

Spontaneous Prepatellar Bursa Hematoma in a Patient with Mechanical Prosthetic Heart Valve



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ABSTRACT

Prepatellar bursa hematoma is generally caused by direct trauma to the anterior aspect of the knee, resulting in extravasation of blood into a normal bursa. Spontaneous prepatellar bursa hematoma is an unusual entity. Prepatellar bursitis and septic bursitis are the other common causes of a swollen patellar bursa. Bleeding has been recognized as the major complication that limits anticoagulant treatment in patients with prosthetic mitral valve. Here, we present a case of spontaneous prepatellar bursa hematoma in a patient with prosthetic heart valve under warfarin sodium therapy.

Key Words: Warfarin; hematoma; bursa, synovial; mitral valve; heart valve prosthesis

Mekanik Protez Kalp Kapaklı Bir Hastada Spontan Prepatellar Bursa Hematomu

ÖZET

Prepatellar bursa hematomu genellikle dizin ön yüzüne gelen direkt bir travma sonucu normal bursa içine gelişen kanama sonucu oluşur. Spontan prepatellar bursa hematomu çok nadir gözlenen bir durumdur. Prepatellar bursit ve septik bursit patellar bursa şişliklerinin diğer önde gelen nedenleridir. Kanama antikoagülan tedavi altındaki protez mitral kapaklı hastalarda tedaviyi kısıtlayabilen majör bir komplikasyondur. Burada; warfarin sodyum tedavisi altındaki protez mitral kapaklı bir hastada spontan prepatellar bursa hematomu sunulmaktadır.

Anahtar Kelimeler: Warfarin; Hematom; bursa, sinovyal; mitral kapak; kalp kapağı protezi

INTRODUCTION

Fluid-filled structures between the skin and tendon or tendon and bone are defined as bursae, which play an essential role in reducing friction between adjacent moving structures⁽¹⁾. Only large joints such as the shoulder, knee, hip, and elbow have bursae around them. Bursitis is defined as the inflammation of these fluid-filled structures. Trauma, infection, overuse, and hemorrhage are the most common causes of bursitis. Direct trauma to the anterior aspect of the knee is the most common etiology of prepatellar bursa hematoma, causing extravasation of blood into a normal bursa⁽²⁾. Spontaneous prepatellar bursa hematoma is an unusual entity. Here, we present a case of spontaneous prepatellar bursa hematoma in a patient with prosthetic heart valve under warfarin sodium therapy.

CASE REPORT

A 48 year old man who had undergone prosthetic mitral (31 no. Carbomedics) and aortic (21 no. Carbomedics) valve surgery 2 years ago was admitted to our institution with a 3 day history of prepatellar swelling on the left knee, which had occurred suddenly without any trauma while he was under anticoagulant therapy with 7.5 mg/day warfarin sodium. He did not complain of any pain, stiffness, tenderness, or ecchymosis, except for a 7 x 8 cm swelling over the prepatellar region of the left knee (Figure 1). X-rays showed no fractures or dislocations. The fibular head, tibial tuberosity and eminence, as well as the femoral condyles were all intact. Transthoracic echocardiography revealed normally functioning prosthetic valves with normal left ventricular ejection fraction. Laboratory findings were normal, except for the international normalized ratio (INR) of 7.4. The differential diagnosis included arthritis and cystic lesions around the knee. He subsequently underwent magnetic resonance

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(MR) imaging, which provided valuable information about the nature of the cystic lesion. It appeared as a hypointense lesion in T1-weighted sagittal (Figure 2A) and axial (Figure 2B) images and as a hyperintense lesion in T2-weighted sagittal (Figure 2C) and axial (Figure 2D) images. Rest and application of ice and compression bandage on the affected area were suggested to the patient along with the cessation of warfarin therapy until the INR value decreased to 2.5. Subsequently, low-molecular-weight heparin was started twice a day subcutaneously. He was

followed up for 1 week, but hematoma did not show regression or spontaneous resolution. Therefore, he was treated with fine-needle aspiration under local anesthesia coupled with cortisone injection and a hemorrhagic aspirate was obtained, which was negative for aerobic and anaerobic cultures (Figure 3). An elastic compression bandage was applied on the patellar region of the left knee for 1 week, and no recurrence was observed, although anticoagulant therapy was restarted.

DISCUSSION

Bursae around the knee can be classified as two groups: those that are close to the patella and the others. The prepatellar bursa, superficial and deep infrapatellar bursae, and suprapatellar bursa are the bursae that are around the patella, whereas the pes anserine bursa, iliotibial bursa, tibial and fibular collateral ligament bursae, and gastrocnemius-semimembranosus bursa are the other bursae around knee⁽³⁾.

Enlargement or inflammation of the patellar bursae is a common problem, and prepatellar bursitis, septic bursitis, and bursa hematoma constitute the differential diagnosis of a swollen bursa around the knee. Clinical findings are generally helpful in the diagnosis of prepatellar bursitis. The condition generally presents as a fluid-filled mass anterior to the patella.

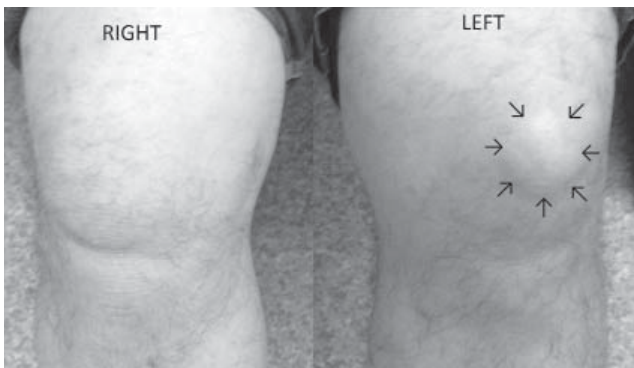


Figure 1. Photograph of the right and left knees of the patient, with arrows illustrating the swollen lesion over the prepatellar region of the left knee without any ecchymosis.

