CASE REPORT

Unusual Presentation of Synovial Sarcoma as Meniscal Cyst: A Case Report

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Abstract

Periarticular cyst and cystic soft tissue lesion around the knee are common. Synovial sarcoma is a rare and malignant soft tissue tumor accounting for approximately 5% of soft tissue sarcoma. A case is presented where a lesion adjacent to the joint line of the knee was diagnosed clinically and on imaging as a meniscal cyst. MRI signal was homogenous and no concomitant meniscal tears were seen. The tissue diagnosis was monophasic synovial sarcoma.

Keywords: Knee, Meniscal cyst, Synovial sarcoma

Introduction

Periarticular cyst near the knee can be categorized into the following groups: synovial cysts, which include popliteal cyst (or Baker's cyst), and proximal tibiofibular cyst. Bursa include cyst around the patella, patellar tendon and other tendon insertions near the knee. Ganglions may occur around any tendon insertion around the knee, but they are most common at the tendon of medial and lateral gasterocnemius and popliteous and meniscal cyst. Cystic soft tissue lesion can be traumatic (hematoma and seroma), vascular (varices, hemangioma and lyphangioma) and neoplastic (peripheral nerve sheath tumor, myxomatose tumor and synovial sarcoma) (1-3). On MRI, synovial sarcomas are usually non-specific heterogeneous masses with some certain features to help distinguish them from other sarcomas (4,5).

Meniscal cysts are three to ten times more common in lateral menisci as reported in earlier literatures, but recent MRI studies made this classical prevalence less certain (6-8).

Based on our knowledge there is a rare report of malignancy present like meniscal cyst (3). We have reported a rare case of synovial cell sarcoma that underwent unplanned excisional biopsy as meniscal cyst diagnosis and we have described the pattern of presentation, radiologic feature and treatment outcome.

The patient was informed that data concerning the case would be submitted for publication, and she gave consent.

Case report

A 25-year-old female referred to our tumor clinic on January 2012. Her symptoms begin two years ago with mild pain in her right knee without any remarkable history of trauma. Pain had no restriction on her knee range of motion or life style. After one-year the pain increased and she was referred to an orthopedic surgeon. At that time, physical examination revealed a palpable 2.5*2.5*1 cm mass that was detected over the anteromedial aspect of the knee. The mass was soft with some tenderness in the palpation and Pisani sign was negative.

Plain radiography did not show any specific finding [Figure1]. MRI showed a well-defined lobulated cystic lesion located on the anteromedial of the joint line, which was a low signal on the T1 sequence and high signal on the T2 weighted fat suppression sequence. The cyst appeared to adherent to the anterior horn of the medial meniscus, but there was no evidence of meniscal tear in the MRI sequence [Figure 2].

As pain did not get better by physical therapy and

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Figure 1a, b. Radiograph of the knee showed normal appearance.

NSAID, a diagnostic arthroscopy and mass excision with primary diagnosis in favor of meniscal cyst was planned. In diagnostic arthroscopy no evidence of intra-articular pathology or meniscal tear was seen, so the patient underwent an unplanned excisional biopsy of the mass. Histopathology studies revealed hyper cellular spindle cell sarcoma with a fascicular pattern, partial cyst formation and hyalinization with a high mitotic index [Figure 3]. IHC staining showed strong positive reaction with EMA and cytokeratin 8,18. So, final diagnosis was monophasic fibrous synovial cell sarcoma. Chest CT scan was normal. The case was discussed at our multidisciplinary tumor board and it was decided that the treat plan would be wide excision of the tumor bed and post-op chemotherapy.

The surgical procedure was performed under general anesthesia and a tourniquet was applied to the proximal thigh and the biopsy tract and the tumor bed was excised to include at least 3 cm of apparently normal surrounding tissue. Also, the pes anserinus tendon was transferred proximally and medially to cover and stabilize the medial of the knee [Figure 4]. After surgery, we immobilized the knee for four weeks.

Chemotherapy started two weeks after surgery. The patient was followed every three months and two years after surgery, there was no local recurrence, no distant metastasis, and the knee was stable with nearly full range of motion.

Discussion

Synovial sarcomas are malignant soft-tissue tumors that are usually seen primarily in young adults between 15-35 years old. The most common location is in the extremities (80-95%), especially around the large joint line of the knee and elbow. Other sites of these tumors are the head and neck, paravertebral region, and chest and abdominal wall (9,10).

Plain films can reveal a soft tissue mass. One-third of cases show punctate calcification often in the periphery of the lesion. CT is helpful in identifying subtle soft-tissue calcifications and some local bony erosion, although some cystic appearance characterized by fluid and fluid level has been reported in 10% to 44% of synovial sarcoma on MRI (11,12). Fisher reported that synovial sarcoma can be multicystic with cysts of varying size, but the rate occurrence or extent of such change was not mentioned (13).

In 2001, Morrison et al. described a case of synovial sarcoma presenting as a cystic lesion in the paraspinal musculature of the thoracic region with massive cystic changes and hemorrhage (3).

