

Ossifying Lipoma of the Hand: A Case Report with Imaging Findings

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Ossifying lipoma is an uncommon form of parosteal lipoma and its occurrence in the hand is rare. It is often not diagnosed correctly before operation. A 54-year-old man presented with a 10-year history of a progressively enlarging, painful mass on the right thenar eminence. We describe the radiologic, magnetic resonance imaging and pathologic findings in this case of ossifying lipoma of the hand. (*Mid Taiwan J Med* 2008;13:48-52)

Key words

hand, magnetic resonance, ossifying lipoma

INTRODUCTION

Lipomas, such as angioliipoma and fibrolipoma, are very common benign tumors that can occur in any area of the body; however, osseous changes within these tumors are rare. Ossifying lipoma is an uncommon form of parosteal lipoma and its occurrence in the hand is rare. To our knowledge, only one other case of this tumor in the hand has been reported in the previous ten years [1]. In this report, we describe the radiographic and magnetic resonance imaging findings of a case of ossifying lipoma of the hand.

CASE REPORT

A 54-year-old man presented with a 10-year history of a progressively enlarging mass on the right thenar eminence. The patient reported that the mass was painful on palpation. On physical examination, a well-defined soft tissue mass with tenderness was noted on the right palm. The tumor was 3.6 cm × 5 cm × 3.6 cm in size. Radiographs of the right hand disclosed a soft tissue mass with some areas of increased

radiolucency and internally scattered calcifications over the first metacarpal bone (Fig. 1). Magnetic resonance (MR) images of the right hand (Fig. 2) were obtained with a 1.5-T scanner. Axial fast-spin-echo T1-weighted (TR/TE: 410/15 ms), sagittal T2-weighted (TR/TE: 4000/107 ms) and axial STIR (short tau inversion recovery) images with 3-mm slice thickness and a matrix of 512 × 512 were obtained. The images revealed a well-encapsulated mass located between the first and second metacarpal bones. Displacement of adjacent muscle without evidence of invasion was also noted. The majority of the lesion showed areas with iso-signal intensity relative to subcutaneous fat. Hypointense linear areas within the central portion of the lesion on T1- and T2-weighted images were consistent with calcification or ossification.

The patient underwent excision of the mass. Exploration of the hand through a wide palmar incision revealed a well- capsulated lipomatous tumor. On histological examination (Fig. 3), the mass consisted mainly of mature adipose tissue and osseous structures. The ossification corresponded to the areas with signal void within the mass seen on MR images. There were no post- operative complications. The patient has

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Fig. 1. Anteroposterior (A) and oblique (B) radiographs of right hand show a large area of increased radiolucency within the soft tissue mass and internally scattered calcifications over the first metacarpal bone.

