

CASE REPORT

Fibroma of tendon sheath on the medial side of the knee : a case report

Shunichi Toki¹, Toshihiko Nishisho¹, Shoichiro Takao², Ryo Miyagi¹, Fumitake Tezuka¹, Akihiro Nagamachi¹, and Koichi Sairyo¹

¹Department of Orthopedics, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan, ²Department of Radiology, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan

Abstract : Fibroma of tendon sheath, which is a benign soft tissue tumor, primarily affects the finger, hand, or wrist. It rarely involves the knee and only a few cases appear in the literature. Here, we report a case of fibroma of tendon sheath on the medial side of the knee, in a previously hardly reported location, and provide detailed imaging and histological findings. A 54-year-old man presented with his right knee pain and a palpable mass that had developed 3 months earlier. Magnetic resonance imaging showed isointensity in the soft tissue tumor on T1-weighted images, variable intensity on T2-weighted images, and contrast enhancement. The specimen obtained by needle biopsy showed no histological findings of malignancy. Marginal resection was performed and the microscopic diagnosis was fibroma of tendon sheath. Since fibroma of tendon sheath is relatively rare, the radiological feature is not specific, and a rate of local recurrence following excision is high, careful diagnosis, surgical treatment and long-term follow-up are necessary. *J. Med. Invest.* 64 : 173-176, February, 2017

Keywords : fibroma of tendon sheath, knee, medial collateral ligament (MCL)

INTRODUCTION

Fibroma of tendon sheath is an uncommon soft tissue tumor that is described as benign or a tumor-like reactive lesion. This slow-growing nodule arises from the synovium of the tendon sheath or tendon and primarily affects the finger, hand, or wrist (1).

Here, we report a case of fibroma of tendon sheath arising in the knee in a location previously hardly documented, specifically extra-articularly between the medial patellofemoral retinaculum and antero-medial capsule, adjacent to the superficial layer of the medial collateral ligament. Fibroma of tendon sheath originating from the medial collateral ligament has been reported once, but as it was found incidentally during surgery for trauma (2). The present case is therefore the first in which this clinical entity was found at the location and which provides detailed imaging and histological data.

CASE REPORT

A 54-year-old man was referred to our hospital for right knee pain and swelling that developed 3 months earlier. At the initial visit, he reported his pain was improving and the knee showed only slight limitation in the range of motion (0° in extension to 135° in flexion) and no instability. Radiography revealed a soft tissue shadow within the knee with no abnormal bone findings (Fig. 1). Magnetic resonance imaging detected a soft tissue mass measuring 45×20×55 mm beneath the medial patellofemoral retinaculum of the knee joint (Fig. 2). The mass had well-defined margins, showed iso-signal intensity on T1-weighted images, a mixed iso-signal and high-signal intensity area on T2-weighted images, and

slight contrast-enhancement with gadolinium. A needle biopsy was subsequently performed under local anesthesia. The specimen showed small amount of lipid tissue and fibrous tissue with no histological findings of malignancy. The definitive diagnosis could not be made because of the inadequate sample.

The patient underwent marginal resection of the tumor. A 5-cm longitudinal incision was made over the mass, and sharp dissection of the medial patellofemoral retinaculum was performed. The tumor was extra-articular and attached to the anterior joint capsule, and was located deep to the superficial layer of the medial collateral ligament. The ligament was retracted posteriorly, and the tumor was exposed and excised extra-articularly (Fig. 3). It measured 55×35×20 mm in size (Fig. 4a). Postoperatively, the knee showed no instability against valgus stress.

Histological examination showed a hypocellular mass composed of eosinophilic collagenized stroma and spindle cells, which appeared to be fibroblasts with no atypical patterns (Fig. 4b). These features were consistent with fibroma of tendon sheath.

Postoperatively, the patient wore a knee brace and walked without weight bearing for 3 weeks. No perioperative complications or loss of function of the knee occurred. Latest follow-up at 3 post-operative months revealed no evidence of recurrence.

