

Images of Interest / Imagens de Interesse

Morel-Lavallée Lesion with Associated Pelvic Fractures: A Case Study and Overview

Lesão de Morel-Lavallée com Fraturas Pélvicas Associadas: Estudo de Caso e Perspetiva Geral

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Abstract

Morel-Lavallée lesions are traumatic injuries resulting from the separation between subcutaneous tissue and the underlying fascia. We present a case of a patient in whom the identification of such a lesion in an image raised suspicion of a pelvic fracture.

Keywords

Morel-Lavallée; Trauma; Pelvic fracture.

Resumo

As lesões de Morel-Lavallée são lesões traumáticas que resultam da separação entre o tecido celular subcutâneo e a fáscia subjacente. Apresentamos um caso de um doente com a lesão de Morel-Lavallée, descoberta em imagem, que levantou a suspeita de fratura pélvica.

Palavras-chave

Morel-Lavallée; Trauma; Fratura pélvica.

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Case

Male patient, 62 years old, seeks orthopedic consultation due to left inguinal pain with a two-week history, worsening over the last three days, exacerbated by movement and ambulation. He recently underwent hospitalization at another institution for polytrauma with ribs and left scapula fractures.

The orthopedic physician requested an ultrasound of the left hip (figure 1), revealing a voluminous fluid collection with some lobulations of fat, interposed between the muscle planes and subcutaneous tissue, measuring approximately 76x13mm in its major dimensions, related to Morel-Lavallée lesion. A small left inguinal hernia containing fat was also incidentally detected, without inflammatory changes.

The Morel-Lavallée lesion and disproportionate clinical presentation raised suspicion of pelvic fracture, prompting additional evaluation with a MR (figure 2). The MR confirmed the findings described in the ultrasound and the suspected fractures of the left ischiopubic and iliopubic rami, as well as the wing of the sacrum, without misalignment of the bony ends and already with some associated bone callus. Conservative treatment was chosen.

Discussion

Morel-Lavallée lesions, also termed closed degloving injuries, arise from traumatic separation between the skin and subcutaneous fat and the underlying fascia. Initially described

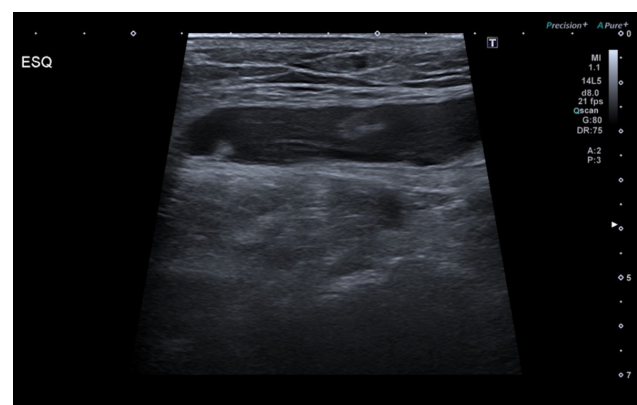


Figure 1 – In the left trochanteric region, a significant fluid collection with some lobulations of fat is observed, interposed between the muscular planes and the subcutaneous connective tissue.

by Victor Auguste Francois Morel-Lavallée in 1863, these injuries are prevalent in the peritrochanteric region and proximal thigh, denoted as Morel-Lavallée lesions. Primarily occurring in perifascial planes adjacent to the fascia lata and iliotibial band, the lesions develop due to soft tissue mobility and robust fascia lata attachment to the iliotibial band. In 44% of the cases, there is an association with pelvic fractures. While slow-growing, symptoms may not manifest until months or years post-injury, potentially resulting in pain, disfigurement, and complications like infection or skin necrosis.^{1,2}

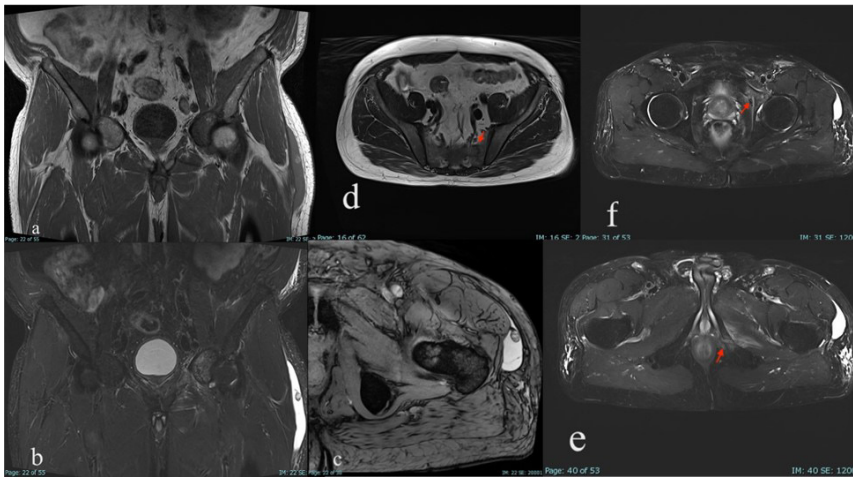


Figure 2 – In the images, there is a homogeneous fluid collection with a fat lobule between the fascial planes of the left trochanteric region and the subcutaneous connective tissue, displaying intermediate signal on coronal T1-weighted images (a), high signal on coronal STIR images (b), and axial T2* images. Fractures without misalignment are documented on the axial plane, indicated by arrows, notably in the left sacral wing (d), ischiopubic branch (d), and iliopubic branch (e).

Imaging of these lesions varies with internal blood product age. Ultrasound and CT scans reveal cystic structures with septa and fluid levels. MRI, the preferred modality, exhibits low T1 signal and high T2 signal. The presence of methemoglobin, characteristic of subacute hematomas, can also cause high T1 signal. With lesion maturation and changes in hemorrhagic elements over time, a peripheral hemosiderin ring with low T1 or T2 signal can develop along with fibrous capsular formation. Additionally, areas of lipomatous signal intensity may be present, representing subdermal fat globules. The six-stage MRI classification system proposed in 2005 is not widely adopted, with preference given to a binary acute vs. chronic classification based on detectable capsules for its practicality in treatment selection.^{1,3} Differential diagnosis is challenging, overlapping with conditions like soft-tissue hematoma, fat necrosis, and abscess. Considering the potential resemblance to soft-tissue

sarcomas, especially with irregular enhancement, it is crucial to maintain a high grade of suspicion. Biopsy is warranted for atypical features.^{1,2} Treatment varies depending on severity and duration. Acute cases require early intervention, while subacute and chronic lesions can be addressed through conservative or surgical approaches. Surgical treatment is associated with a lower recurrence rate compared to less invasive drainage.

Conclusion

Morel-Lavallée lesions arise from traumatic events, commonly associated with pelvic fractures. A thorough understanding of these lesions is crucial for the prompt management of patients and the prevention of potential complications.

Ethical Disclosures / Divulgações Éticas

Conflicts of interest: The authors have no conflicts of interest to declare.

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Confidentiality of data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.

Confidencialidade dos dados: Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação dos dados de doentes.

Protection of human and animal subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Proteção de pessoas e animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial.

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