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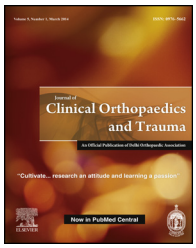

Case of the Month

"A 40-year-old female with painless, slow growing prepatellar mass"☆

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ABSTRACT

A 40-year-old woman from India presented with a mass in the front of her left knee which had been present for 8 months. Local examination revealed a globular mass of approximate size 5 cm × 4 cm × 4 cm in front of the lower pole of left patella. The patient was investigated with imaging studies and laboratory tests. Plain radiograph of the chest was normal. In addition, contrast enhanced Magnetic Resonance Imaging (MRI) of the left knee was performed. Based on the history, physical examination, laboratory and imaging studies, what is the differential diagnosis?

1. History and physical examination

A 40-year-old woman from India presented with a mass in the front of her left knee which had been present for 8 months (Fig. 1A). The mass was insidious in onset and gradually progressive in size. She described that it was initially about the size of a grape that increased to about the size of a lemon at the time of presentation. It was localized to the front of the lower half of patella. She reported mild discomfort after exertion; however, denied true pain. There was no history of sudden increase in the size of mass or episodes of increased pain. There were no symptoms of instability or locking of the knee. There was no history of fever, weight loss, anorexia, hemoptysis, pruritus, seizures, or similar mass elsewhere in the body. It was not associated with any preceding history of trauma. Her family history was non-contributory. The patient used to do the household work (like mopping the floor) that involved prolonged kneeling. The patient initially suspected the mass was related to prolong kneeling to do housework, but presented to her primary care physician as the mass became so large. Subsequently, she was referred to our hospital for further treatment.

On examination, the vitals were stable and there was no evidence of lymphadenopathy. Her physical status was good. Local examination revealed a globular mass of approximate size 5 cm × 4 cm × 4 cm in front of the lower pole of left patella

☆ This work was performed at The Maulana Azad Medical College & Associated Lok Nayak Hospital, New Delhi 110002, India.

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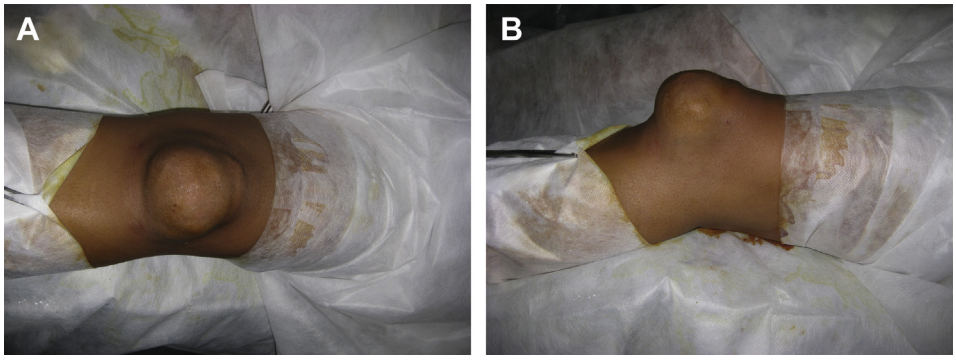

Fig. 1 – A–B: (A) Clinical photograph of the patient as viewed from the anterior aspect (B) as viewed from the side.

(Fig. 1B). The overlying skin was normal. It was mildly tender and local temperature was comparable to other body parts. The overlying skin was freely mobile and there were no scars or sinuses. The mass was not fixed to underlying tissues. Its margins were well defined as these could be palpated separate from the underlying patella. It was firm in consistency. It was not compressible, and nonfluctuant. The mass could not be transilluminated. It became more prominent when the knee was extended against resistance. There was no effusion in the knee. No functional impairment was observed at the knee. Distal neurovascular status of the limb was normal. The remaining organ systems (respiratory system, abdomen, nervous system) appeared normal on clinical examination.

The patient was investigated with imaging studies and laboratory tests. Plain radiograph of the chest was normal. In addition, contrast enhanced Magnetic Resonance Imaging (MRI) of the left knee was performed.

Based on the history, physical examination, laboratory and imaging studies, what is the differential diagnosis?

2. Imaging interpretation

Anteroposterior (Fig. 2A) and lateral view (Fig. 2B) radiographs of the left knee were obtained which revealed large, globular soft tissue shadow in the prepatellar region. Lateral view revealed multiple, coarse calcification within the mass (Fig. 2B). The underlying patella and other osseous structures (femur and tibia) were normal in appearance.

Multi-sequence MRI demonstrated a well-defined, globular, septate mass anterior to the lower pole of patella, which measured 5.6 cm × 4 cm × 5.4 cm in the greatest dimensions. It displayed altered signal intensity appearing heterogeneously iso-to hypointense on T1W images (Fig. 3A) and iso-to hyperintense on T2W images (Fig. 3B). The mass was seen abutting the prepatellar fat and patellar tendon. Images acquired following administration of intravenous Gadolinium contrast revealed heterogenous contrast enhancement. Periphery of the mass revealed some contrast enhancement (Fig. 3C). There was no evidence of hemorrhage or necrosis.

Laboratory examination revealed total leukocyte count (11,800/cumm) and differential count was polymorphs 65, lymphocytes 33, monocytes 1, eosinophils 1. The erythrocyte sedimentation rate (35 mm at the end of first hour) was raised; however C-reactive protein (3.9 mg/l) level was within normal limits. The sputum examination was negative for acid fast bacilli. ELISA test for HIV I & II antibody was negative. The patient's immune status was normal with no other focus of infection.

3. Differential diagnosis

Tenosynovial giant cell tumor (solitary pigmented villonodular synovitis)
Chronic prepatellar bursitis
Fibromatosis
Chronic granulomatous infection (tuberculosis)
Hemangioma
Malignant neoplasm (synovial sarcoma/malignant fibrous histiocytoma/liposarcoma)

A fine needle aspiration under image guidance was attempted twice but yielded no diagnostic material both the times. The patient underwent wide local excision under regional anesthesia. The mass was excised en-bloc along with the overlying pseudocapsule, normal cuff of surrounding tissues and the redundant skin (Fig. 4A). It measured 5.5 cm × 4 cm × 5 cm and had firm consistency. The periosteum of underlying patella and sheath of patellar tendon were also excised along with the mass over the posterior aspect (Fig. 4B). After completing the procedure, the mass was cut open longitudinally from the posterior surface which showed a well circumscribed, trilobulated, yellowish white firm cut surface (Fig. 4C). Macroscopically, the areas of hemorrhage or necrosis were not seen. Gritty sensation was appreciated while cutting the mass. The entire tissue was submitted for histopathological examination and culture. Based on the clinical history, physical examination, radiographic images, and histopathological examination, what is the diagnosis and how should the lesion be treated?

4. Histopathologic interpretation

The histopathological examination revealed an encapsulated tumor showing lobulated architecture (Fig. 5A). Tumor showed hypo and hypercellular areas with perivascular condensation of tumor cells (Fig. 5B). It showed the areas of myxoid change (Fig. 5C) and focal necrosis. The tumor was