DISCUSSION

Geschickter and Copeland first defined fibroma of tendon sheath in 1936. In 1979 (3), Chung and Enzingner reported 138 cases (1), which remains one of the largest series of fibroma of tendon sheath and has served as the foundation for much of the current clinical and pathological knowledge concerning this tumor. The lesion commonly develops in younger adult men, in their third and fourth decades, chiefly presenting as a painless and slow-growing solid mass (1, 4, 5). An estimated 82% of these tumors involve the finger, hand, or wrist (1). To the best of our knowledge, the knee has been involved in only 29 cases, including the present case (1, 2, 4-19). These lesions in the knee have arisen from the patellar tendon,

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Address correspondence and reprint requests to Toshihiko Nishisho, MD, PhD, Assistant Professor, Department of Orthopedics, Institute of Health Biosciences, Tokushima University Graduate School 3-18-15 Kuramoto-cho, Tokushima-shi, Tokushima 770-8503, Japan and Fax : +81-88-633-9028.

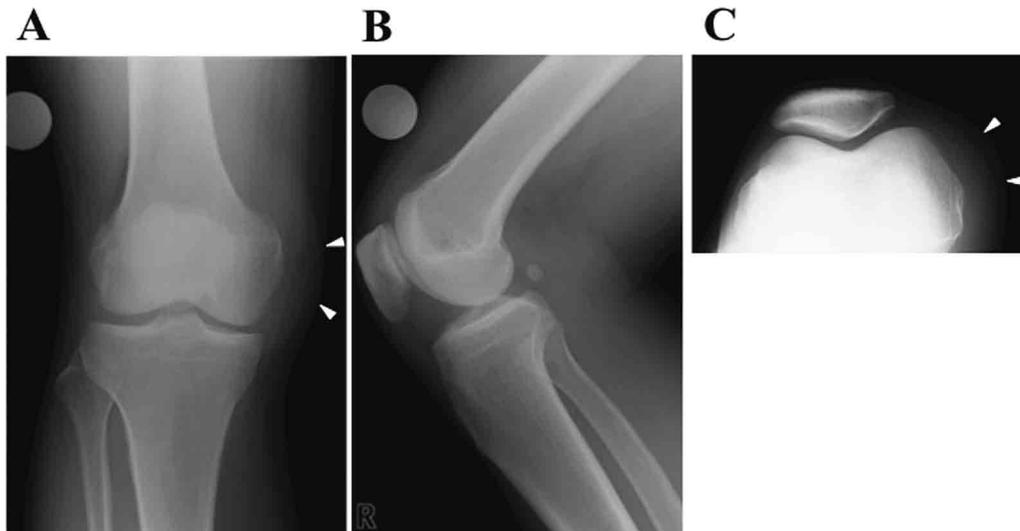


Fig. 1 A Anteroposterior, B lateral, and C sunrise views of the right knee show a thickening of medial soft tissue (*arrowheads*) and no bone abnormalities.