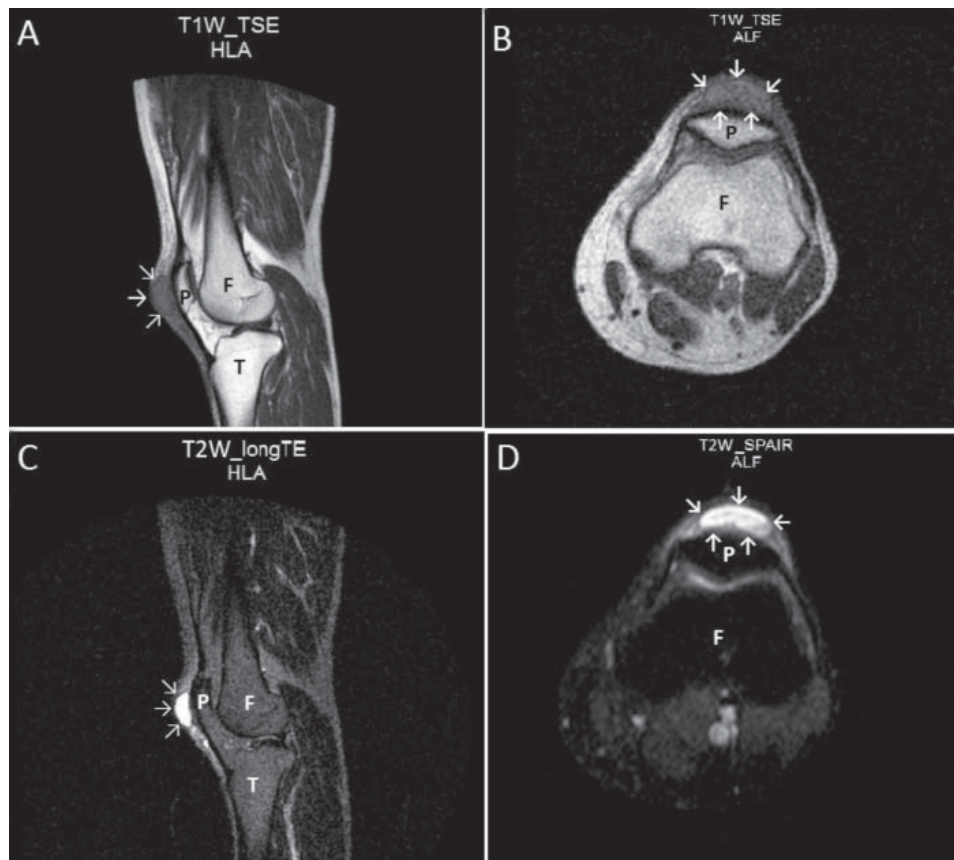


Figure 2. Magnetic resonance T1-weighted images highlighting the prepatellar collection of blood as a hypointense lesion in sagittal (A) and axial (B) sections and as a hyperintense lesion in T2-weighted in sagittal (C) and axial (D) images.



Figure 3. The hemorrhagic appearance of the fluid that was aspirated from the prepatellar bursa hematoma.

The bursa can sometimes become infected and can cause pain, tenderness, fever, and elevated inflammatory hematological markers. Septic arthritis, which is generally associated with an effusion in the joint, should be considered in differential diagnosis. Several types of bursitis are named according to certain occupations; for example, housemaid's knee is used for prepatellar bursitis and superficial infrapatellar bursitis is also known as clergyman's knee⁽⁴⁾. Septic bursitis is common, particularly in pediatric populations with a large swollen bursa. Prepatellar bursa hematoma is caused by either a single instance of acute trauma to the knee or repeated minor trauma. The trauma can lead to extravasation of blood into the bursa, which induces an inflammatory response.

Conservative therapy may be considered for the majority of cases with bursa hematoma, but surgery may be required for some cases. Because of an established orthopedic practice, bursa hematoma may be surgically excised in patients who have a subcutaneous bursa hematoma that does not spontaneously resolve over a length of time and that cannot be aspirated⁽⁵⁾. In this case, a 7 x 8 cm hematoma that did not get better or spontaneously resolve was appropriately treated with fine-needle aspiration under local anesthesia and elastic compression bandages.

Cystic lesions of the knee may present with pain and a palpable mass or may be detected during routine MR imaging of the knee. Cysts have a high water content and exhibit the signal features of fluid on MR imaging as hypointense on T1-weighted images, intermediate signal on proton density images, and hyperintense on T2-weighted spin echo and short tau inversion recovery images⁽⁶⁾. MR imaging permits confirmation of the cystic nature of these lesions, determination of the correct etiology and diagnosis, identification of the anatomical relationship with the joint and surrounding structures, as well as evaluation of the presence of associated ligamentous or meniscal pathology. These features are essential in guiding optimal management and preventing unnecessary interventional procedures.

Bleeding has been one of the major complications that limits anticoagulant treatment, particularly warfarin sodium, in patients with prosthetic mitral valve. The risk of bleeding is influenced by the intensity of anticoagulation therapy, underlying disorders such as hepatic disease, comorbid conditions such as hypertension, and the concomitant use of acetylsalicylic acid and/or non-steroidal anti-inflammatory drugs. Warfarin sodium may be associated with bleeding complications in patients with prosthetic valves; however, to our knowledge, it is the first case of spontaneous prepatellar bursa hematoma in a patient with prosthetic heart valve under warfarin sodium therapy.

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