CASE REPORT

Giant lipoma of the hand causing median nerve compression

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SUMMARY

Lipomas are benign neoplasms derived from adipose tissue composed of mature adipocytes. They account for almost 50% of all soft-tissue neoplasms and occur in up to 2% of the population. They usually present asymptotically as solitary discrete mobile lumps found most commonly on the neck, upper back, proximal limbs and chest. In less than 1% of cases, they can be found in the distal extremities.

We discuss the case of a 65-year-old man who presented with a 2-year history of a slowly enlarging left palm swelling, with recent-onset numbness and loss of power in the distribution of the median nerve. MRI studies showed that the 5×4×2.7 cm lipoma had a component extending into the distal aspect of the carpal tunnel, compressing the median nerve. It was successfully excised, and at follow-up the patient reported complete resolution of his symptoms.

BACKGROUND

Lipomas are benign neoplasms found in up to 2% of the population. They commonly present asymptotically with most located in the neck, upper back, proximal limbs and chest. Less than 1% of lipomas are found in the distal extremities. This case report describes a rare presentation of a lipoma in the hand causing compression of the median nerve. The lesion measured 5 cm along the longest axis, meeting the criteria for a 'giant lipoma'. The slow enlargement of this lipoma caused the patient to experience symptoms of paraesthesia in the median nerve distribution over time, which subsequently resolved on removal. We describe the imaging and management of this patient, as well as discuss cases from the literature.

CASE PRESENTATION

A 65-year-old retired man presented with a swelling on his left palm for the past 2 years. He presented with pins and needles as well as decreased power in the median nerve distribution of the left hand, which had progressed within the past year. His background history includes gastritis, hypertension and asthma. His medication history includes ramipril, lansoprazole, simvastatin and aspirin, with no known drug allergies.

On examination, there was a large lobulated mass on the volar aspect of the left hand. It was soft on palpation, non-tender with well-defined edges. There was no evidence of muscle wasting. On neurological examination, there was decreased

sensation and power found in the distribution of the median nerve. He was otherwise well and no further soft-tissue lesions were found on examination.

INVESTIGATIONS

MRI of the lesion was carried out, which showed a homogeneous large lobulated, well-defined fatty mass measuring 5×4×2.7 cm in size (figure 1). It was found to be lying between the metacarpals dorsally and the volar tendons anteriorly, which were displaced volarly. There was also a small component extending into the distal carpal tunnel (figure 2).

TREATMENT

An excisional biopsy was performed under general anaesthetic. The incision was made along the wrist and palmar crease, with dissection down to the fascia. The median nerve was identified and protected, and dissection deep to the flexor tendon revealed the proximal margin of the lipoma (figure 3). The lesion was successfully excised, and there were no surgical complications encountered (figures 4 and 5).

OUTCOME AND FOLLOW-UP

Histology reports confirmed the presence of well-differentiated mature adipose tissue, with no malignant potential. He was seen in the clinic 2 weeks later and reported a marked improvement in his symptoms. On neurological examination, sensation was present in all fingers, and power was markedly improved from preoperative status.

DISCUSSION

This case report presents a number of valid learning points and highlights numerous considerations to be taken when dealing with soft-tissue masses. Lipomas are the most common benign soft-tissue neoplasms and can be located on almost any part of the body. The typical presentation is of a painless, discrete, mobile lump that is usually solitary with the most common site of presentation being the upper back, neck, abdomen, upper arms and legs.¹ They occur in up to 2% of the population.² Few case reports and case series have reported lipomas in the hand,^{3–8} and as few as 1% of all lipomas present in this way.¹ Up to 25% of superficial lipomas can be symptomatic, and patients can present with symptoms such as local pain/tenderness, paraesthesia and loss of power

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Figure 1 T1-weighted MRI image at the mid-palm level showing the lipoma with the metacarpals lying dorsally and flexor tendons volarly.

from nerve compression. There are a small cohort of patients who develop symptoms from progression of the lesions and local compression of nerves or other vessels. When involving the deep palmar space, the clinical features can mimic those of carpal tunnel syndrome where there is median nerve compression.

Carpal tunnel syndrome (CTS) is one of the most common compressive neuropathies and accounts for up to 90% of entrapment neuropathies.⁹ Women are more commonly affected than men, and the highest incidence is seen in individuals aged 55–60 years.¹⁰ The systemic causes of CTS include diabetes, obesity, hypothyroidism, pregnancy and renal failure. Local causes such

Figure 2 MRI cut at the level of the carpal tunnel showing extension of the lipoma causing compression of the median nerve.