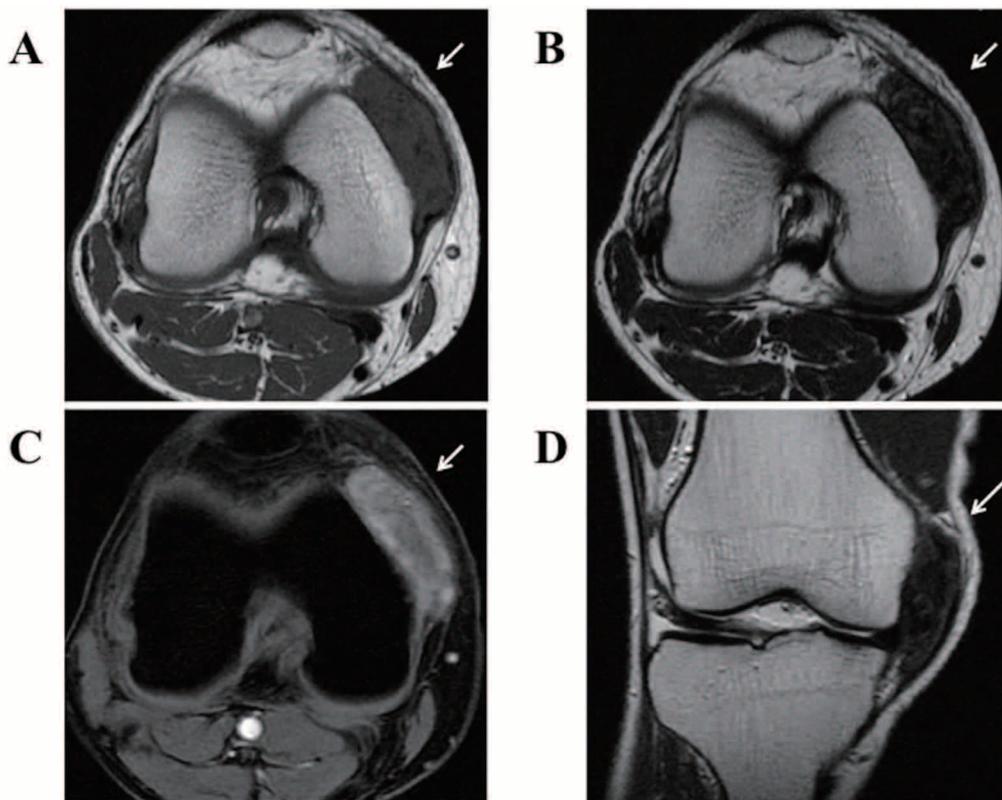


Fig. 2 A Axial T1-weighted, B T2-weighted, and C contrast-enhanced T1-weighted magnetic resonance images and D coronal T2-weighted magnetic resonance image show a soft tissue tumor (*arrows*).

infrapatellar fat pad, posterior cruciate ligament, joint capsule, pes anserine tendon, and other structures. In the present case, the tumor was located between the anterior joint capsule and medial collateral ligament. Four other cases mentioned a tumor arising from the joint capsule of the knee : 3 from the posterior joint capsule (11-13) and one from the anterior joint capsule (16). One additional case mentions a fibroma of tendon sheath originating from

the medial collateral ligament (2), but as it was found incidentally during surgery for trauma, there are no precise images or histological data available. The present case is therefore the first in which this clinical entity was found between the anterior joint capsule and medial collateral ligament and which provides detailed imaging and histological data.

The typical magnetic resonance imaging features of fibroma of

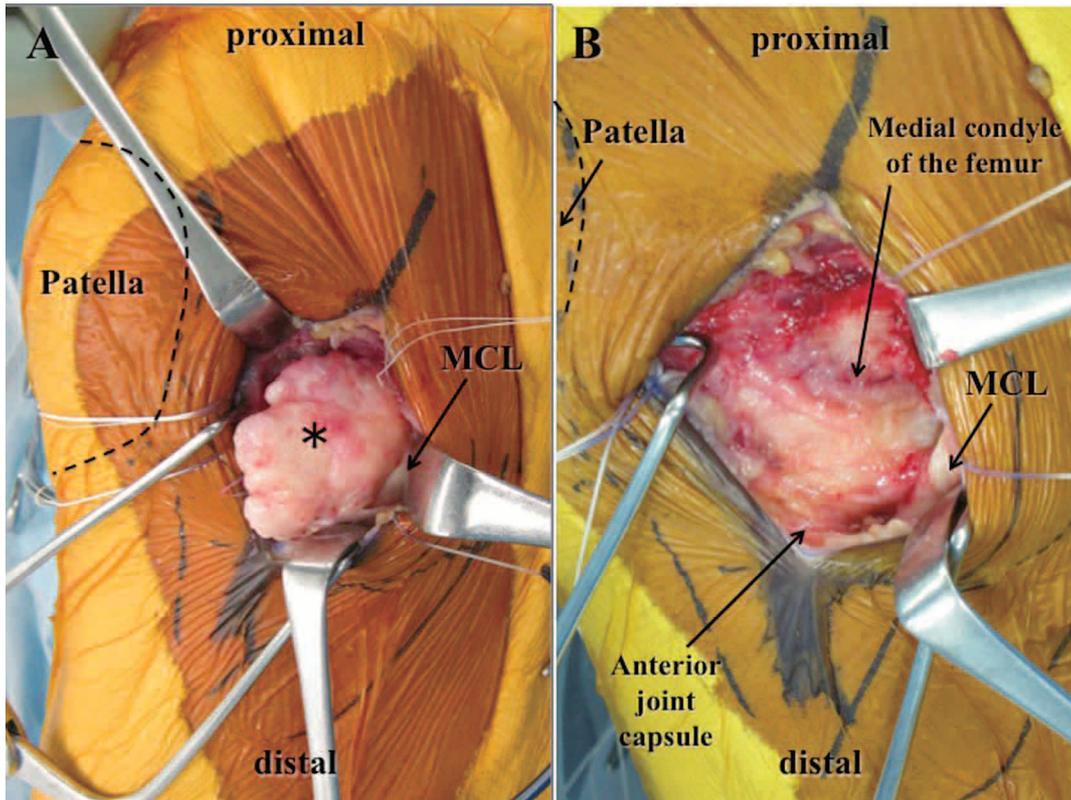


Fig. 3 A Intraoperative findings show the tumor (*) on the medial side of the knee. The medial collateral ligament (MCL) was retracted posteriorly. B Surgical field after tumor resection. The tumor was located extra-articularly.

