



Case Report: Morel-Lavallee Lesion

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Introduction

The Morel-Lavallée lesion is a traumatic soft tissue degloving injury [1]. The injury is characterized by a separation between the fascia and overlying hypodermis, and a collection of fluid often ensues in the created space (Figure 1). The soft tissue injury disrupts vascular or lymphatic flow in the area of local trauma resulting in a hemolympathic fluid collection [2]. Prompt identification of this collection is critical, as delayed treatment can result in infection or local cosmetic deformity. MRI or Ultrasound are imaging modalities ideal for characterization of Morel-Lavallee lesions, when clinically able.

Case discussion

An 89-year-old male presented to the emergency department after an unwitnessed fall. He sustained an injury to the left hip, left arm, and head after a fall while walking, landing on a hard floor. The patient denied loss of consciousness and complained of left hip pain. Past medical history is significant for hypertension, hyperlipidemia, and atrial fibrillation. He takes Eliquis for history of atrial fibrillation and prior pulmonary embolus. Last dose was at 1100 hours the morning of the trauma. He denies fever, chills, nausea, vomiting, diarrhea, cough.



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On physical examination, there was noticeable bruising and swelling about the left hip. Swelling was centered over the left greater trochanter. Aside from bruising, there was no overlying soft tissue laceration or abrasion. The patient complained of point tenderness to palpation in the area of bruising and swelling. Pain was exacerbated with active range of motion and walking. He denied paresthesias and was able to ambulate without the assistance of a cane or walker, denying dizziness or instability. Left lower extremity strength was noted to be normal, with a normal passive range of motion. Patient vitals signs were within normal limits and was breathing comfortably on room air.

Initial patient workup through the Emergency Department included CT scans of the head and cervical spine, which were negative for acute traumatic injury. Radiographs of the pelvis, left forearm, and left hip were also obtained, which were read as negative for acute fracture. Patient was accepted for inpatient admission under the Hospitalist service for observation for recent trauma. Orthopedic Surgery was consulted for further management of his extremity injuries. The patient endorsed pain exacerbated with weight bearing, so additional cross-sectional imaging was requested by Orthopedics to exclude occult left hip or pelvic fracture. Patient was unable to have MRI evaluation of the left hip, with prior placement of a pacemaker/ICD device, so CT was considered by Orthopedics instead. CT of the left hip was obtained upon admission and demonstrated a large heterogeneous fluid collection in the peritrochanteric region, which abutted the fascial plane superficial to the tensor fascia latae and gluteal musculature, and deep to the subcutaneous fat. There was no convincing fracture or dislocation. The fluid collection appeared predominantly hyperdense, the densest component measuring approximately 60 Hounsfield units, with internal fluid-fluid levels. The surrounding soft tissues were hyperemic, without evidence of soft tissue gas or unexpected foreign body.

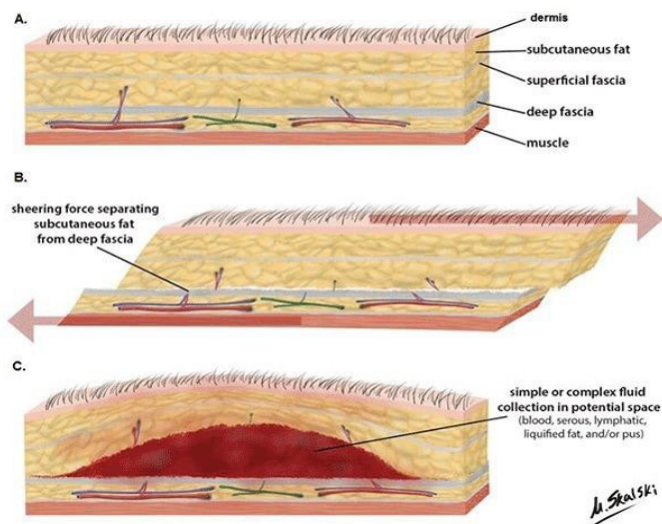


Figure 1: Mechanism of injury. Cross-sectional schematics of: (A) Normal layers of tissue from dermis to bone. (B) Tangential shearing force cause the relatively mobile dermis and subcutaneous fat to move relative to the fixed underlying fascia, causing disruption of perforating arteries (red), veins (blue), and lymphatics (green). (C) Formation of a hemolympathic collection in the potential space between subcutaneous fat and fascia. Case courtesy of Dr Matt Skalski.

Presenting clinical history, physical examination findings, and imaging characteristics in this case are characteristic for a hemorrhagic Morell-Lavallee lesion related to the recent direct trauma to the left hip. Treatment strategy by the consulting Orthopedic Surgeon was conservative management. With the patient's age and past medical history as consideration, the least invasive option for the large lesion would be to hope it would self-resolve, and if persisted over time could be treated with percutaneous or surgical drainage and/or debridement. At the time of this writing, the patient was nearing discharge status, and would follow up with orthopedics to ensure resolution of the pain and swelling.

Imaging findings

A non-contrast CT scan of the left hip demonstrated a large, well-circumscribed, heterogeneous rounded mass within the subcutaneous soft tissues just superficial to the tensor fascia latae and gluteal musculature. It demonstrated fluid-fluid levels with a predominantly hyperdense component and was deep to the subcutaneous fat tissue (Figure 2 & 3). There was inflammatory stranding in the adjacent soft tissues, reactive in the setting of recent trauma. As this collection was reported by the attending radiologist as characteristic for a Morell-Lavallee lesion, no additional imaging was performed or requested by the Orthopedic service.

