Chronic Morel-Lavallée lesion: Presentation as a pseudotumor

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INTRODUCTION

Morel-Lavallée lesions (MLLs) are posttraumatic hemolymphatic fluid collections that were first described by French surgeon Victor-Auguste-François Morel-Lavallée in 1863.[1] These closed degloving injuries are a result of shearing forces, separating the skin and subcutaneous tissue from the underlying fascia, with resultant tearing of perforating arteries and lymphatic vessels. The potential space created from the detachment of tissues is filled with hemolymphatic fluid, serotic fluid, and necrotic fat, resulting in the formation of a seroma or hematoma. When the lesion remains untreated, an inflammatory reaction follows, forming a fibrotic pseudocapsule.[2]

Abbreviation used:

MLL: Morel-Lavallée lesions

MLLs are most commonly seen after motor vehicle accidents and are often diagnosed and treated by

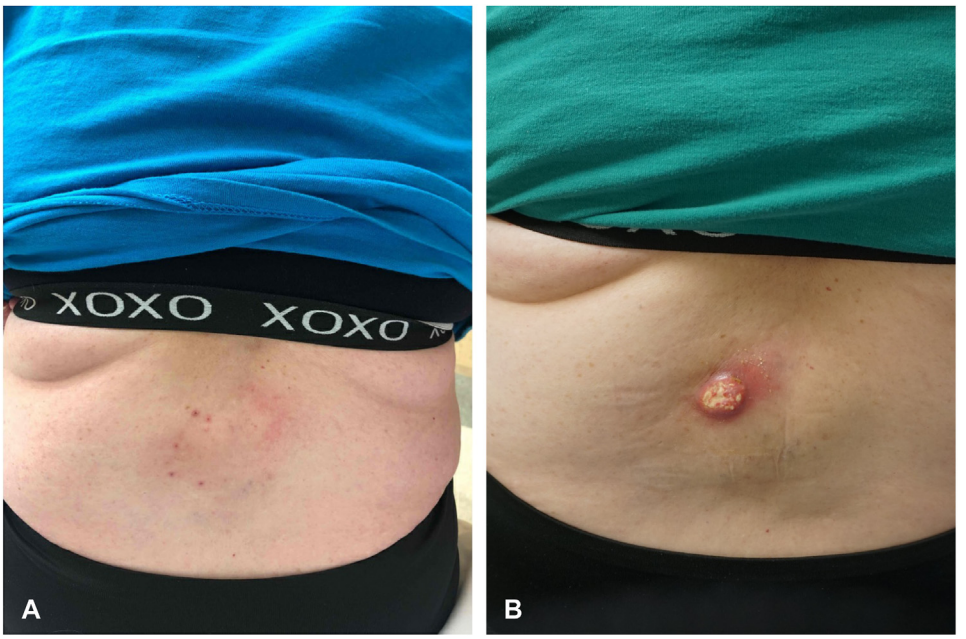

Fig 1. A, Clinical examination at initial presentation. **B,** One month later.