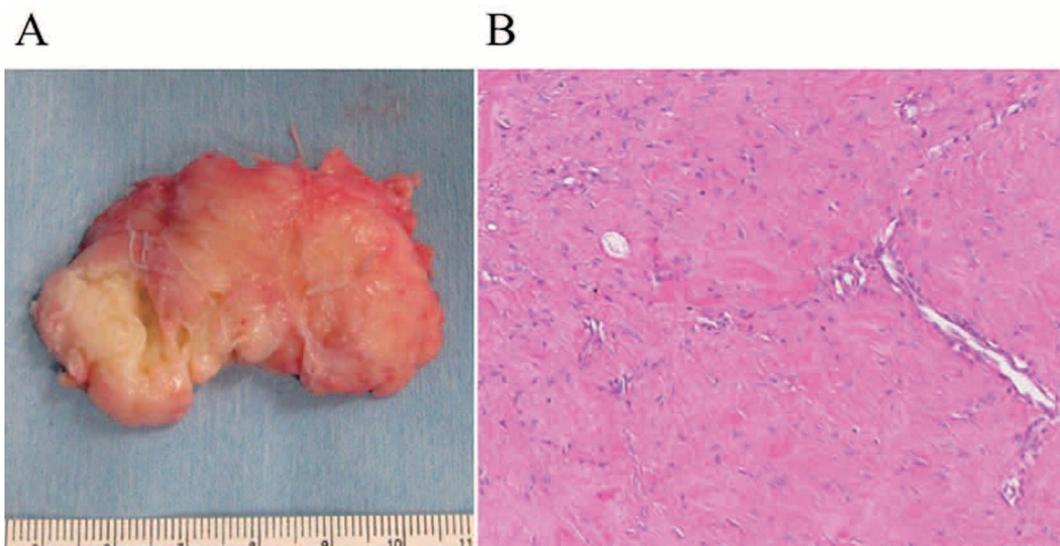


Fig. 4 A The tumor was elastic, soft, and measured 55×35×20 mm in size. B Histologically the tumor shows hypocellular, eosinophilic collagenized stroma and spindle cells that appear to be fibroblasts, with no atypical patterns (hematoxylin eosin staining, ×100).

tendon sheath reveal a focal nodular mass adjacent to a tendon sheath with decreased signal on all pulse sequences and little or no enhancement (20). However, these findings are common to various fibrous tumors, such as giant cell tumor of tendon sheath, pigmented villonodular synovitis, nodular fasciitis, extra-abdominal desmoid tumor, and fibrosarcoma (17, 18). Furthermore, fibroma

of tendon sheath can sometimes show increased cellularity or myxoid changes within the lesion. Therefore, histopathological examination is necessary for a definitive diagnosis. Its histological features include dense fibrocollagenous stroma with scattered spindle-shaped fibroblasts and narrow, slit-like vascular spaces (1).

According to a handful of case reports and small series available

in the literature, the clinical course after marginal resection of these lesions is generally good due to their slow growth and benign nature. However, the large series revealed a local recurrence rate of 20% to 24% after excision (1, 5). This recurrence is likely due to the incomplete excision of lobulated lesions; therefore, complete excision is necessary to avoid recurrence and long-term follow-up after the excision surgery appears necessary.

In summary, we have reported a case of fibroma of tendon sheath located on the medial knee between the anterior joint capsule and medial collateral ligament. While sheath lesion occurs only rare in this location, when an asymptomatic fibrous tumor with low gadolinium enhancement on magnetic resonance imaging and hypocellularity on biopsy is encountered, fibroma of tendon sheath should be considered in the differential diagnosis.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest. The manuscript submitted does not contain information about medical device(s)/drug(s). No funds were received in support of this work and there were no relevant financial activities outside the submitted work.

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