

**RARE CONDITION OF CARPAL TUNNEL SYNDROME SECONDARY TO A GIANT LIPOMA OF THE HAND. A CASE REPORT**

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**ABSTRACT**

Lipoma of the hand is a rare entity causing carpal tunnel syndrome with atypical symptomatology. Carpal tunnel syndrome is mostly idiopathic and bilateral. Local factors should be suspected when these neuropathies present with atypical symptoms or even when they recur after primary conventional surgical release. We describe a case of a giant lipoma of the right hand causing carpal tunnel syndrome in a 38-year-old woman who underwent a monobloc resection of the tumor.

**KEYWORDS:** Lipoma, carpal tunnel syndrome, compressif, surgery.

**INTRODUCTION**

Lipomas are benign tumors, they are common tumors with more than 50% of all soft tissue tumors. Their preferential seat are the limbs whereas the localization at the level of the hand is rare with 1 to 3.8% of the tumors of the hand.<sup>[1,2,3]</sup>

Carpal tunnel syndrome (CTS) is the set of clinical and electrical manifestations secondary to compression or irritation of the median nerve. in approximately 50% of the patients the pathogenesis is unclear (idiopathic).<sup>[4,5]</sup>

The section of the transverse carpal ligament may not be sufficient in secondary carpal tunnel syndrome and must be associated with surgical exploration.<sup>[6]</sup>

Space-occupying lesions like lipomas rarely cause secondary compression neuropathies of the upper extremity<sup>[7]</sup>, and may lead to misdiagnosis and treatment errors.

We report a case of giant lipoma of the hand causing secondary carpal tunnel syndrome treated at CHU IBN SINA.

**Presentation of case**

A Female 38-year-old patient presented for an orthopedic trauma consultation with a feeling of numbness in her right hand. she had no notable history. during the examination the patient complains of paresthesia in the median nerve distribution of the right hand, on inspection

there is a tumefaction at the level of the thenar eminence (fig 1).



**Fig 1: Physical examination of the right hand showing a thenar mass.**

On palpation the mass was soft, non-tender with well-defined margins. The patient felt pain in flexion and abduction of the thumb but neurological examination revealed no difference in motor and sensory function compared to the contralateral hand.

Standard x-rays showed no abnormalities. The ultrasound of the hand revealed a lesion occupying the space of encapsulated fat density with well-defined contours measuring approximately 42x27x15mm suggesting the diagnosis of a lipoma (fig 2)



**Fig. 2: Ultrasound image showing an occupying-space lesion compatible to adipose tissue.**

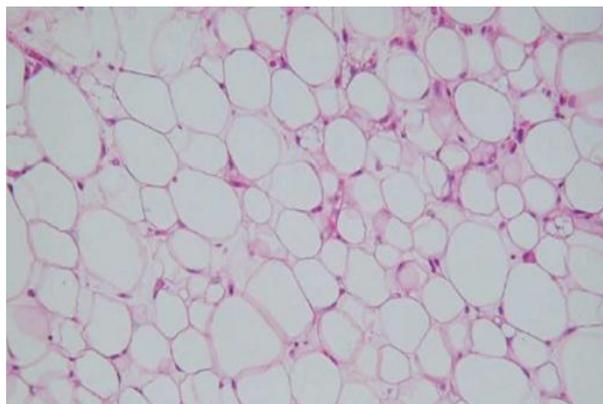
Surgical treatment was suggested and performed, and an excisional biopsy was performed under anesthesia. By a standard and anterior palmar approach release of the annular carpal ligament, a giant intracanal lipoma was found. Tumor dissection was complete and a block marginal resection performed (fig 3).



**Fig. 3: Intraoperative picture. Completed surgical dissection of intracanal lipoma.**

The tumor was sent in a pathological study using formaldehyde and the skin was closed with nonabsorbable sutures. The surgical procedure and the early postoperative period proceeded without complications.

The histopathological analysis documented a nodular elastic fragment soft tissue, lodged and yellow in color, weighing 13 g and measuring 42x25x16mm. The lesion consisted of mature adipose tissue and the definitive diagnosis was benign giant lipoma (fig 4)



**Fig. 4: Histopathological analysis showing mature adipose tissue.**

There was a complete clinical improvement, without any symptoms relapse or local recurrence on the remaining year of follow-up.

## DISCUSSION

Lipomas are the tumors most commonly found in the occupant processes responsible for carpal tunnel syndrome. Their localization in the hand remains exceptional 1% of all lipomas.<sup>[9]</sup> With growth and in soft tissue with low compliance environment, like the hand, these neoplasms can lead to rapid compression of vasculo-nervous structures, especially in the depths palmar space.

Few case reports or series have reported lipomas causing secondary compression neuropathies.<sup>[3-8-10]</sup>

Carpal tunnel syndrome accounts for 90% of cases of upper limb nerve compression. It occurs mainly in people aged 55 to 60 years with a female predominance.<sup>[11-12-13]</sup> In its idiopathic form it is often bilateral.

An atypical symptomatology such as unilateral involvement, the presence of a mass should raise suspicion of a secondary local cause of carpal tunnel syndrome as described in our case and should have investigations carried out.

The clinical expression of secondary carpal tunnel syndromes correlates with topography of compression but there is no correlation with tumor volume.<sup>[14]</sup>

Palmar lipomas may also be associated with functional impairment of grip and digital mobility, resulting from a bulky lesion or secondary to compression of intrinsic muscles.<sup>[9]</sup>

For paraclinical examinations EMG is useful in determining the location and severity of compression, x-rays are useful to show calcifications or bone damage. Ultrasound can describe the anatomy of the median nerve, define the echogenicity and homogeneity of the tumor and determine the severity of the compression.<sup>[15]</sup>

The mri is the reference examination when there is an occupying process and makes it possible to describe its characteristics and its anatomical relationship for a possible therapeutic management, in fact it allows a diagnostic orientation in 94% of cases.<sup>[16]</sup>

The main differential diagnosis of adipose tumors are mainly fibrolipomas of the median nerve and liposarcomas.<sup>[3]</sup>

A lipoma greater than 4cm is defined as a giant lipoma and should suggest a malignant tumor, therefore the histopathological study is essential.<sup>[17]</sup>

Excisional biopsy is the standard recommendation in the literature. It's the only one treatment that releases the median nerve and effectively removes the tumor.<sup>[3]</sup>

The authors suggest a monoblock resection with careful dissection to avoid iatrogenic lesions and tumor recurrence.<sup>[18]</sup> Relapses in lipoma are rare.<sup>[18-14]</sup>

Endoscopic and minimally invasive techniques are preferable for nerve liberation in idiopathic carpal tunnel syndromes because they present a low rate of complications and recurrence, but when it comes to occupying processes they do not allow a good visualization of the intracanal masses.<sup>[19]</sup>

## CONCLUSION

Lipomas of the hand are among the unusual causes of carpal tunnel syndrome, the atypical symptomatology should suggest this diagnosis. Further investigation may be necessary before surgery with ultrasound, and an MRI.

These patients are poor candidates for the minimally invasive endoscopic technique and require open surgical exploration with monobloc resection. A correct preoperative assessment of each the patient is the key to good management, successful treatment and reduced risk of recurrence of neuropathy by trapping CTS.

**Consent:** The patient has given their informed consent for the case to be published.

**Conflict of interests:** None.

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