

CASE REPORT

Morel-Lavallée lesion: 2 cases and review of the literature

Morel-Lavallée lezyonu: 2 olgu ve literatürün gözden geçirilmesi

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ABSTRACT

Aim: A Morel-Lavallée lesion (MLL) is a closed soft-tissue degloving injury. Although it is mostly observed in the thigh, it can also occur in the gluteal, scapular, and lumbar regions. In trauma patients, especially those with extremity injuries, focusing on fractures or other accompanying pathologies may distract the clinician from the MLL diagnosis. Overlooking these lesions or delaying their diagnosis may lead to complications such as capsule formation, skin necrosis, or infection. We present two cases: a 17-year-old patient who experienced a motorcycle accident and a 12-year-old patient who experienced a deep laceration after a crush injury. We also present a review of MLL through these cases, drawing attention to it because it can be overlooked because of more prominent accompanying pathologies.

Keywords: Closed-degloving injury, hemolympathic collection, traumatic soft-tissue injury

ÖZ

Amaç: Morel-Lavallée lezyonu (MLL), kapalı yumuşak doku soyulma yaralanmasıdır. Çoğunlukla uylukta görülse de gluteal, skapular ve lomber bölgelerde de görülebilir. Özellikle ekstremitte yaralanması olan travma hastalarında, kırıklara veya eşlik eden diğer patolojilere odaklanmak, klinisyeni MLL tanısından uzaklaştırabilir. Bu lezyonların gözden kaçırılması veya tanısının geciktirilmesi kapsül oluşumu, cilt nekrozu veya enfeksiyon gibi komplikasyonlara yol açabilir. 17 yaşında motosiklet kazası geçiren bir hasta ile 12 yaşında ezilme yaralanması sonrası derin bir lacerasyon gelişen bir hastayı sunuyoruz. Ayrıca bu olgular üzerinden MLL'yi gözden geçirerek, eşlik eden patolojilerin daha belirgin olması nedeniyle gözden kaçabileceğine dikkat çekmek istedik.

Anahtar Kelimeler: Hemolenfatik koleksiyon, kapalı degloving yaralanması, travmatik yumuşak doku yaralanması



INTRODUCTION

The Morel-Lavallée lesion (MLL) is a closed traumatic soft-tissue-degloving injury first described by the eponymous Maurice Morel-Lavallée in 1863 (1). It is characterized by hemolymph accumulation resulting from the disruption of blood vessels and lymphatics in the space created by the separation of deep fascia from the skin and superficial fascia. It usually occurs after high-velocity blunt trauma is applied to soft tissue. Motor vehicle accidents are the most common mechanism (2).

MLL has a high risk of being overlooked because of the primary focus on fractures in the emergency department (ED). If suspected at the time of trauma, the lesion can be controlled with a compression bandage. However, if overlooked, it may present as a gradually growing, painful mass lesion, which may require more invasive interventions, including surgery (3).

Case presentations

Patient 1

A 17-year-old male patient presented to the ED after a motorcycle accident. Upon arrival, his Glasgow Coma Scale score was 15. The patient had a 4-cm laceration under his right eyebrow; superficial abrasion approximately 10 cm in diameter in the right upper quadrant of the abdomen; tenderness, edema, and widespread abrasion on the right femur; and tenderness on the left patella. His X-ray revealed that the right femur with abrasion was normal. A patellar fracture was observed on the left leg, which did not show any obvious abrasion. The patient's pelvic computed tomography (CT) revealed showed a displaced fracture in the left inferior pubic ramus and slight separation in the symphysis pubis. He was

internalized and operated on with open reduction and internal fixation for the patellar fracture. During the follow-up, the patient's right leg swelling and fluctuations increased and were evaluated as MLL in the proximal right femur (Figure 1). During the patellar fracture operation, a small incision was made from the left lateral side of the right femur, and drainage was performed. Approximately 1,000 cc of serohemorrhagic discharge occurred. He was followed up with a Hemovac drain for 1 week. Approximately 600 cc of discharge occurred from the Hemovac drain. Compression was applied



Figure 1. Presentation of the first patient, with abrasions and swelling in the right thigh region 3 hours after trauma.

regularly with an elastic bandage. During the patient's follow-up, debridement was performed, and a graft was applied due to full-thickness necrosis in the proximal right femur. He was mobilized with a walker on the first postoperative day and without support 1.5 months after the treatment.