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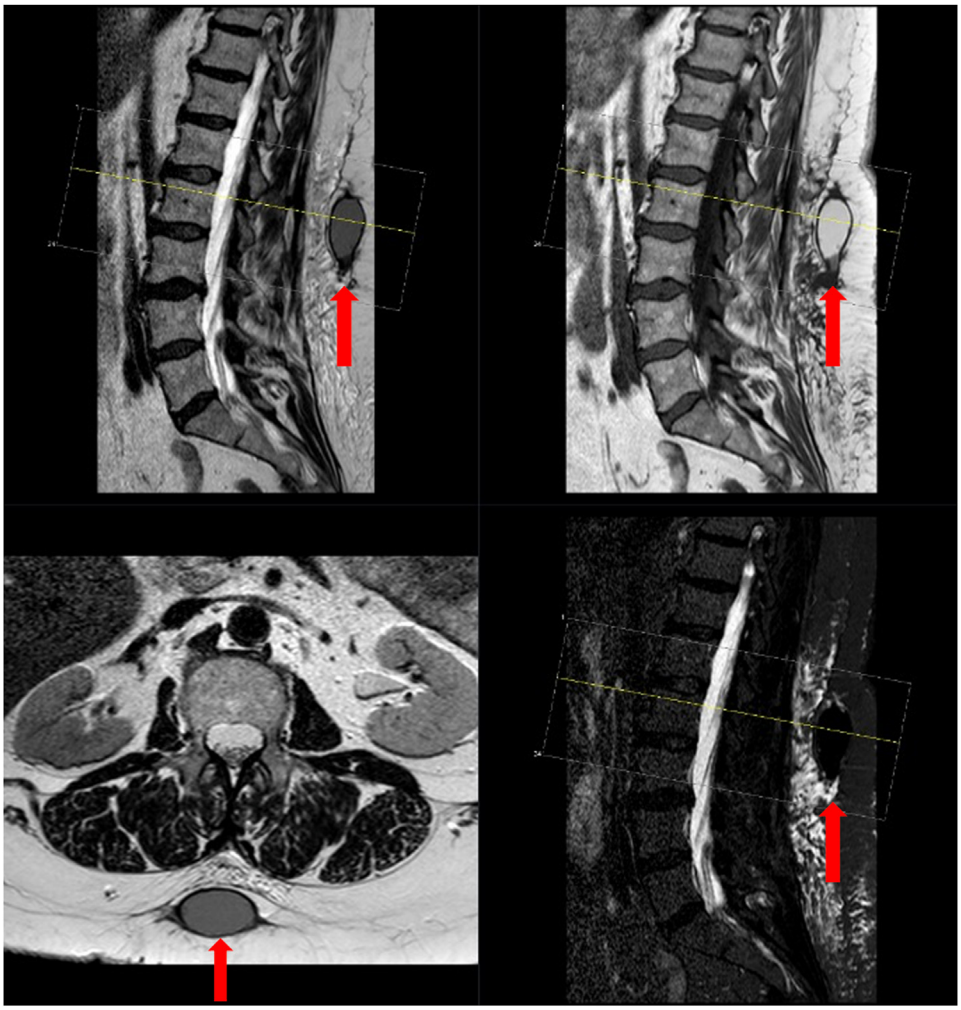

Fig 2. *Top left*: sagittal T2, *top right*: sagittal T1, *bottom left*: axial T2, *bottom right*: sagittal short tau inversion recovery. Ovoid lesion within the deep subcutaneous tissues of the lower portion of the back demonstrated T2 hypointense and T1 hyperintense signal with associated subtraction on short tau inversion recovery acquisition. Signal characteristics are slightly different from the adjacent underlying subcutaneous fat.

orthopedic or trauma surgeons. They are most frequently found overlying osseous protuberances, such as lateral to the greater trochanter. In addition, MLLs are seen in the pelvis, thigh, knee, gluteal, and lumbosacral regions. They have also been reported in the abdominal wall after liposuction.[2,3] Here, we present an unusual case of an MLL presenting as a suspected tumor.

CASE REPORT

A 64-year-old woman presented for the evaluation of mass involving her midback. She had a fall 7 years prior with persistent swelling in that area. One month before the presentation, the mass had enlarged and became painful. An initial examination revealed an ill-defined subcutaneous nodule with overlying erythema. One month later, the mass had evolved to an exophytic nodule with elevated borders, central ulceration and crust, and surrounding erythema (Fig 1). The lesion was extremely tender to palpation. At this point, the differential diagnosis included a malignant neoplasm or a calcified hematoma with secondary infection. She was treated with oral antibiotics with improvement in pain, but not in the size of the lesion. A punch biopsy specimen revealed changes suggestive of an inflammatory reaction to follicular rupture. Because of the clinicopathologic disparity, excisional biopsy was planned.

