

Morel-lavallée lesion with bilateral femoral fractures: A case report

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Abstract: Morel-Lavallée lesions are closed degloving injuries usually post traumatic with or without multiple fractures where the skin and subcutaneous tissues are separated from the fascia superficial to the underlying musculature forming a potential space. We report a case of extensive Morel-Lavallee lesion involving thigh region with bilateral femoral fractures in an adult female managed with Fixation and VAC therapy followed by Skin grafting.

Keywords: Morel-Lavallée lesion, Closed Degloving injury, Bilateral femoral fractures with ML Lesion, VAC therapy, SSG, ML Lesion.

Introduction

Morel-Lavallée lesions are closed degloving injuries usually post traumatic with or without multiple fractures where the skin and subcutaneous tissues are separated from the fascia superficial to the underlying musculature forming a potential space[1]. This potential space (Pseudocapsule) created due to shearing forces on perforating vessels and lymphatics got filled with blood, serosanguinous fluid, and necrotic fat[2,3]. Classically described in literature by Morel- Lavallée [5] in 1863 century commonly at trochanteric region, usual other sites of presentations are antero-lateral aspect of proximal thigh, trunk, lumbar, prepatellar, and scapular regions[3,4]. These lesions clinically presents as an enlarged painful fluctuant fluid filled mass within the anterolateral portion of the affected thigh, with soft-tissue swelling [5-8]. We reported a polytrauma case who developed extensive Morel-Lavallée lesion involving right thigh region with bilateral femoral fractures. Patient was managed with combination therapy of early fracture fixation, suction-drainage, (Vacuum assisted closure) followed by skin grafting.

Case Report

A 39-year-old female was admitted to the hospital with history of road traffic accident with soft tissue swelling over bilateral thigh regions with laceration over the left anterolateral aspect of leg and dorsum of left foot. There was deformity over bilateral thigh region which came out to be fractures after radiographic evaluation[figure-1].



Figure -1: a) & b) Clinical image of wound c) Radiograph of fractured bones

There was longitudinal abrasion marks over right flank, trochanteric and thigh region. At the time of presentation patient was in hemorrhagic shock for which she was managed with colloids and multiple fresh blood transfusions. After stabilization of vitals, bilateral skeletal traction was applied and patient was shifted to ward. Two days later patient developed fluctuant swelling over the right flank and thigh region. Patient shifted to Emergency OT and suction Irrigation of the collected sero-sanguinous fluid was done. Later on the skin over right flank, GT and thigh region started showing signs of necrosis for which debridement was done and VAC device applied for early healing [figure-2]. After 3 weeks of VAC application, wound was healthy and granulating. Right femoral fracture was fixed with external fixation and left with Proximal Femoral Nail. [figure-3]

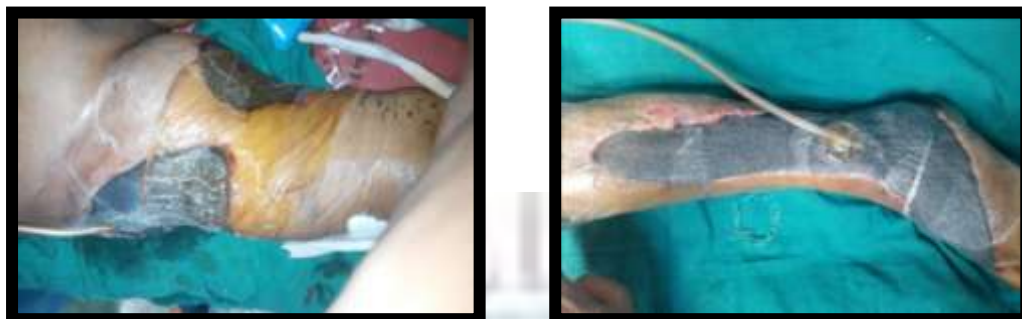


Figure -2: a) and b) VAC applied

Patient was kept on high protein diet with regular physiotherapy to prevent bed sores and joint stiffness and contractures. Patient recovered in two month time with partial thickness skin grafts done over right thigh and left leg wound [figure-4] and discharged in stable health condition. Patient consented for case to be reported.