Figure 2. Presentation of the second patient, with a large laceration (a) on the right inner thigh region 2 hours after trauma. Necrosis (b) and swelling (c) in the posterior thigh 2 weeks after trauma.

Patient 2

A 12-year-old male patient presented to the ED after a crush injury. While traveling in a tractor trailer, his right leg was trapped under the trailer when the trailer overturned. A laceration approximately 10 cm long was located on the right inner thigh (Figure 2). No acute pathology was observed via X-ray. MLL was present due to crushing in the proximal part of the laceration. Conservative treatment was planned. The patient was hospitalized for intravenous antibiotics and suturing. An elastic bandage was applied for compression. After 2 days, the patient had no additional problems and was discharged with recommendations. Two weeks later,

he underwent ultrasonography (USG) because necrosis had developed in the posterior thigh and hardness was palpable there (Figure 2b & 2c). The USG revealed fluid collections spread over a wide area under the skin in the posterior and medial right thigh, measuring 2 cm at the thickest point and occasionally containing septa, which may be compatible with seroma. The patient underwent debridement due to full-thickness necrosis and was then treated with a graft. His recovery was complete at follow-up, and no additional pathology results developed.

DISCUSSION

MLLs are caused by forces acting on the superficial skin layer on rigid aponeurotic fascia (3). Deep fascial layers exposed to trauma move separately from the superficial subcutaneous tissue, creating a gap in the prefascial area where blood, lymph, and necrotic fat accumulate from the disrupted capillaries and lymphatic vessels. The metabolic and inflammatory products found in this collection further increase leakage by increasing cell permeability (4).

The most common MLL site is the thigh, with less frequent occurrences in the gluteal, scapular, lumbar, abdominal, and head regions (2). In our two cases, both were observed in the thigh, one resulting from high-velocity trauma and the second from a crush injury.

In trauma patients, especially those with extremity injuries, the focus on fractures and other accompanying pathologies may distract the clinician from MLL. Overlooking or delaying the diagnosis of MLL can lead to prolonged treatment, complicated

management, and long-term morbidity. Therefore, MLL should be considered in trauma patients, especially those with orthopedic injuries, regardless of whether they have additional pathology, and prompt and effective treatment should be planned (2). The presence of a patellar fracture requiring surgery on the left side in our first patient and the presence of a large laceration in our second patient drew attention to these pathologies and prevented MLL from being considered a priority.

The diagnosis requires first considering MLL in the preliminary diagnosis, taking a detailed history, and performing a careful physical examination. MLL usually occurs within hours to days after trauma. Although patients usually have significant edema, ecchymosis, or abrasions, MLL can also be observed without any external symptoms. During physical examination, palpation of the traumatized area reveals fluctuations, cutaneous hyperesthesia, and local tenderness (5).

For imaging, X-ray is typically used to evaluate the presence of a fracture. Although nonspecific soft-tissue changes can be observed in the area of the injury in the presence of MLL, X-ray is usually not directly involved in the diagnosis. On USG, MLL mostly appears as nonspecific fluid collections (5). Since CT has a limited contribution to the diagnosis other than confirming the presence of fluid collection, the gold-standard method to evaluate both the presence of effusion and the type and stage of the lesion is magnetic resonance imaging (MRI). In both of our cases, since the patient's clinical condition was consistent, USG alone was sufficient for diagnosis and treatment planning (5,6).

Deciding on treatment should consider clinical symptoms, lesion size, stage, severity, location, presence of infection, and proximity to the planned surgical site, if any. The main treatment goal is to eliminate the space between the superficial and deep fascia. Current treatment options for MLL include conservative treatment, percutaneous aspiration, sclerodesis, minimally invasive surgery, and open surgery (2). In our first case, owing to the large size of the lesion and the fact that additional surgery would be required due to the patella fracture, surgical aspiration and a drain were applied after a small incision during the surgery. Conservative treatment was applied because of the small lesion of the second patient.

CONCLUSION

MLL, a hemolymph collection resulting from closed degloving injuries, is a rare clinical condition. Since skin penetration is unusual, awareness is required to make the correct diagnosis, and delays in treatment may lead to serious complications. This clinical condition should be remembered, especially in patients with high-energy or crush injuries, and the necessary imaging, primarily USG and, if necessary, MRI, should be obtained in suspected patients. If the diagnosis is missed or overlooked, the lesions will likely become complicated in the late stages due to the prolonged treatment process.

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