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CASE REPORT

Mis-diagnosis of Morel-Lavallee-Lesion Causing Haemorrhagic Shock

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ABSTRACT

Haemorrhagic shock, resulting from rapid and significant blood loss, poses a serious threat in trauma care due to its impact on tissue oxygenation and organ function. Immediate identification of bleeding sources is crucial, yet internal injuries may remain undetected. One such underrecognized condition is the Morel-Lavallée lesion (MLL) a closed soft tissue injury typically caused by high-impact trauma. It occurs when the skin and subcutaneous layers are forcibly separated from the underlying fascia, creating a space that may fill with blood and bodily fluids. Although uncommon, MLL can serve as a concealed site of haemorrhage, contributing to shock if not promptly addressed. We present the case of a 24-year-old female who developed hypovolemic shock after sustaining injuries to physical assault, later diagnosed with MLL. This case highlights the importance of thorough imaging in patients to uncover hidden sources of bleeding and emphasizes the need for early recognition and appropriate treatment of MLL to improve outcomes.

KEYWORDS

• Haemorrhagic shock • Morel-Lavalle lesion (MLL)

INTRODUCTION

The Morel-Lavallée lesion (MLL) is a rare soft tissue injury initially identified in 1853 by Maurice Morel-Lavallée.[1] It is characterized as a closed internal degloving injury that most frequently occurs in areas such as the

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pelvis or thigh[1]. This condition arises when a strong shearing force separates the skin and subcutaneous layers from the underlying fascia. The trauma disrupts the small blood vessels and lymphatics in the area, allowing blood, lymphatic fluid, and necrotic fat to accumulate within the newly created space. Over time, if not addressed, the body may form a fibrous pseudo-capsule around this fluid collection. This encapsulation impairs natural resorption, potentially allowing the lesion to persist and expand. For this reason, MLLs can present long after the initial injury sometimes months or even years later posing a diagnostic challenge.[2] These lesions are often linked to high-impact injuries such as road traffic accidents or crush injuries, and are commonly associated with fractures of the pelvis or acetabulum.[1,2] Clinical suspicion and imaging, particularly MRI or ultrasound, are essential for accurate diagnosis. This case report focuses on a 24-year-old woman who presented with a large-volume MLL in her left thigh, illustrating the importance of early recognition and appropriate management in such cases.



Image Courtesy : (Name kept confidential) Department of Emergency Medicine, Max Super Speciality Hospital, Shalimar Bagh, New Delhi

CASE

A 24-year-old female patient was brought to the emergency department (ED) of our hospital in ambulance with complaints of generalised weakness. She was sick looking and pale. She was immediately wheeled into the resuscitation room. Her initial vitals: PR – 134/min, BP – 80/40 mmHg, Spo2 – 96 % on room air, RBS – 124 mg/dL, T – 98.3 * F, GCS – E4V5M6 (15/15). Patient was immediately started on IV fluids in view of hypotension. Further examination revealed swelling in the left side of the gluteal region and thigh (disproportionate when compared to right side). Her attendant also confirms the history of not passing of urine for last 18 hours.

On further probing of the history, the patient revealed (confidentiality maintained to her parents) that she was hit by her boyfriend around 2 weeks back due to some argument. She complained of severe pain during the event but it subsided after sometime. She developed dull-aching pain in the injury site after 3 days, which she ignored. She complaint of fullness in her thigh and gluteal region to her boyfriend and she was taken to local clinic around 1 week back where she was prescribed some analgesics and was discharged. 10 days after the incident, the patient symptoms worsen to reduced urine output and generalised weakness with palpitation. Her symptoms gradually increased and now, she was brought to the emergency department for further management.

Legal aspects were managed accordingly. Urgent ultrasound of the left thigh is done (image).

Patient was initially managed conservatively due to haemorrhagic shock and admitted in the ICU for 24 hours where her haemorrhagic shock was managed. Later, the patient underwent an incision and drainage revealing blood collection from the left gluteal and thigh, capsulation was broken and blood was drained. Wound closure was done and tight dressing was done. Dressing was changed daily and after 4 days of hospitalisation, the patient recovered well.

The patient tolerated the treatment well and recovered well. The patient was discharged without any complications. The post discharge follow-ups were uneventful and the patient tolerated the treatment well and improved well.

