Multicentric localized giant cell tumor of the tendon sheath

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Abstract

The authors report on a rare case of multicentric giant cell tumor of the tendon sheath in the right index finger of a 76-year-old woman. In the present case, three lesions simultaneously arose at different sites in the same finger. Magnetic resonance imaging and intraoperative findings revealed no contiguity among the three lesions. A multicentric origin of the tumor is unusual.
Introduction

Localized giant cell tumor of the tendon sheath usually forms as a solitary nodule in the subcutis of the finger, hand and toe [3,4]. A multicentric origin of the tumor is extremely rare [2]. The authors describe a case of localized giant cell tumor of the tendon sheath, in which three separate tumors simultaneously developed at different sites in the same finger.

Case Report

A 76-year-old woman presented with an approximately 5-month history of two, gradually increasing masses in the volar aspect of her right index finger. The patient had no pain in the affected finger. The patient reported no previous trauma to the finger.

On physical examination, mild swelling was noted over the volar aspect of the right index finger. A subcutaneous mass, measuring 1x1cm in size, was palpated in the volar aspect of the metacarpophalangeal (MP) joint, and another mass, measuring 2x1.5cm, was palpated in the volar aspect of the proximal interphalangeal (PIP) joint. Both masses were well-defined, soft, smooth-surfaced and non-tender. The overlying skin was normal. Another mass, measuring 0.5x0.5cm was palpated in the volar aspect of the distal interphalangeal (DIP) joint, which the patient had not noticed prior to presentation. The distal mass had similar nature to that of the other two proximal masses. All masses were located in the subcutis. The range of motion of the DIP, PIP and MP joints were mildly restricted in flexion due to the masses. Magnetic resonance (MR) imaging revealed three masses attaching to the flexor tendon sheath. All masses showed low signal intensity on both T1-weighted and T2-weighted images (Fig 1). There was no contiguity among the three lesions on MR imaging. Laboratory data showed no abnormalities.
Fig. 1:

A T1-weighted MR image shows three, hypointense lesions in the volar aspect of the right index finger, attaching to the flexor tendon.

Surgery revealed three separate subcutaneous tumors attaching to the flexor tendon sheath (Fig. 2). The tumor around the MP joint was yellow, and the tumors around the PIP and DIP joints were yellow to mottled brown in color. Intraoperatively, no continuity among the three tumors was noted. All tumors were totally excised.

Fig. 2:

An intraoperative photograph shows three separate tumors in the volar aspect of the right index finger, attaching to the flexor tendon sheath.
Histologically, the tumors consisted of sheets of spindled to rounded mononuclear cells and scattered multinuclear giant cells in hyalinized collagenous matrix (Fig. 3). All three tumors were pathologically diagnosed as giant cell tumor of the tendon sheath of the localized type. The postoperative course was uneventful. There were no local tumor recurrences at a follow-up examination 6 months postoperatively.

Fig. 3: A histological specimen obtained from the lesion around the PIP joint shows sheets of spindled to rounded mononuclear cells and scattered multinuclear giant cells in hyalinized collagenous matrix. The other two lesions show similar histological features (hematoxylin and eosin; original magnification x200).
Discussion

Giant cell tumors of the tendon sheath commonly manifest as a solitary, painless, palpable mass adherent to the extensor or flexor surface of tendons [3,4]. Large series of localized giant cell tumor of the tendon sheath showed that fewer than 1% of all cases have a multicentric origin [3,4]. In a series of 117 patients reported by Jones et al. [3] one patient had two distinct lesions. The current authors previously reported on a case of localized giant cell tumor of the tendon sheath, in which two separate lesions occurred at different sites in the little finger of a 26-year-old man [2].

Multicentric localized giant cell tumor of the tendon sheath should be histologically differentiated from diffuse giant cell tumor of the tendon sheath. The diffuse form of the tumor is more hypercellular than the localized form [1]. Multinucleated giant cells are less numerous in the diffuse form than in the localized form [1].

In the present case, radiologic and intraoperative findings confirmed no continuity among the three lesions. A careful review of the English-language literature revealed no cases in which more than two giant cell tumors simultaneously arose at different sites. Giant cell tumor of the tendon sheath should be considered in the differential diagnoses of multifocal subcutaneous tumors.
References


