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Case Report

Giant Lipoma of the Thenar leading to Entrapment of All Peripheral Long Finger Branches of the Median Nerve: Case Report

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Submitted: 25 November 2016

Accepted: 05 May 2017

Published: 07 May 2017

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ISSN: 2373-9819

OPEN ACCESS

Keywords

- Hand
- Thenar
- Giant lipoma
- Nerve entrapment

Abstract

A 72-year-old female presented with a 4-year history of a giant lipoma of the thenar region extending up into the first web space with size of 7 x 3 x 3 cm that was accompanied with entrapment of all peripheral branches of the median nerve and loss of function of long fingers I-III. The benign tumor could be completely excised after careful dissection of all palmar finger nerves I-III. Six months after surgery, the function and sensitivity of all affected fingers were completely restored.

ABBREVIATIONS

MRI: Magnetic Resonance Imaging; CT: Computed Tomography

INTRODUCTION

Lipomas arising from primordial adipocytes are the most common benign mesenchymal tumor of the upper extremity. Excluding cutaneous malignancy, 95 % of tumors of the hand are benign origin. Non-neoplastic ganglions with 50-70% are probably the most common tumors in hand and wrist followed by inclusion cysts, warts, and giant cell tumors of the tendon sheath, granulomas, and vascular tumors such hemangiomas [1-3]. Lipomas are not very common in the hand, when present; they predominate in the thenar and hypothenar regions [4], whereas occurrence in the long fingers is very rare with an incidence of only 1% [5]. Other types of benign tumors in the hand originating from adipocytes such as adipofibrosis, angiolipomas, lipoblastomas, and fibro-fatty hamartoma must be included in differential diagnosis [6].

Lipomas with size greater than 5 cm in diameter are defined as giant lipomas, and tumors of this size warrant a work-up for malignancy [7]. They are mostly observed in the forearm [8]. Giant lipomas in the hand are rare conditions and have been mostly observed in the carpal tunnel whereas occurrence in hypothenar and/or on the palmar or dorsal aspect of long fingers is substantially less, usually they grow slowly, and can lead to soft tissue compression such as entrapment of median / ulnar / radial nerve, flexor tendon disruption, and/or limited joint motion when primarily misdiagnosed as having a carpal tunnel syndrome without local tumor pathology, and/or early surgical revision has not been done [9-14].

Giant lipoma of the palm and/or thenar, such as in our following case presentation, is a very rare condition, and only few case reports have been described occurrence in this specific region, all of these patients were females [12,15-17].

CASE PRESENTATION

A 72-year-old female presented with a 4-year history of progredient painless swelling on her left palm in the thenar region. The patient reported paraesthesias in her tips of the thumb, index and third finger since six months that was accompanied with occasional pain while doing her household work and difficulty in holding any object. On physical examination, there was a large non-tender, soft and non-compressive subcutaneous tumor in the thenar, extending up into the first web space (Figure 1A). Fist conclusion and extension of long fingers I-III were incomplete, and there was a restricted circumduction of the thumb with a tip pinch to the 3rd finger only. The radiograph showed a clearly demarcated radiolucent soft tissue mass without bony involvement (Figure 1B). Magnetic resonance imaging (MRI) revealed an extramuscular, clearly demarcated tumor with a homogeneous and high-intensity signal similar to subcutaneous fat with visible septae inside the tumor after gadolinium injection, and leading to nerve entrapments (Figure 1C). Due to the MRI finding with septae inside the tumor, a liposarcoma could not be excluded absolutely by the radiologist. The tumor was exposed through a large palmar incision, starting over the carpal tunnel and extending up into the first web space. First, complete excision of palmar aponeurosis was performed, and the median nerve

with its all peripheral branches was carefully dissected after release of carpal tunnel (Figure 1D). After that, the giant lipoma with size of 7x3 x 3 cm could be completely excised in a monobloc manner (Figure 1E), and primary closure of wound was done (Figure 1F). The further course was uncomplicated. Six months after surgery, the function and sensitivity of all affected fingers were completely restored (Figure 2). The patient reported that she would have the same procedure again if necessary.