A preoperative image with magnetic resonance imaging was performed for surgical planning given the size of the lesion and the plastic surgeon's suspicion that there may be a considerable deep and peripheral subclinical extension of the process. A 3.8 × 2.6-cm round collection within the

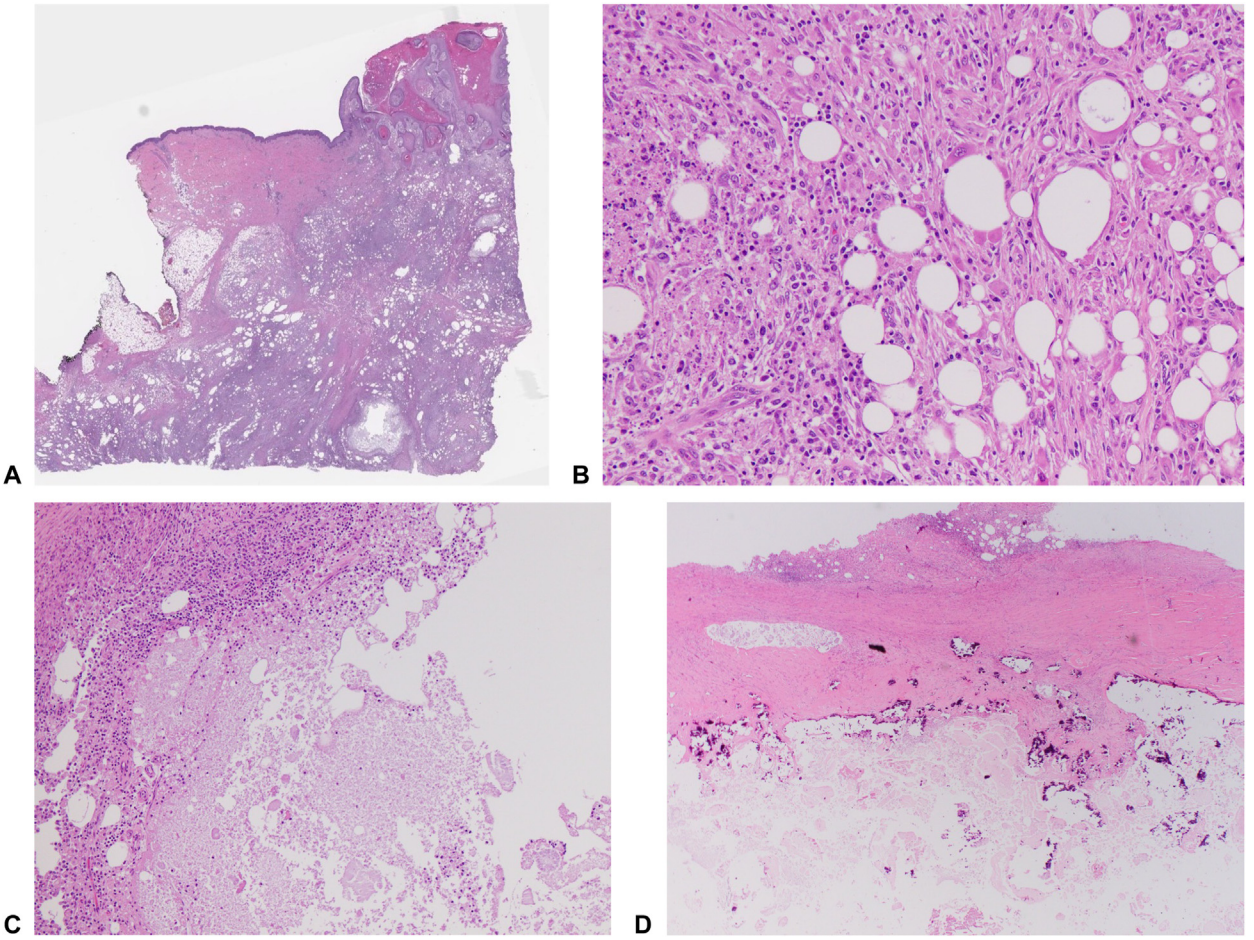

Fig 3. A, A whole-scanned slide stained with hematoxylin and eosin revealed pseudocarcinomatous hyperplasia overlying diffuse inflammation and a swiss cheese-like appearance with variably sized vacuolar spaces. **B,** Magnification revealed prominent spaces suggestive of lipid within giant cells and free within the dermis, and foci of necrosis with lymphocytes, plasma cells, and neutrophils. **C,** Magnification revealed pools of granular and amorphous foamy debris, with prominent inflammation. **D,** Magnification revealed a calcified fibrous pseudocapsule closely associated with acellular necrotic granular debris. (Original magnification: **B**, ×20; **C**, ×10; and **D**, ×2).

subcutaneous tissue at L1-L2 with internal fat density and associated calcifications was seen. There was an area of discontinuity along its superior left aspect with a small fat collection, likely related to partial rupture of the larger collection with surrounding inflammation (Fig 2). During excision, the mass was noted to be firm, and the surrounding fatty tissue was easily discerned from the lesion. It extended to the paraspinal muscles.

Histopathologic examination revealed diffuse dermal and subcutaneous scarring with acute, chronic, and granulomatous inflammation, abundant granular amorphous debris, and stromal clefts. Within a portion of the specimen was a broad fibrous band displaying calcifications. The polariscopic examination for foreign material was negative. Grocott-Gomori methenamine silver, Fite, acid-fast bacilli, periodic acid-Schiff, and Gram stains were negative for organisms (Fig 3). After the histopathologic evaluation failed to reveal malignancy or evidence of infection, an alternative explanation for the findings was sought. The clinical history of remote trauma to the site followed by persistent swelling in the area in combination with the radiologic and nonspecific histologic findings led to the diagnosis of a chronic Morel-Lavellée lesion.

