sheath, (c). Image of area after excision of tumoral mass, (d). Image of excised mass.

the mass was identified between the tendons and the median nerve. It was observed that the mass originated from the tendon sheath. (Figure 2a, b) The mass was carefully excised while safeguarding the nerve and tendons (Figure 2c, d). A pathologic examination report diagnosed

fibroma stemming from the tendon sheath. In the follow-up of the patient, it was noted that his complaints had subsided and there was a recovery in his clinical condition. The patient was regularly followed during one year and there was no any relapse.

3. Discussion

The cause of carpal tunnel syndrome is compression of the median nerve occurring inside the tunnel. These could be lipomas, vascular malformations, ganglia, and rarely tendon sheath origin fibromas (1,2). A few cases of fibromas stemming from the tendon sheath and located in the palm, in the tunnel or the distal forearm and causing this syndrome have been reported (1).

Fibromas originating from the tendon sheath are common in males in their 3rd and 4th decades. They are clinically slow-growing painless masses. In a few cases, tendon triggering has been observed. There has been a history of trauma in the mass area in less than 10% of reported cases. These lesions are frequently seen in the upper extremity. The proportions are thumb, 2-3rd fingers: 49%, the hand: 21% and the wrist: 12% respectively (1,3-6).

Macroscopically, they are solid, well-bordered, sometimes capsulated nodules or multi-nodules. They are generally attached to the tendon or its sheath. However, they are easily excised. On the other hand, rare cases of tendon and widespread digital artery excisions have been reported. Microscopically, a few fibroblast-like spindle cells and slit-like vascular canals in a dense collagen matrix is observed (1,4,7).

Clinical presentations of carpal tunnel syndrome due to the pressure effect of a mass on the median nerve have been reported in different cases in literature. In some of these cases, the presentation has developed acutely while others have developed gradually.

A case of calcifying aponeurotic fibroma in the carpal tunnel causing an acute presentation has been reported in literature (8). There have been cases of lipomas that developed in the palm, carpal tunnel and forearm that have caused carpal tunnel syndrome and trigger wrist (2,9,10). Again, acute carpal tunnel syndrome has been reported in a few cases in literature where a diffuse giant cell tumour stemming from the tendon sheath was the cause (11,12).

Moreover, in cases of masses, fibromatosis, nodular fasciitis, neurofibroma, leiomyoma, desmoid tumour, pigmented villonodular synovitis, scar tissues, schwannoma and fibrous histiocytoma are diagnoses to be kept in mind (1,3,6).

Nowadays, basically clinical signs and nerve conduction studies are used in the diagnosis of carpal tunnel syndrome. Some authors suggest that an ultrasonography of the wrist should be done routinely on patients thought to have carpal

tunnel syndrome. When a mass is identified, CT and MRI evaluation will provide clear details regarding the distribution of the lesion. This information is especially used in planning for surgical treatment. In this way, by ensuring an adequate excision, recurrences could be prevented (13).

As a result, patients who are younger patients, male patients, have unilateral findings, varying history and physical examination signs should be properly screened. When necessary, by making use of imaging techniques, a proper surgery should be performed.

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