DISCUSSION

Benign lipomas consist of mature fat cells, which may occur in the hand or wrist in subcutaneous, inter- or intra- or submascular, bony, and intraneural locations such as the median nerve or the thumb's digital nerve [12,15,18,19]. They mostly occur in individuals between 50 and 60 years of age [20].The etiology behind the appearance remains unclear, while their formation mechanism is unknown to date; obesity, hypercholesterolemia, genetic triggers, and trauma associated with large and/or severe hematomas potentially leading to necrosis of fatty tissue followed by stimulation of pre-adipocytes are discussed [15,21,22]. In differential diagnosis, the liposarcoma particularly in cases of recurrent lipoma must be generally included; although it is mainly observed in a well-differentiated form in up to 45% of cases, all forms can be found [23,24].

The size of lipoma greater than 5 cm in diameter is the classical cut off for definition of giant lipoma. Although that any soft tissue "lump" which is bigger than 5 cm should be suspected as a malignancy [25], however, in cases of lipoma with giant size they can be without any malignant transformation, and reports of malignant transformation of a lipoma are rare in the literature [14]. Radiographic examination, Ultrasound, computed tomography (CT), and MRI are recommended in preoperative diagnostic management. With the use of radiographs bony involvement is to be assessed, they can appear as an area of characteristic radiolucency referred to as a "water-clear density", and sometimes they reveal calcifications in the tumor or a cortical bone condensation such in case of a parosteal lipoma [16,26,27]. CT is the diagnostic method of choice if bony involvement is suspected by radiographs. Ultrasound examination demonstrates a homogeneous and circumscribed hyperechoic area with well-defined margins and without posterior enhancement or color doppler signal [10]. At the moment, MRI is the most imaging reliable method to differentiate lipomas from liposarcomas. Classically, lipomas appear as a homogeneous mass, with a sharp border, spontaneous T1 and T2 hyper signals, reduced signal intensity after erasure of the fat signal, and no raising in the signal using the gadolinium contrast agent [10], and an image that reveals heterogeneous mass, infiltration of the neighboring tissues, and septae inside the tumor raises suspicion of a liposarcoma [15,28].

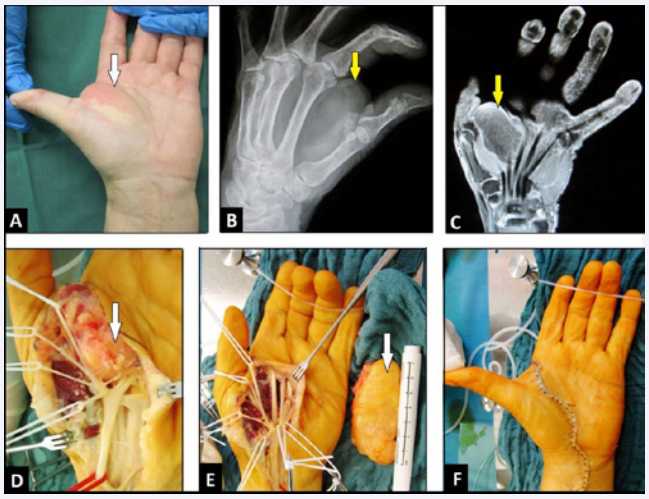

Figure 1 (A) Clinical photo showing the large subcutaneous tumor of the thenar (arrow); (B) oblique radiograph demonstrating the clearly demarcated radiolucent soft tissue mass without bony involvement (arrow); (C)MRI showing the extra muscular, clearly demarcated tumor with a homogeneous and high-intensity signal similar to subcutaneous fat with visible septae inside the tumor after gadolinium injection, and leading to nerve entrapments; (D)intraoperative clinical photo showing careful dissection of all branches of median nerve after excision of palmar aponeurosis and release of carpal tunnel before monobloc excision of the tumor (arrow);(E) intraoperative clinical photo showing complete excision of giant lipoma with size of 7x3 x 3 cm in a monobloc manner (arrow); (F)intraoperative clinical photo showing primary closure of wound.