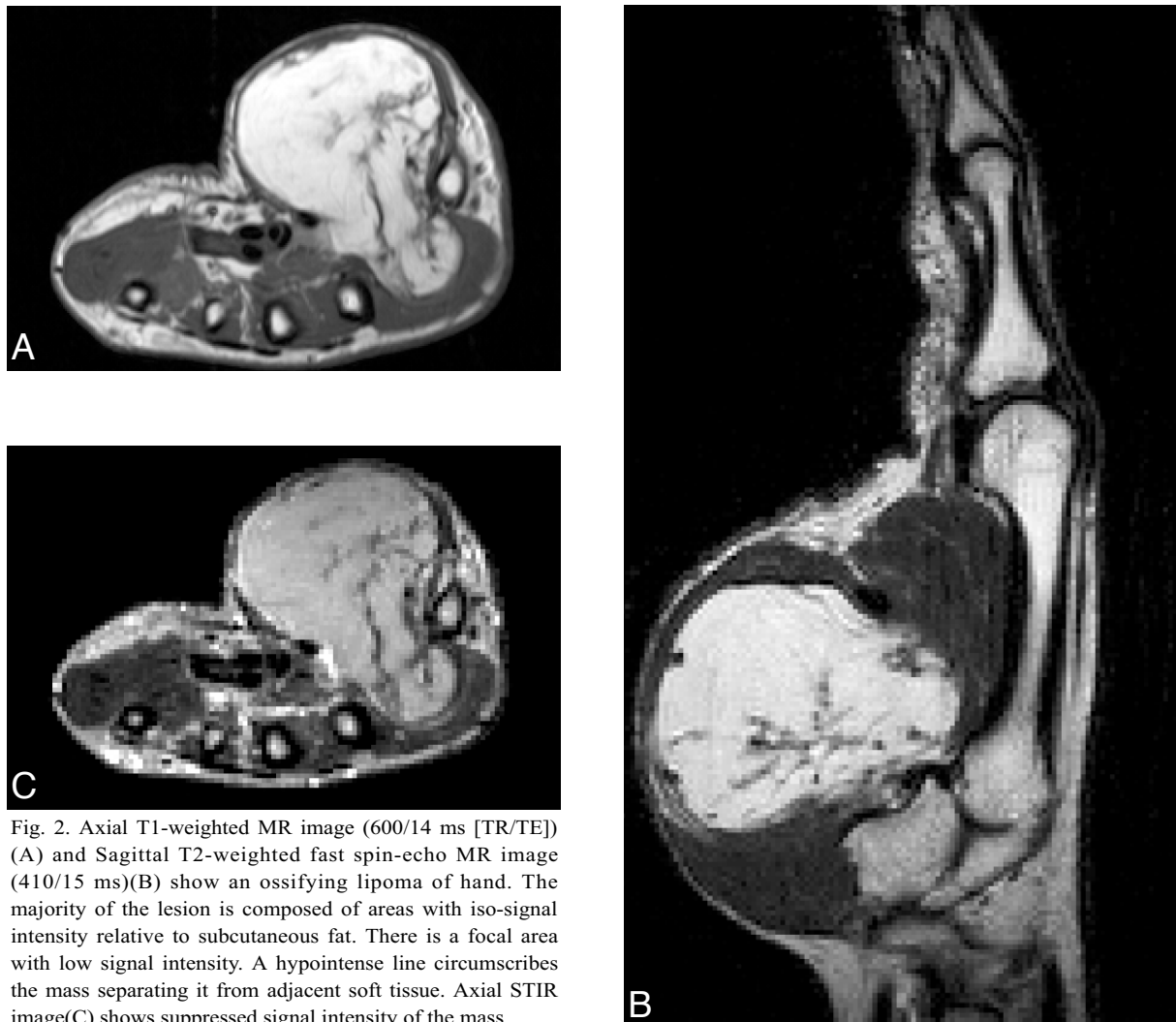


Fig. 2. Axial T1-weighted MR image (600/14 ms [TR/TE]) (A) and Sagittal T2-weighted fast spin-echo MR image (410/15 ms)(B) show an ossifying lipoma of hand. The majority of the lesion is composed of areas with iso-signal intensity relative to subcutaneous fat. There is a focal area with low signal intensity. A hypointense line circumscribes the mass separating it from adjacent soft tissue. Axial STIR image(C) shows suppressed signal intensity of the mass.

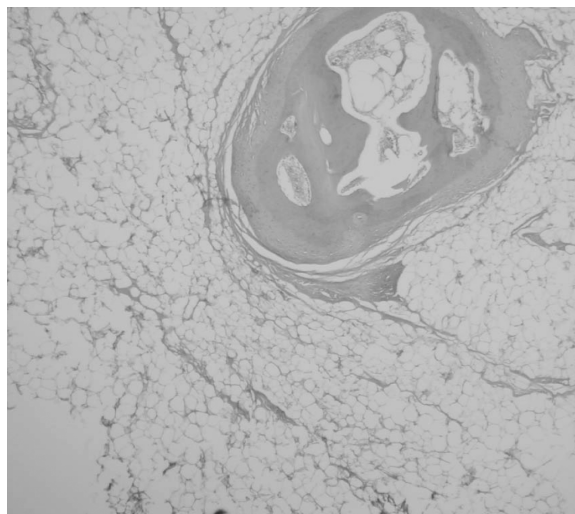


Fig. 3. Histology of ossifying lipoma. The majority of the lesion consists of mature adipose tissues and osseous structures (hematoxylin and eosin stain $\times 40$).

normal hand function and no evidence of tumor recurrence was noted at one-year follow-up.

DISCUSSION

Lipomas with a predominant fat component displaying osseous structures are referred to as osteolipomas or ossifying lipomas [2,3]. Ossifying lipomas are often found in the proximity of or even in contact with bone. They have been reported to occur in a number of areas, including the region of the tuber cinereum, hypothalamus, suprasella, wrist, oral cavity and soft tissues of the head and neck [4-6]. The ossification within lipoma is regarded as a metaplastic change due to persistent mechanical stress and repeated microtrauma [7,8]. These stimuli may reduce the central blood supply in large lipomas leading to osseous change. Only 25 cases of this rare and interesting phenomenon have been reported in the past 32 years [9].

Computed tomography (CT) and MR imaging are excellent modalities for diagnosing ossifying lipomas. CT scans can identify fatty and ossified or calcified components. The MR imaging features of a parosteal lipoma have been described in a few articles [10-13]. MR imaging is preferred when evaluating osseous or soft-tissue neoplasms because it can provide excellent soft-tissue contrast. Characteristically, the signal

intensity of the fatty component is isointense relative to subcutaneous fat on T1-weighted images and T2-weighted images, but exhibits low signal intensity on STIR images. Calcification, ossification and fibrous connective tissue appear as hypointense areas on all MR pulse sequences. In our patient, MR images showed spiculate osseous tissue within the mass. MR imaging provides multiplanar images that can be used to evaluate adjacent vascular or neural compression. It is also particularly useful for distinguishing muscle atrophy, which is characterized by high signal intensity linear streaks within a muscle on all pulse sequences. MR images are important for preoperative assessment to help guide surgical intervention [10-13].

Ossifying lipoma of hand is a rare condition and is often not diagnosed correctly before operation. The radiological differential diagnosis of this tumor includes other benign tumors with calcification, such as chondromatous tumor, parosteal osteoma, teratoma, myositis ossificans and tumor calcinosis. MR imaging best demonstrates the relationship between the tumor and the underlying native bone and muscle. Surgical excision is the recommended treatment for ossifying lipoma [13].

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手部骨化脂肪瘤：病例報告的影像發現

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骨化脂肪瘤是一種不常見的骨旁脂肪瘤，發生在手部更是少見，在開刀前通常無法正確的診斷。一位五十四歲男性於右手掌處發現一個逐漸增大且疼痛的腫塊約10年，我們敘述這個手部的骨化的脂肪瘤病例，有關於他的放射線與磁振造影影像上的發現與病理的對照。(中台灣醫誌 2008;13:48-52)

關鍵詞

手，核磁共振，骨化脂肪瘤

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