Trigger Finger due to a Tendon Sheath Fibroma

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Abstract
We report on a rare case of fibroma of tendon sheath causing triggering of the right middle finger in an 86-year-old woman. Magnetic resonance imaging revealed a lesion attached to the flexor tendon sheath. Surgical excision was curative.

Introduction
Trigger finger is most frequently caused by stenosing tenosynovitis of flexor tendons in elderly patients. Trigger finger caused by a neoplastic condition is extremely unusual. We describe a patient initially presenting with triggering of the middle finger secondary to a
fibroma of tendon sheath in the palm. To the best of our knowledge, only one similar case has been reported in the English-language literature [15].

Case Report

An 86-year-old right hand dominant woman had noticed painless swelling over the volar aspect of the metacarpophalangeal joint of her right middle finger for approximately one year. One month prior to presentation, the patient began to complain of triggering of the middle finger. The patient had no history of antecedent trauma to the finger, or systemic joint disease.

Physical examination revealed that the patient could flex her fingers to a full fist, but when she actively extended the fingers, the middle finger locked in the flexed position. After a time lag, the patient could actively extend the middle finger fully. The patient felt mild pain when the finger was passively straightened. There was no numbness around the affected finger. A small mass, measuring 1x1 cm, was palpated proximal to the metacarpophalangeal joint of the middle finger. The mass was firm, well-defined, smooth-surfaced, and slightly tender. It appeared to be attached to the flexor tendons, and the overlying skin was normal.

Radiographs of the finger were unremarkable. Magnetic resonance imaging (MRI) examination showed a subcutaneous isointense lesion to muscle on T1-weighted scans, and a hypointense lesion on T2-weighted scans, attached to the volar aspect of the flexor tendon sheaths of the middle finger (Fig. 1). The lesion was inhomogeneously enhanced on contrast-enhanced T1-weighted scans.
Figure 1A

Figure 1B

Figure 1: An axial T1-weighted MRI scan through the A-1 pulley level shows an isointense lesion to muscle (A), and a T-2 weighted scan shows a hypointense lesion (B), attached to the flexor tendon sheaths.
The patient underwent a total excision of the mass with a release of the flexor tendon sheath. At surgery, the mass was found to originate from the tendon sheaths of the flexor digitorum superficialis and profundus, and it was solid, white, and multi-nodular (Fig. 2).

Figure 2: An intraoperative photograph shows a fibroma originating from the flexor tendon sheath.

The tendon sheaths were mildly thickened and narrowed by the mass. Histology revealed a fibroma from the tendon sheath with spindle-shaped fibroblasts with no cellular atypia distributed sparsely in the densely collagenous matrix (Fig. 3). The postoperative course was uneventful. Triggering of the affected finger disappeared immediately after surgery. The patient was asymptomatic and there was no recurrence of the tumor at a follow-up examination six months postoperatively.
Figure 3: A specimen obtained at surgery showed spindle-shaped fibroblasts in a collagenous matrix (hematoxylin and eosin stain, original magnification X200).

Discussion

Trigger finger is most frequently caused by stenosing tenosynovitis, which is a degenerative, fibrotic process of the flexor tendon sheaths at the A1-pulley level. Other causes of trigger finger include diabetes mellitus [3], rheumatoid arthritis [23], traumatic chronic calcification [21], hemodialysis-related amyloidosis [1], anomalous lumbrical muscles [2], partial flexor tendon laceration [8] and osseous anomalies of the metacarpal head [7]. Trigger finger rarely occurs in association with neoplastic conditions. A computer-based search of the English-language literature revealed only eight trigger finger cases associated with soft tissue tumors [9, 12, 14, 15, 16, 19, 20, 24]. Robb [20] reported a trigger finger caused by a neurilemmoma in the carpal tunnel, Rankin and Reid [19] described a giant cell
tumor in the carpal tunnel causing triggering of the middle finger and Pampliega and Arenas [16] reported a case of lipoma of the tendon sheath at the wrist. Only one case of trigger finger secondary to a fibroma of tendon sheath was reported by Oni in 1984 [15]. Other reports included benign fibrous histiocytoma, soft tissue chondroma, calcifying aponeurotic fibroma, and ganglion cyst [9, 12, 14, 24].

Fibroma of the tendon sheath is a relatively uncommon benign soft tissue tumor. The tumor usually manifests as a slowly-growing, painless, small mass that is firmly attached to tendon sheaths [5, 6, 18]. The tumors are commonly located in the hands and feet, and found in adults between 20 and 50 years of age [5, 6, 18]. Male patients outnumber female with a ratio of 2:1 [6]. Grossly, the tumor is well-circumscribed, multi-lobular, and gray to tan in color. Microscopically, the tumor is composed of narrow vessels, and a hypocellular proliferation of spindle- to stellate-shaped cells in a fibrous or fibromyxomatous matrix [5, 6, 18]. It is a benign process, but Chung and Enzinger [5] reported the recurrence rate of the tumor to be 24%.

Kernohan et al. [13], Smith et al. [22], and Carneiro et al. [4] reported cases of trigger wrist caused by fibromas of tendon sheath developing in the carpal tunnel. In all cases, the tumors originated from the flexor digitorum profundus tendons and were located beneath the transverse carpal ligament. Two [2, 4] were associated with a carpal tunnel syndrome.

In our patient, preoperative MRI studies were useful in detecting the tumor. T1-weighted MRI scans of tendon sheath fibromas typically show a well-defined lesion with homogeneous hypo- or isointensity to muscle [11, 17]. On T2-weighted scans, some cases show a mixture of hypo- and hyperintensity, but others show homogeneous hypointensity, as in our case [11, 17]. Hitora et al. reported a lesion showing hypointensity on all T1-weighted, T2-weighted,
and postcontrast T1-weighted scans [10]. The hypointensity on T2-weighted scans corresponded to highly collagenous stroma with hypocellularity [10]. The present case showed homogeneous isointensity to muscle on T1-weighted scans, and hypointensity on T2-weighted scans. Histologic analysis of the present tumor revealed densely sclerosing stroma with hypocellularity throughout the lesion.

References