Figure-3: Fracture Fixation



Figure-4: Skin Graft

Discussion

Morel-Lavallee syndrome; first described by a French surgeon, Victor Morel Lavallée, in 1863.[5] and is also known as Morel-Lavallee seroma, post-traumatic soft tissue cyst, post-traumatic extravasation or Morel-Lavallee effusion or Morel-Lavallee Lesions [5].

Morel-Lavallée syndrome occur after tangential trauma to underlying subcutaneous tissue and is characterized by closed internal degloving injuries resulting in subcutaneous fluid collection [5]. The abrupt tearing of underlying muscle and fascia shears the lymphatic vessels causing lymphostasis [7]. The inflammatory reaction leads to formation of a fibrous capsule with fluid collection locally[7] There are no specific clinical signs of ML Lesion and history of previous soft tissue trauma should always be ruled out. Morel Lavallée lesion clinically presents as a haemolymphatic mass in a patient with history of closed degloving injury. USG and Magnetic Imaging are useful modalities for evaluation and extent of collection of fluid. The clinical presentation of ML Syndrome includes bruising with a fluctuant soft tissue mass, underlying skin

hypermobility, and decreased or normal cutaneous sensations [11] The lesion may develop gradually and can be missed on the initial posttraumatic clinical evaluation of injured patient . Other differentials while suspecting Morel Lavallée lesion like subcutaneous hematoma, hemangioma, fat necrosis, and soft tissue sarcoma must be kept in mind[2]. History of trauma following RTA, characteristic location, USG and MRI features help to reach a correct diagnosis. The pathogenesis of Morel Lavallée lesions is abrupt traumatic separation of skin and subcutaneous tissue from underlying fascia .Initial injury represents a shearing of subcutaneous tissues away from underlying fascia and this initial potential space created superficial to the fascia is filled by various types of fluid, ranging from serous fluid to frank blood. The collection may then spontaneously resolve or become encapsulated and persistent. These Closed internal degloving injuries can occur in conjunction with pelvic and acetabular fractures but may also occur in the absence of any fractures [6].

M L Lesion commonly occurs over the greater trochanter, but may also occur in the flank, buttock and lumbo dorsal region.. The diagnosis of closed degloving injuries is based on physical and ultrasonographic examinations. On clinical examination, presence of a soft fluctuant area is the hallmark finding with decreased cutaneous sensations over the area of degloving [8]. Local tell-tale marks of contusion and abrasions or other signs of injuries such as tire marks representing shearing force may also be present. Closed degloving injuries are most commonly found adjacent to osseous protuberances, with the classical location being over the greater trochanter of the femur. They are also described along the flank, buttocks, lumbar spine, scapula, knee, and calf,[9] and along the abdominal wall post-liposuction.[10,].The size of these lesions is variable, ranging from small thin slivers of fluid to thickly encapsulated lesions.The treatment of such lesions need to be tailored depending on the duration, size, and presence of a capsule in the lesion. Small acute lesions without a capsule can be treated conservatively by application of compression bandage. Persistent lesions with pseudocapsule formation may require more aggressive treatment. These lesions can be managed with early percutaneous drainage, debridement, irrigation, and suction drainage followed by skin grafting for the granulating areas to enhance recovery.[11]. Lesions complicated by infection can be treated with the use of higher antibiotics. In rollover trauma with fractures , serial debridement with early fixation are required.

Conclusion

Morel-Lavallee lesions usually present within a few hours to days post-trauma. However, some of the patients may present months or years after initial trauma. They are frequently associated with underlying fractures, but can be isolated without fractures. These lesions are most often unilateral. Skin necrosis may occur acutely or in a delayed fashion. The trauma surgeon must be aware of the clinical features of ML Lesion and the implications for its treatment. ML Lesion should always be kept as differential in cases of polytrauma and rollover accidents. Clinical examination,MRI & USG help in diagnosing ML Lesion's size, location and treatment plan should be tailored and individualized for every case.

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