MRI is the modality of choice for preoperative diagnosis of meniscal cyst. MRI features of uncomplicated cysts include low signal on T1 weighted images (relative to muscle) and high signal on T2 weighted images (relative to fat). Cysts show well-defined margins and thin walls and usually show a homogenous signal because of their

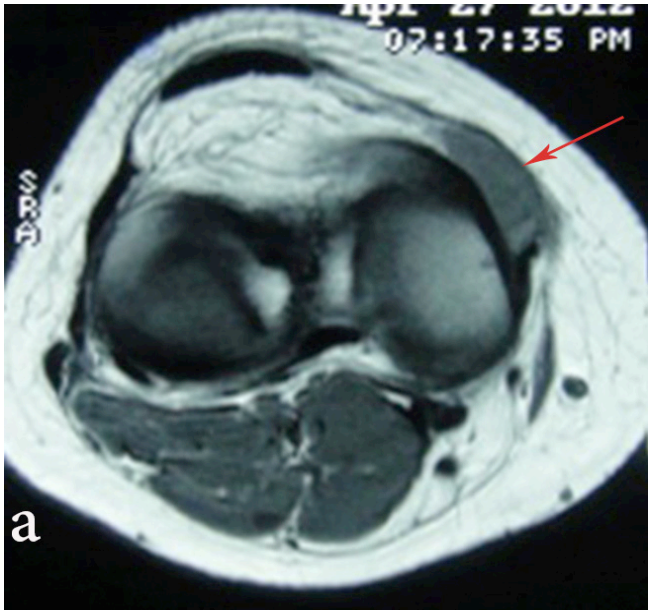

Figure 2a. Axial T1-weighed MRI scan demonstrated low intense signal lesion in the anteromedial of the knee (red arrow).

Figure 2b. Coronal T2-weighted fat suppression MRI scan showed high intense signal lesion attached to the periphery of the medial meniscus.

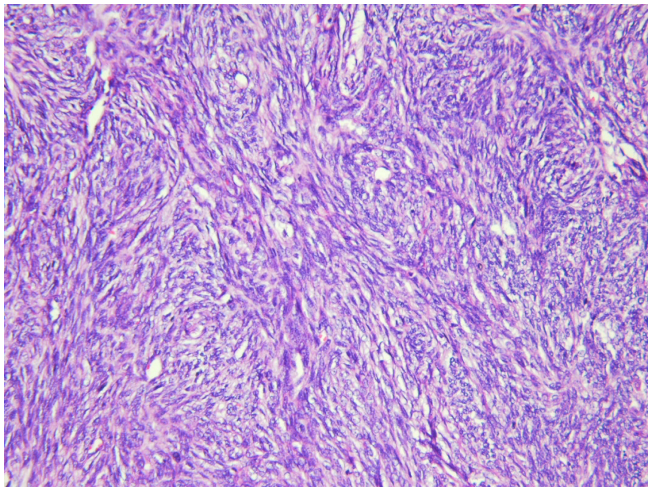

Figure 3. Histopathology showed hyper cellular spindle cell with fascicular pattern, partial cyst formation and hyalinization with high mitotic index (H& E X 100).

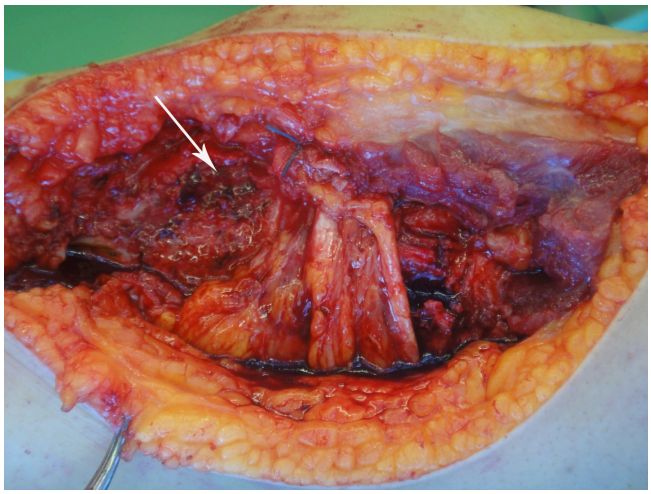

Figure 4. Intra operative photograph after tumor excision and pesanserinus tendons transfer. Tibia is indicated by red arrow.

fluid content (8). However, Mountney et al. reported two cases of low-grade fibromyxoid sarcoma and monophasic synovial sarcoma that presented like a meniscal cyst on MRI imaging (3).

Meniscal cysts are relatively uncommon and usually they are associated with underlying meniscal tears. Meniscal tears have been reported in association with meniscal cysts in 50-100% of cases (14,15).

Recently, selective menisectomy followed by decompression of the cyst is commonly performed in arthroscopic treatment of a meniscal cyst (13,16). If the meniscal tear remains untreated, recurrence rate is high, so open excision alone proved unsatisfactory. But there are still proponents for open excision in cases with a proven cyst on MRI and no meniscal tear at arthroscopy (7).

We reported another case of synovial cell sarcoma that was treated as a meniscal cyst. But in an unplanned biopsy, synovial cell sarcoma was detected in the histological report. We have some concerns in planning for meniscal cyst treatment, especially in a patient with atypical features in images like heterogeneousity on MRI, no concurrency with meniscal tear or cyst presenting in an unusual site or characteristic.

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