Morel-Lavallee lesions typically appear as well-defined round or oval cystic appearing masses with varying degrees of internal complexity. Internal septations and internal fluid-fluid levels are frequently seen. As with soft tissue hematomas occurring elsewhere, imaging characteristics will appear similar among other imaging modalities aside from CT. On ultrasound, there will be varying degrees of echogenicity and internal septation, depending on the age of the blood products.

MR or ultrasound are the imaging modalities of choice if the patient is clinically able. MR imaging provides the largest degree of contrast and signal intensity to determine the age of the blood products in the fluid collection [4]. Collections tend to be either partially or entirely encapsulated, which will appear low in signal intensity on all MR sequences. This capsule will likely be absent in the early phase of lesion identification. Blood products will frequently be high in signal intensity with both T1 and T2 weighted sequences. Because there should be no internal vascularity to a Morel-Lavallee lesion, there will typically be no internal enhancement on post-contrast sequences. In more chronic- appearing lesions, the peripheral rim that has developed may display delayed post-contrast enhancement.

Although the above-mentioned imaging findings are characteristic for a Morel-Lavallee lesion, underlying malignancy should always be excluded in the presentation of a soft tissue mass. Suspicious soft tissue lesions will often demonstrate diffuse enhancement, or at least solid enhancing components. Correlation with clinical history of presenting patient is critical, as differential considerations will prioritize Morel-Lavallee lesions, particularly in the setting of recent trauma.

Short interval follow-up should be considered to demonstrate resolution if treatment is not performed.

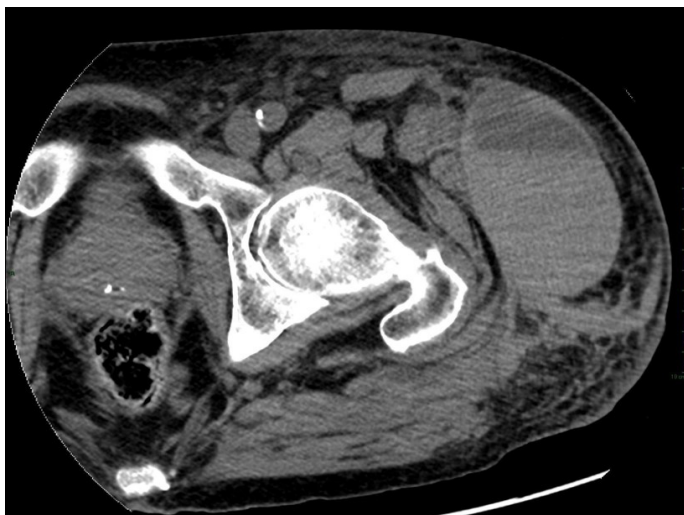


Figure 2: Axial image from a non-contrast CT scan of the left hip demonstrates a large, well-circumscribed, collection with layering high-density internal contents. This collection has smooth contours and rests along the fascial plane along the lateral thigh, deep to the subcutaneous fat tissue.



Figure 3: Coronal reformatted image from the non-contrast CT of the left hip demonstrates a mixed density to the collection, with well circumscribed borders and resting between the fascial plane along the lateral thigh, deep to the subcutaneous fat. There is inflammatory stranding in the soft tissues adjacent to the collection, consistent with local post traumatic change.

Treatment

Morel-Lavallee lesions found in the setting of acute trauma are typically treated as soon as possible with aspiration/debridement, to prevent growth or developing infection [3]. Increased growth of the lesion over time can cause local cosmetic deformity to the surrounding soft tissue structures and can often be painful. Conservative management includes compression dressings, often combined with percutaneous aspiration. This method may sufficient if the lesion is small, however if the lesion is large and chronic, recurrence is high if a capsule has developed. Surgical debridement with capsule resection is definitive management, particularly in the setting of developing infection or association with an open wound.

Conclusion

Morel-Lavallée lesions develop as blood and lymph collect within a potential space following a traumatic separation in layers between fascia and the hypodermis. While these lesions can be managed conservatively, they will often recur and can become a slow growing soft tissue mass. Prompt recognition and management are critical to avoid potential infection within the collection or long-term cosmetic deformity to the local soft tissues. MRI or Ultrasound are imaging modalities of choice as patients are clinically able, although CT can still provide diagnostic imaging findings in the appropriate setting as seen in our patient. Considerations of common locations for occurrence of these lesions will quicken diagnosis and management.

References

1. Morel-Lavallée VAL: Decollements traumatiques de la peau et des couches sous jacentes. *Arch Gen Med.* 1863; 1: 20-38, 172-200, 300-332.
2. Tineke De Coninck, FV, Verstraete, K: Imaging Features of Morel-Lavallee Lesions. *J Belg Soc Radiol.* 2017; 101: 15.
3. Scolaro, JA, Chao T, Zamorano, DP : The Morel-Lavallée Lesion: Diagnosis and Management. *Journal of the American Academy of Orthopaedic Surgeons:* 2016; 10: 667-672.
4. Mellado JM, Bencardino JT: Morel-Lavallée lesion: Review with emphasis on MR imaging. *Magn Reson Imaging Clin N Am* 2005; 13: 775-782.
5. Hak DJ, Olson SA, Matta JM: Diagnosis and management of closed internal degloving injuries associated with pelvic and acetabular fractures: The Morel-Lavallée lesion. *J Trauma.* 1997; 2: 1046-1051.
6. McLean K, Popovic, S: Morel-Lavallée Lesion: AIRP Best Cases in Radiologic-Pathologic Correlation. *Radiographics.* 2017; 1.