A negative pressure wound dressing was applied to the surgical site and left on for 1 month. The wound healed uneventfully, and the lesion had not recurred at 6 months follow-up.

DISCUSSION

Clinicians should maintain a high index of suspicion for MLLs in patients with a history of traumatic injuries and persistent discoloration or swelling. Up to one-third of patients with MLLs present months to years after the initial injury.[2] The clinical signs are often nonspecific and can mimic soft tissue tumors, bursitis, or cellulitis.[4,5] Superimposed infection or necrosis can occur.

Mellado and Bencardino proposed classification criteria separating MLLs into 6 subtypes based on the composition of the collections, lesion shape, and chronicity.[2] The nature of the heterogeneous collections is best characterized using magnetic resonance imaging. Computed tomography demonstrates fluid accumulation; however, in cases of late diagnosis, the collection may be misinterpreted as a soft tissue mass or neoplasm. The findings with various imaging modalities are well characterized in the radiologic and orthopedic literature.[2,6,7]

Histopathologic findings include a cystic component with a fibrous lining and an inner surface with fibrosis, fat necrosis, cholesterol clefts, and eosinophilic amorphous material. There can be inflammatory infiltrates ranging from lymphohistiocytic to frankly granulomatous.[5,8,9] The mixed inflammatory reaction, fat necrosis, and lipid deposits can suggest factitial disease, such as a lipogranuloma.

Small MLLs in the acute phase can be managed conservatively with compression, rest, and close monitoring. Larger or chronic lesions can be managed with open-incision drainage with or without injection of sclerosing agents and negative pressure wound therapy.[10]

MLLs may be encountered by dermatologists with a clinical differential diagnosis, including neoplasm or infection. When histopathologic findings are nonspecific and do not fit with the clinical picture, an appropriate clinical history is especially important. If a history of trauma is revealed, imaging studies should be obtained to evaluate MLL.

Conflicts of interest

None disclosed.

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