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Case Report

Morel-Lavallée Lesion: A not so rare, but often missed diagnosis

Abstract

The Morel-Lavallée lesion is a closed, post-traumatic, soft tissue degloving injury. There is separation of the skin and subcutaneous tissue from the underlying fascia resulting in an effusion and creation of a perifascial space often containing lymph and necrotic fat.

We present a case of a 70-year-old female that was referred to us with a painful right thigh after a fall from her bike. Ultrasound showed a persistent MLL and an ultrasound-guided injection with cortisone was injected the MLL, which resolved the patient's complaints.

**Level of evidence:** Level 4.

Introduction

A Morel-Lavallée lesion is a closed degloving soft tissue injury, as a result of abrupt separation of skin and subcutaneous tissue from the underlying fascia [1]. This post-traumatic lesion is characterized by an accumulation of blood, lymph, and other breakdown products between the subcutaneous tissue and underlying fascia and the creation of a potential perifascial space. First described in 1863 by the French physician Maurice Morel-Lavallée, he mentioned a posttraumatic superficial fluid collection after a fall from a moving train [1]. In time, Letournel and Judet gave it the eponymous term Morel-Lavallée lesion [2]. Other terms to describe this lesion are closed internal degloving injury, Morel-Lavallée effusion, Morel-Lavallée hematoma, Morel-Lavallée extravasation, pseudo-lipoma, pseudo-cyst, ancient hematoma, organizing hematoma, posttraumatic soft tissue cyst and chronic expanding hematoma. The Morel-Lavallée lesion often goes undiagnosed, awareness of this lesion is therefore necessary.

Case report

A 70-year-old female patient, with no significant medical history, was referred to our out-patient clinic with pain at the lateral side of her right thigh. Almost one year before she suffered a fall from her bicycle at her right side. After this trauma swelling and a hematoma was present at the lateral side of her right hip and thigh region. She was hardly able to walk more than 500 meters due to the pain. Training sessions with a physiotherapist, showed no satisfactory results. On physical examination there was significant pain when palpating middle

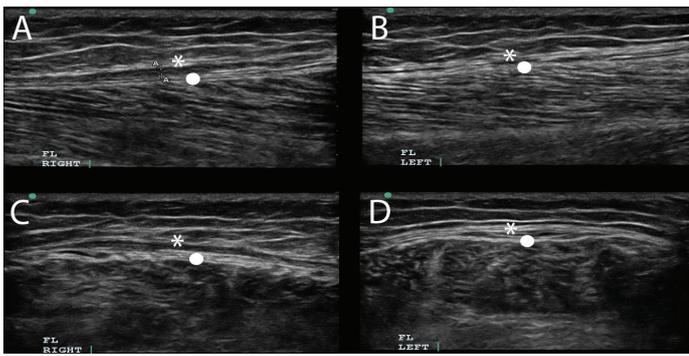
part of her upper leg at the lateral side. Hip and knee motion were normal and no other abnormalities were seen. Radiographs of the hip and thigh showed no abnormalities. An ultrasound (Sonosite Edge, 15-6 MHz HFL transducer) was performed which demonstrated a Morel-Lavallée lesion of type III (Table 1). Figure 1 shows the ultrasound images of the affected right side and the un-affected, left side. An ultrasound-guided injection with a mix of 4 ml bupivacaine and 1 ml cortisones (40%) was injected in the perifascial space. This resulted in absence of pain and with the help of a physiotherapist she was able to train normal walking abilities and cycling again. There was no reoccurrence of the symptoms at 6 weeks, 12 weeks, 6 months and one year follow up.

Discussion

The incidence of a Morel-Lavallée lesion is unknown and goes often undiagnosed. However one out of three Morel-Lavallée lesions go undiagnosed at the time of acute trauma [3]. It is important to think of a Morel-Lavallée lesion when there

Table 1: classification of MLL.

I	Seroma caused by a shearing force leading to a serous/lymph collection.
II	Subacute hematoma with the presence of methemoglobin. May have fatlobules, internal septations, or fluid-fluid levels.
III	Chronic organizing hematoma with hemosiderin deposits, granulation tissue, necrotic debris, fibrin, and blood clots.
IV	Closed laceration with absence of capsule.
V	Perifascial pseudonodular lesion.
VI	Lesion with a superimposed infection and thick capsule.



**Figure 1:** A) Longitudinal ultrasound image of the affected side, there is a perifascial space between the superficial and deep fascia. B) Longitudinal ultrasound image of the not affected side for comparison. C) Transversal ultrasound image of the affected side, there is a perifascial space between the superficial and deep fascia. D) Transversal ultrasound image of the not affected side for comparison. \*= superficial fascia, o= deep fascia.

is posttraumatic pain. Risk factors for Morel-Lavallée lesion include female gender and a body mass index of 25 or higher [3]. Morel-Lavallée lesions mostly occur after trauma, such as high energy trauma, however it is also known after low-grade blunt force trauma, falls and contact sports. The most common anatomical locations are the greater trochanter/hip (36%), followed by the thigh (24%) and the pelvis (19%) [4], and are most commonly found adjacent to osseous protuberance [5].

Morel-Lavallée lesion presents acutely or may appear days following injury. Symptoms are pain, swelling, palpable fluctuant collection over the injured area, hypoesthesia that occurs from the shearing of cutaneous nerves during the initial injury and perhaps stretching of the cutaneous and subcutaneous tissues. Sometimes ecchymosis or a superficial discoloration is visible. The known complications are infection of the fluid collection, capsulation, reoccurrence of a Morel-Lavallée lesion [6], neurovascular compromise and cosmetic complications as long term bulging, scar tissue formation which can mimic solid neoplasms.

The diagnostic methods used to detect a Morel-Lavallée lesion are MRI and ultrasound. However, in the acute phase the Morel-Lavallée lesion signal characteristics are similar to those of fluid. With ultrasound imaging features depend on the age of the MLL. Also, ultrasound has a diagnostic and therapeutic value. As in our case, we could diagnose the MLL and at the

same time treat the Morel-Lavallée lesion with ultrasound needle guidance.

There is no standard treatment protocol for the treatment of Morel-Lavallée lesions. The conservative treatment of Morel-Lavallée lesion includes observation, percutaneous aspiration, elastic compression bandaging and sclerosis such as doxycycline, alcohol and fibrin glue [6,7].

When conservative treatment fails or when there is more than 50 mL fluid aspirated [6], operative treatment is indicated. Operative treatment can be an open or endoscopic procedure [8]. With peripelvic Morel-Lavallée lesion surgical interventions have better results than conservative treatment.

## Conclusion

The Morel-Lavallée lesion often goes undiagnosed, awareness of this lesion is therefore necessary.

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