Figure 2 Clinical photos six months after surgery showing uncomplicated wound healing, complete restoration of all long fingers' extension and fist conclusion. Note the sufficient restoration of circumduction of the thumb with a possible tip pinch to the 5th finger.

Giant lipomas of the palm and/or thenar are rare, only few case reports could be found. Singh et al. [17], reported on a 55-year-old female with a 1-year history of painless swelling on her right palm without neurological symptoms, the giant lipoma started from the wrist crease and involved both the thenar and hypothenar region, extending up into the first web space. Lisenda et al. [16], reported on a 23-year-old female with a 10-year history of painless swelling on her left palm without neurological symptoms, die giant lipoma with size of 10 x 8 cm involved the thenar region and the first web space as well. Grivas et al. [15], reported on a 60-year-old female with a 1-year history of mild pain in her left palm with hypoesthesia in the radial section of the thumb, the giant lipoma with size of 4,5 x 4,5 x 3 cm was located in the thenar region. Pagonis et al. [12], reported on a 63-year-old female with history of two unsuccessful carpal tunnel releases within three years performed in another hospital, at first presentation there was a 8 x 4 x 3,75 cm giant lipoma in the carpal tunnel and palm with entrapment of the median and ulnar nerve associated with an iatrogenic flexor pollicis longus tendon disruption in one of the previous surgical carpal tunnel releases. All four reported patients were successfully treated by surgical removal without any complications.

Giant lipomas are treated by surgical removal. As the frequency of malignant transformation is extremely limited, the main reason for their removal is the disturbance they cause in the palm's functionality and cosmetic appearance. Additionally, surgical resection of lipomas is the single treatment that allows liberation of the compressed nerve endings and effectively removes the tumor. Surgeons should perform a monobloc resection and a careful, safe dissection of the neurovascular branches to maximally reduce the risk of iatrogenic lesions. Regressions are extremely rare and are usually caused by the defective excision of the tumor. Surgical risks mainly concern postoperative infection, neural damage and the formation of a painful exuvia [10,15].

