

Fibroma of tendon sheath embedded in carpal bones mimicking carpal enchondroma

A case report

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Abstract

Rationale: Fibroma of tendon sheath is a rare entity that is typically attached to the tendon sheath.

Patient concerns: A 43-year-old man presented with a painful mass in his right wrist, which was initially misdiagnosed as an enchondroma.

Diagnosis: Fibroma embedded into carpal bones, which exhibited lytic radiographic features similar to those of enchondroma. Excisional biopsy demonstrated spindle-shaped cells and collagen-like stroma.

Interventions: The patient underwent lesion resection surgery.

Outcomes: The patient recovered well and showed no signs of recurrence at 6-month follow-up.

Lessons: This case provides valuable insights for hand surgeons. While radiograph is helpful in multiple diseases, histological examination is indispensable for establishment of final diagnosis.

Abbreviations: FTS = fibroma of tendon sheath, MRI = magnetic resonance imaging.

Keywords: differential diagnosis, enchondroma, fibroma of tendon sheath

1. Introduction

Fibroma of tendon sheath (FTS) is a rare, benign, slow-growing soft tissue tumor that has a propensity for occurrence in finger, hand, and wrist.^[1] This disease was first described by Geschichter and Copeland in 1949.^[2] The tumor tends to occur more commonly in males and the highest incidence is in the age group of 20 to 50 years.^[3] Histopathologically, FTS is characterized by fibroblasts surrounded by collagen fibers, which form a dense stroma.^[4] Some patients have a history of trauma, which suggests

a potential association of the condition with trauma. Besides the pathological results, the diagnosis of FTS is difficult because the lesions share many features with other tumors, especially giant cell tumor of the tendon sheath. However, because FTS is frequently attached to the tendon sheath, it is easy to distinguish it from cartilage or bone tumors.^[5] Here we report a patient with FTS embedded into carpal bones, which exhibited radiographic features similar to those of enchondroma. This situation is extremely rare and has not been reported before.

2. Case report

A 43-year-old Chinese man was referred to the hand clinic of our institution with a painful mass in his right wrist. He had a history of injury to right hand sustained 5 months back due to fall. There was no history of malignancy. His medical history included hepatitis B.

On examination, the right wrist was slightly swollen with a palpable subcutaneous mass (diameter: approximately 2 cm); the mass was non-fluctuant and there was no obvious deformity (Fig. 1). He also had a tender point at the anatomist's snuff-box. There was no bone crepitus or feeling of bone friction. The right wrist function was normal and there was no loss of pricking sensation in any of the fingers of the right hand. The initial diagnosis was enchondroma in the wrist.

X-ray demonstrated a rounded, well-defined, low-density mass sized 1.0 × 1.1 cm in the right scaphoid bone and trapezium bone (Fig. 2A). No abnormality was observed in the left wrist or in the wrist joint space bilaterally. On magnetic resonance imaging (MRI), the lesion exhibited intermediate intensity on T1-weighted images and appeared hyperintense on T2-weighted images (Fig. 2B, C). These imaging findings were consistent with the diagnosis of enchondroma.

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Figure 1. The external appearance of the lesion.

The patient underwent lesion resection surgery. The mass (size: 2cm × 2cm × 2 cm) was hard and tough in consistency, grey-white in color, and well delineated from the surrounding tissues (Fig. 3A, B). The generated void was filled with artificial bone, and external fixation was performed at the surgical site (Fig. 3C).

Histopathological examination revealed edematous collagen-like stroma, spindle-shaped cells with unclear lobulated structure, hyaline degeneration, insignificant cell atypia, and a small amount of mitoses (Fig. 3D, E). No giant cells or inflammatory cells were identified. A diagnosis of fibroma of tendon sheath was established. At 6-month follow-up, the surgical wound had healed well with no signs of recurrence.

3. Discussion

The case reported is extremely unusual. The tumor presented with pain and involved the scaphoid bone and trapezium bone.

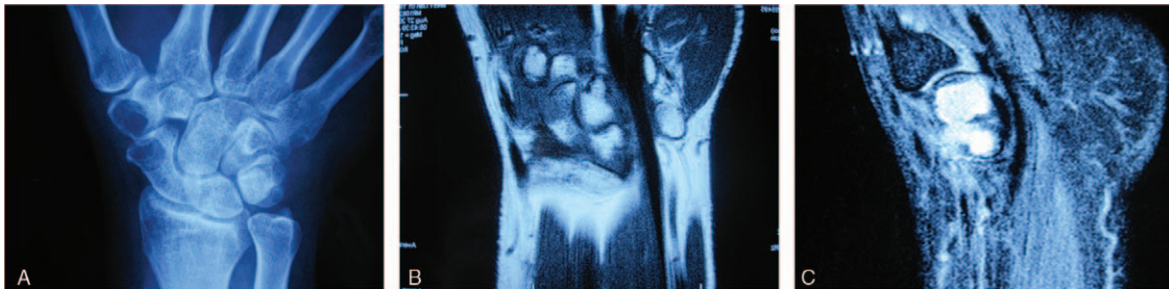


Figure 2. (A) Radiograph shows low density in right scaphoid bone and trapezium bone; MRI shows intermediate intensity on T1-weighted images (B) and hyperintense mass on T2-weighted images (C). MRI=magnetic resonance imaging.

