



Medial Collateral Ligament Knee Injury in a Patient Receiving Rivaroxaban: A Cause of Acute Hemarthrosis

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ABSTRACT

Medial collateral ligament (MCL) injury is highly common in athletes and the elderly. This ligament is in the knee region and is often at the risk of injury. Severe pain and motor limitation are the most important signs in the acute phase of the injury. In patients receiving anticoagulants, damage to the knee joint may lead to intra-articular bleeding, which exacerbates the symptoms and prolongs the recovery period. The present study aimed to describe the case of a 76-year-old woman with a sudden spin on the left knee while getting off a car. After a few minutes of walking, the patients felt pain, heard a pop-like sound on the injured knee, and was unable to walk, experiencing pain in the knee. The patient was transferred to the emergency department by the caregivers. The present case report was focused on the MCL injury in a patient receiving an anticoagulant due to atrial fibrillation.

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Introduction

Medial collateral ligament (MCL) injury is highly common in young athletes, while it could also affect the elderly (1). Although the incidence and prevalence of MCL injury are not precisely measurable due to the lack of referral by all the patients (especially those with minor injuries), this traumatic injury remains a major cause of knee ligament injury (2).

MCL injury often occurs due to the sudden rotational movements of the knee or axial loading with the valgus, following which the patient hears a pop-like sound in the knee region and feels severe pain, which impedes the knee movements and causes knee instability and movement restriction. Swelling and regional edema are the common symptoms observed in the knee joint of

patients with MCL injury (3, 4).

In the acute phase of MCL injury, the main recommendations include adequate rest, keeping the injury cold, use of non-steroidal painkillers, holding the leg upwards, and knee immobilization. MCL injuries often improve without the need for surgical manipulation (5).

In patients receiving anticoagulants for various reasons, MCL injuries may cause regional or intra-articular bleeding, which exacerbates the presentation of the injury and prolongs the recovery period (5).

Case report

The present study aimed to describe the case of a 76-year-old woman with a sudden spin on the left knee while getting off a car. After a few

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minutes of walking, the patient felt pain, heard a pop-like sound on the injured knee, and was unable to walk. Within three hours after the incident, the patient was transferred to the emergency department by the caregivers. Upon referral to the emergency department, the patient was fully conscious, and her vital signs were as follows: blood pressure: 140/80 mmHg, heart rate: 92/min, respiratory rate: 18/min, body temperature: 37°C (AX), SpO₂: 96% (RA).

The patient complained of severe pain in the left knee and inability to walk. However, she had no concurrent traumas. Based on the medical history, she had experienced atrial fibrillation six months before and used rivaroxaban. The examination of the left knee indicated joint swelling, an obvious tenderness in the medial part of the knee, and medial knee joint effusion in the left knee joint. In addition, spontaneous and painful left knee flexion and extension movements were observed.

Regarding the trauma mechanism, the anteroposterior and lateral X-ray of the knee was requested while immobilizing the left knee with a cylinder splint in a 20-degree flexion state. However, the X-ray indicated no evidence of joint effusion or fracture.

According to cardiac consultation, rivaroxaban had to be discontinued. Based on the evidence of severe and painful effusion, the arthrocentesis (synovial fluid aspiration) of the left knee was performed aseptically under local anesthesia with lidocaine, and approximately 150 cc of blood was drained. After the draining of the blood, the pain significantly reduced, and the patient was discharged from the emergency department with the cylinder splint inside the left knee. Orthopedic outpatient visit was recommended within the following seven days.

In the follow-up of the patient, knee MRI was carried out, which revealed MCL injury and effusion in the injured knee (Figure 1). Six weeks after the incidence of the knee injury, the symptoms of the patient significantly improved in the follow-up period. Rivaroxaban was re-administered one week after the injury under the supervision of a cardiologist.

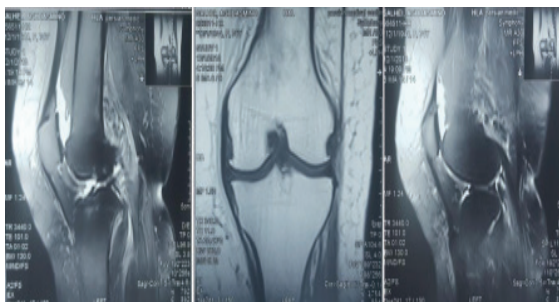


Figure 1. MRI Showing MCL Injury with Hemarthrosis

Discussion

MCL knee injury is highly common among athletes and the elderly, which often occurs during sports activities such as wrestling, hockey, judo, and rugby. Male athletes are at the higher risk of MCL compared to women, and the absence time from physical exercise after this injury is approximately 20-23 days (1). The mechanism of MCL injury is associated with the sudden swinging of the knee, and the most common symptoms in the early stages of the injury are pain and movement limitation. The severity and range of the injury may be greater in patients with a history of trauma and anticoagulant consumption (3, 4). The use of plain radiography in the acute cases of ligament injury could contribute to the proper examination of simultaneous fractures. In grade III MCL knee injury, a gap (>3 mm) is detected in the internal compartment relative to the opposite side in a 20-degree knee position and lateral radiography. The images obtained in the valgus stress could also be effective in the detection of MCL injury in the subacute stages (6).

Several cases of MCL knee injuries have been reported to recover without the need for surgical interventions. Accurate physical examination and attention to the mechanism of the trauma play a pivotal role in determining the type of the injury and appropriate medical decision-making. Meanwhile, the use of radiography and MRI could also be beneficial in this regard (5). Knee stress examinations are not commonly performed in the acute phase of injury (6). Hemarthrosis exacerbates the pain and must be evacuated after ruling out a simultaneous fracture (5).

The strength of the present case report was the use of the conservative management approach without the need for surgery. After a short period of anticoagulant therapy discontinuation, the symptoms of the patient significantly improved. As previously noted, underlying MCL, torn anterior cruciate ligament or meniscus rupture may also indicate the presence of hemarthrosis (7). Arthroscopy is considered to be the 'gold standard' diagnostic method for the assessment of intra-articular knee injury (8), while it is an invasive tool associated with the high risk of operations, especially in the patients receiving on anticoagulant therapy.

According to Sarimo et al. (8), if an individual experience severe traumatic knee hemarthrosis, the diagnosis should be rendered as accurately as possible using noninvasive techniques, and an orthopedic surgeon should accompany the case as well. If the diagnosis or suspicion is based on a lesion mandating surgical treatment, an arthroscopic examination should also be

scheduled. Furthermore, the timing of the procedure should enable the treatment of all the possible lesions witnessed in the same operation.

According to Harilainen et al (9) arthroscopy and anesthesia examinations must be considered as an aid in the screening of acute knee hemarthrosis. However, our presented case revealed that the conservative management of hemarthrosis might also be accountable in this regard.

Conclusion

In patients that use anticoagulant drugs in their history hemorrhagic situations may happen. Conservative treatment in patients with hemarthrosis can be considered before any intervention or surgical consideration.

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Conflict of Interest

The authors declare no conflict of interest.

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