Figure 3 Intraoperative picture showing excision from palm.

as inflammation in tenosynovitis, trauma from a distal radius fracture and benign or malignant tumours have been described.⁹ Occupational causes have also been identified as a common causative factor, with the condition more commonly seen in factory workers, meat packers and grocery store workers.¹¹ Cases of carpal tunnel syndrome caused by lipomas are rare in the literature; however, isolated cases have been described.^{3–6} Interestingly, these cases report a long-standing history of symptoms (>1 year) along with the first manifestation of the lump. It would seem that the lipoma described in our case began as an

Figure 4 Post excision with tenotomy scissors identifying median nerve.

Figure 5 Measurement of excised lipoma.

asymptomatic lump in the palm, which gradually increased in size until the distal carpal tunnel was infiltrated and compression of the median nerve ensued. The symptoms of acroparaesthesia in the thumb, index and middle finger of the affected hand were in keeping with the pathological feature. We can ascertain from this that although benign lesions, lipomas can progress in size to cause local compression of structures including nerves, arteries and veins. Patient education is important, and they should be encouraged to see their doctor if new symptoms develop in relation to an existing lipoma.

The literature describes lipomas greater than 5 cm as 'giant lipomas'.⁸ Again these are most commonly found in the upper extremities, neck and back; however, they are rare and suspicion must arise when a giant lipoma is found on examination. They are not commonly found in the hands, with very few cases reporting this pathology.^{3-5 7} Johnson *et al*¹² recommended that any soft-tissue mass greater than 5 cm should be considered as malignant until proven otherwise. For this reason, management should be guided by the size of the lesion and a high level of suspicion for malignant potential must be had. Tissue biopsy must be strongly considered in a giant lipoma with accompanying features of malignancy. This emphasises the importance of tissue diagnosis, and in our case the excisional biopsy was both therapeutic and diagnostic of a lipoma. This emphasises the importance of a thorough physical examination when assessing soft-tissue lesions and aids the attending physician in guiding the management of the patient.

In cases of unilateral carpal tunnel syndrome, a number of investigations can be utilised including ultrasound, MRI and nerve conduction studies. In the majority of patients with typical symptoms, no further investigations are required. However, if atypical features are present, then further investigation may be necessary prior to intervention. Nerve conduction studies are useful to delineate the location of compression and severity.¹³ Ultrasound provides a low-cost, easily accessible mode to assess the lesion as well as its relation to the surrounding structures. Recent studies have also shown the benefit of ultrasound

in grading the severity of CTS, which may prove useful when planning intervention in atypical cases.¹⁴ If further imaging is required, then MRI is advised due to its ability to accurately visualise the relationship with surrounding structures as well as provide preoperative planning. They typically appear as well-defined homogeneous masses on MRI with no signal rise using gadolinium.¹⁵ In this case, MRI was easily accessible and provided us with high-quality images to aid in the operative planning. Excisional biopsy was the next step in management, and histology confirmed a simple lipoma with the presence of well-defined adipose tissue with no malignant potential.

Compressive symptoms can also be caused by occult lipomas,¹⁶ which, although rare, must be considered when other more common causes are less likely. This emphasises the importance of imaging, as a lipoma may be the cause of the problem even though it may not be clinically visible or palpable.

Learning points

- ▶ Soft-tissue lesions must always be thoroughly examined and monitored for progression with development of symptoms.
- ▶ Any soft-tissue lesion measuring greater than 5 cm is a giant lipoma and considered malignant until proven otherwise.
- ▶ Tissue biopsy must be obtained to rule out malignancy in these cases.
- ▶ MRI is the most appropriate imaging modality to further assess these lesions and guide management.

Contributors KC researched the literature and drafted the case report after getting details about the case from the patient's chart. KC was the main contributor to the writing of the report. JG assisted in obtaining the radiological images provided in the report, as well as guidance on the literary review and writing of the paper. AR identified the case and obtained the intraoperative images displayed in the report. AR also contributed to the planning, writing of the case and the literary review. AK was the consultant in charge and who carried out the procedure. AK assisted in the planning and writing of the paper as well as providing guidance on the literary review.

Competing interests None declared.

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