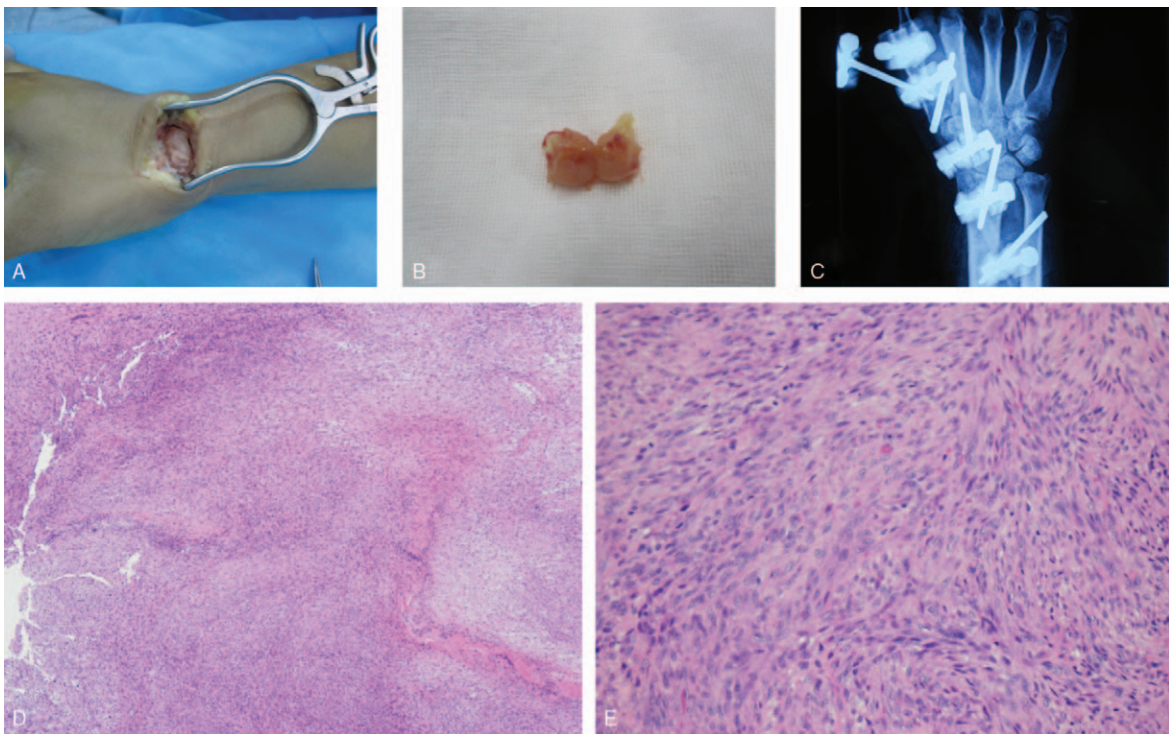


Figure 3. Intraoperative appearance of the tumor (A); (B) gross appearance of the surgical specimen; (C) postoperative X-ray radiograph; (D) low-magnification (×40) photomicrograph of hematoxylin-eosin stained section showing eosinophilic stroma and spindle-shaped cells; (E) high-magnification (×200) photomicrograph of hematoxylin-eosin stained section showing spindle-shaped cells with mitoses.

To the best of our knowledge, a case of FTS mimicking an enchondroma has not been reported till date.

FTS is a slow growing benign tumor which may occur anywhere in the body, especially in fingers, hands, and wrists. The tumor is more common in men in the age-group of 20 to 50 years. Our patient was a 43-year-old man who had tumor in his wrist, which is in accordance with the common characteristics. According to a point of view, fibroma of tendon sheath may be caused by trauma. Our patient had a history of fall, which may have caused damage to the wrist.

Treatment strategies for FTS include both open excision and arthroscopic excision.^[6,7] The typical approach involves marginal excision of the lesion with or without removal of the adjacent structures.^[4] In our case, the mass was well-delineated from the surrounding tissues. Besides, the risk of malignant degeneration of FTS is extremely low; therefore, we resected the lesion without the surrounding tissues to preserve the function of the extremity. Moreover, the patient showed no signs of recurrence at 6-month follow-up.

Differentiation of FTS from other soft tissue masses in the hand is important; however, most FTS are attached to a tendon or tendon sheath, which clearly distinguishes it from an enchondroma.^[3] Both are benign, slow-growing tumors often located in the hand.^[1,8] A majority of patients with enchondroma present in the age-group of 10 to 39 years; there is no specific predilection for a particular sex.^[9] Both tumors are usually asymptomatic and do not metastasize; enchondromas may sometimes cause pain or pathological fracture.^[10] The radiological characteristics of the 2 tumors are usually quite different; enchondroma typically appears as a well-demarcated lytic area in the bone with stippled calcification,^[8] while FTS usually presents as a soft tissue mass shadow. On MRI, enchondroma exhibits intermediate intensity on T1 images and hyper-intensity on T2 images;^[11] FTS exhibits low to intermediate intensity on T1 and intermediate to hyper-intensity on T2 images, depending on the degree of cellularity and hyalinization.^[12] In our patient, the FTS was embedded into the bones, exhibited lytic features in radiographs, and appeared hyper-intense on T2 MRI. The clinical symptoms and radiologic appearance of the 2 lesions may present similarities; therefore, histological examination is indispensable for a definitive diagnosis.

The characteristics of enchondroma include discrete islands of hyaline cartilage interspersed with bone tissue.^[11] The lesion exhibits low cellularity and atypia and does not typically extend

into the adjacent soft tissues. The typical feature of FTS is spindle- or stellate-shaped cells mixed within a densely collagenized stroma.^[4] The cellularity tends to vary among different regions and tumors. In this case, the diagnosis of FTS was established based on the presence of spindle-shaped cells and collagen-like stroma on histological examination.

Author contributions

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