DISCUSSION

Our patient was diagnosed with unique condition called "Morel Lavalle lesion (MLL)". A Morel-Lavallée lesion (MLL) is a closed soft tissue injury that occurs due to the application of shearing forces, often resulting from high-velocity trauma.[3] The condition is caused when

the skin and subcutaneous fat are abruptly separated from the underlying fascia, typically over bony prominences like the pelvis, thighs, or flanks[2,3]. This separation disrupts blood vessels and lymphatic channels, leading to the accumulation of a hemolymphatic fluid collection in the newly formed space. Over time, if this collection is not resolved, the body may encapsulate it with granulation tissue, forming a fibrous pseudo-capsule that hinders natural drainage and absorption. The contents often include blood, lymph, necrotic fat, and inflammatory byproducts[4]. This pathophysiological process contributes to the lesion's persistence and potential expansion, even long after the initial trauma. MLLs are not limited to traffic accidents or falls but may also be seen in athletes involved in contact sports or as complications of surgical procedures. Their hidden nature often leads to misdiagnosis, as early symptoms such as localized swelling, bruising, or tenderness may be attributed to more common post-traumatic issues[5]. Understanding the mechanism of injury is key to recognizing this condition promptly and preventing long-term complications.

Clinically, Morel-Lavallée lesions present with a range of nonspecific signs that can delay diagnosis if not carefully considered. Patients may report a soft, fluctuant swelling at the site of trauma, often accompanied by pain and skin discoloration[6]. The swelling may persist or gradually enlarge over weeks or months. In some cases, sensory disturbances such as numbness or tingling may occur due to injury to cutaneous nerves. Because these symptoms are not unique to MLL, the condition is frequently overlooked or misdiagnosed as a simple contusion, hematoma, or soft tissue tumour[6]. Diagnostic confirmation requires imaging. While ultrasound can detect fluid accumulation, magnetic resonance imaging (MRI) is the most sensitive and specific modality for identifying the lesion and assessing the extent of involvement. MRI also helps differentiate MLL from other soft tissue masses by revealing the lesion's characteristic features, including its location between the subcutaneous fat and fascia and its encapsulated nature. Computed tomography (CT) is also a favourable diagnostic technique in MLL.[6,7] Despite being identified more than a century ago, MLL remains underrecognized in clinical practice. The rarity and subtle presentation contribute to delayed interventions, increasing the risk of infection, necrosis, and chronic symptoms[7]. Therefore, maintaining clinical suspicion in cases of persistent post-traumatic swelling is essential for timely diagnosis.

Management of Morel-Lavallée lesions depends on several factors, including lesion size, chronicity, presence of infection, and patient symptoms[8]. Acute, small-volume lesions without infection may resolve spontaneously or respond well to conservative treatment such as compression bandaging and aspiration. However, larger or chronic lesions often develop a fibrous capsule, making recurrence common if treated only by needle aspiration. In such cases, surgical intervention becomes necessary. Surgery typically involves drainage of the fluid, removal of the pseudo-capsule, and debridement of necrotic tissues.[9,11] The wound may be closed primarily, left open with vacuum-assisted closure, or sealed with synthetic adhesives to obliterate dead space. Postoperative compression is crucial to prevent fluid re-accumulation. Studies, including those by Demirel *et al.*, support the use of synthetic glue and compression bandaging for better outcomes. If diagnosis is delayed or management is inadequate, complications such as infection, abscess formation, and skin necrosis can occur[10]. Although considered rare, MLL may be underreported due to misdiagnosis or lack of awareness. With prompt recognition and appropriate treatment, prognosis is generally favourable[11]. Early intervention helps reduce complications, minimize recurrence, and accelerate recovery. Education on MLL among clinicians is vital for improving outcomes and ensuring comprehensive trauma care.

CONCLUSION

Morel-Lavallée lesions, although historically recognized, remain underdiagnosed and frequently mistaken for more common soft tissue injuries. These closed degloving injuries result from significant shearing forces, typically in high-impact trauma, and can lead to persistent fluid collections due to vascular and lymphatic disruption. Their subtle and delayed presentation often complicates timely diagnosis, increasing the risk of complications such as infection, skin necrosis, and chronic pain. Advanced imaging, particularly MRI, plays a critical role in accurate identification and evaluation of the lesion's extent. Treatment

varies depending on the size and chronicity of the lesion, ranging from conservative measures to surgical intervention, with surgery being the preferred approach for chronic or large-volume lesions. Awareness of this condition is essential among clinicians, especially in trauma settings, to ensure prompt recognition and effective management. A multidisciplinary approach and early intervention can significantly improve outcomes and reduce the risk of recurrence or long-term morbidity in affected patients.

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