REFERENCES

1. Schmidt I, Friedel R, Schmitz H, Marx F, Markgraf E. The Marjolin's ulcer: a malignant and rarely complication after burn trauma of the upper extremity - a case report. Unfallchirurg. 2000; 103: 68-72.
2. Henderson MM, Neumeister MW, Bueno RA Jr. Hand tumors: I. skin and soft tissue tumors of the hand. Plast Reconstr Surg. 2014; 133: 154e-164e.
3. Sluijmer HC, Becker SJ, Bossen JK, Ring D. Excisional biopsy of suspected benign soft tissue tumors of the upper extremity : correlation between preoperative diagnosis and actual pathology. Hand (NY). 2014; 9: 351-355.
4. Al-Qattan MM, Al-Lazzam AM, Al Thunayan A, Al Namlah A, Mahmoud S, Hashem F, et al. Classification of benign fatty tumors of the upper limb. Hand Surg. 2005; 10: 43-59.
5. de Giorgi V, Salvini C, Sestini S, Alfaioli B, Carli P. Lipoma of the finger: a case report and differential diagnosis. Clin Exp Dermatol. 2005; 30: 439-440.
6. Ingari JV, Faillace JJ. Benign tumors of fibrous tissue and adipose tissue in the hand. Hand Clin. 2004; 20: 243-248.
7. Cribb GL, Cool WP, Ford DJ, Mangham DC. Giant lipomatous tumours of the hand and forearm. J Hand Surg Br. 2005; 30: 509-512.
8. Allen B, Rader C, Babigian A. Giant lipomas of the upper extremity. Can J Plast Surg. 2007; 15; 141-144.
9. Erdoğan M, Çırak A, Cengin EÇ, Sezgin H, Pişkin A. Giant lipoma of hand with carpal tunnel syndrome. J Exp Clin Med. 2013; 30: 179-180.
10. Fazilleau F, Williams T, Richou J, Sauleau V, Le Nen D. Median Nerve Compression in Carpal Tunnel Caused bya Giant Lipoma. Case Rep Orthop. 2014; 2014: 654934.
11. Amar FM, Benjelloun H, Ammoumri O, Marzouki A, Mernissi FZ, Boutayeb F. Lipome compressif de la tabatiere anatomique. A propos d'un cas. Ann Chir Plast Esth. 2010; 57: 409-411.
12. Pagonis T, Givissis P, Christodoulou A. Complications arising from a misdiagnosed giant lipoma of the hand and palm. a case report. J Med Case Rep. 2011; 5: 552.
13. Ramirez-Montaño L, Lopez RP, Ortiz NS. Giant lipoma of the third finger of the hand. Springer plus. 2013; 2: 164.
14. Nadar MM, Bartoli CR, Kasdan ML. Lipomas of the Hand: A Review and 13 Patient Case Series. Eplasty. 2010; 10: e66.
15. Grivas TB, Psarakis SA, Kaspiris A, Liapi G. Giant lipoma of the thenar--case study and contemporary approach to its aetiopathogenicity. Hand (NY). 2009; 4: 173-176.
16. Lisenda L, van Deventer S, Pikor T, Lukhele M. Case Report: Giant lipoma of the hand. SA Orthop J. 2013; 12: 46-48.
17. Singh V, Kumar V, Singh AK. Case report: A rare presentation of Giant palmar lipoma. Int J Case Rep. 2016; 26: 21-23.
18. Teles AR, Finger G, Schuster MN, Gobbato PL. Peripheral nerve lipoma: Case report of an intraneural lipoma of the median nerve and literature review. Asian J Neurosurg. 2016; 11: 458.
19. Narváez JA, Narváez J, Aguilera C, De Lama E, Portabella F. MR imaging of synovial tumors and tumor-like lesions. Eur Radiol. 2001; 11: 2549-2560.
20. Fnini S, Hassoune J, Garche A, Rahmi M, Largab A. Giant lipoma of the hand: case report and review of literature. Chir Main. 2010; 29: 44-47.
21. Schrofft H, Hager D, Dunst KM, Huemer GM. Giant lipoma of the thenar. Images in Clin Med. 2007; 119: 149.
22. Rydholm A, Berg NO. Size, site and clinical incidence of lipoma. Factors in the differential diagnosis of lipoma and sarcoma. Acta Orthop Scand. 1983; 54: 929-934.
23. Sampson CC, Saunders EH, Green WE, Laurey JR. Liposarcoma developing in lipoma. Arch Pathol. 1960; 69: 506-510.
24. Laurino L, Furlanetto A, Orvieto E, Dei Tos AP. Well-differentiated liposarcoma (atypical lipomatous tumors). Semin Diagn Pathol. 2001; 18: 258-262.
25. Johnson CJ, Pynsent PB, Grimer RJ. Clinical features of soft tissue sarcomas. Ann R Coll Surg Engl. 2001; 83: 203-205.
26. Leffert RD. Lipomas of the upper extremity. J Bone Joint Surg Am. 1972; 54: 1262-1266.
27. Chronopoulos E, Nikolaos P, Karanikas C, Kalliakmanis A, Plessas S, Neofytou I, et al. Patient presenting with lipoma of the index finger: a case report. Cases J. 2010; 3: 20.
28. Jelinek JS, Kransdorf MJ, Shmookler BM, Aboulafia AJ, Malawer MM. Liposarcoma of the extremities: MR and CT findings in the histologic subtypes. Radiol. 1993; 186: 455-459.

Cite this article

Schmidt I (2017) Giant Lipoma of the Thenar leading to Entrapment of All Peripheral Long Finger Branches of the Median Nerve: Case Report. JSM Clin Case Rep 5(1): 1125.