Morel-lavallee lesion – a Hidden degloving injury

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Abstract

Morel-Lavallee lesion is a rare post traumatic soft tissue injury. It results in separation of the skin and subcutaneous tissue from the underlying fascia. An underlying blood filled cystic cavity is created. It is commonly caused by a shearing force resulting in separation of the hypodermis from the deeper fascia. It is most commonly seen around the greater trochanter. These injuries also occur at the flanks, buttocks, lumbar spine, scapula and the knee. Separation of the tissue planes result in a complex serosanguinous fluid collection with areas of fat within it. These lesions are usually missed during initial examination and become evident after few weeks or months. They may be associated with fractures. Magnetic resonance imaging is the modality of choice for the evaluation of this lesion. It plays a significant role in its diagnosis.

Keywords: Morel-Lavallee lesion; post traumatic injury; hidden injury

1 Introduction

Morel-Lavallee lesion, initially described by French surgeon Maurice Morel-Lavallee in 1853, is a post-traumatic closed degloving injury where skin and superficial fascia get separated from deep fascia, creating a potential space. (¹) Injury to rich vascular and lymphatic supply leads to accumulation of blood and lymph in this potential space generated by separation of the superficial and deep fascia. Blood products and necrotic material in turn invokes chronic inflammatory reaction. As the time progress, a capsulated lesion lined by fibrous capsule develops, which is filled with blood products, necrotic fatty tissue, debris and fibrin. Morel-Lavallee lesions usually present as painful fluctuant swelling in the involved sites. Many of these may be missed at initial evaluation and present weeks to month after initial trauma. (²,³)

Pathophysiology

Though motor vehicle accidents are the most common etiology, low grade blunt force trauma including falls and sport related injuries account for a significant amount of cases. (³,⁴) The greater trochanter is the most commonly involved region, accounting for over 60% of the cases. Predisposing factors include the superficial position of the femoral cortex, relative mobility of the subdermal soft tissues and strength of the underlying tensor fascia lata. Secondary risk factors include female gender and a body mass index of 25 or greater. With disruption of the subdermal capillaries and lymphatics, hemorrhage, lymphatic fluid and locules of subdermal fat pool in the
suprafascial tissue plane. Over time, there is resorption of the haemorrhagic elements, increasing serosanguinous fluid and progressive fibrous encapsulation, hindering resorption and thus leading to slow continued expansion. (2,3,5)

Case report

A 26 year old female presented to our casualty with pain and abrasions over bilateral hip and upper thigh region along with pain & deformity in the right thigh. Patient had a history of fall from train following which she was taken to a local hospital where she was stabilized and a skeletal traction was applied on the proximal tibia.

Patient presented to us after 3 days of accident. She was clinically stable on arrival. X-Ray PBH shows bilateral acetabulum with inferior and superior pubic rami and coccyx fracture. X-ray right femur shows mid-shaft fracture.

On 9th day nailing for the shaft fracture femur (R) was done. On 5th post operative day patient had serous discharge from the upper left thigh around the region of greater trochanter which continued for 3 days. Hence on 11/06/19 wound was explored and debrided. On 10th similar discharge was noticed on right thigh. On 17th post operative day both thighs were explored and debrided. Dressings needed to be done twice daily. Inspite of all the care taken - the size of the subcutaneous cavity kept increasing. Exploration and debridement continued for a total of 15 debridments. Throughout the debridement fat necrosis was a notable feature. Throughout the procedure serous/pus was sent for c/s. Vac dressings were also done for both the wounds. Appropriate antibiotics were given whenever needed. It took a total of 5 months for the wounds to close.

Regular counseling and moral support is the most important need while dealing in these situations.

Management

After the confirmation of diagnosis patient underwent a series of debridement (fifteen times in all) and the fracture femur was fixed with intramedullary nailing with distal locking only as the proximal screws couldn't be passed due to the location of the right abrasion and a proximal tibia skeletal traction was put on the right lower limb for stabilization of hip fracture.

Fig 1. Wound over left hip

Fig 2. Xray PBH- bilateral acetabulum with superior and inferior pubic rami with coccyx fracture

Fig 3. X ray femur showing mid shaft femur fracture

Fig 4. 3D CT Hip showing the bilateral acetabulum with superior and inferior rami fracture

Fig 5. Superadded infections are common in these lesions
Fig 6. Wound showing *Pseudomonas* infection which was treated with iv antibiotics

Fig 7. X ray right femur intra-medullary nail without proximal locking.

Fig 8. Wound of left hip after 1st debridement

Fig 9. Wound right Hip after 1st debridement

Fig 10. Wound right hip after 1 month of 1s debridement and daily dressings

Fig 11. Wound left side after 1 month of daily dressings

Fig 12. Wound left side after 2 month of dressings and vac
Fig 13. Wound right hip after 2 months of dressings and Vac application

Fig 14. Wound right hip after 4 months

Fig 15. Wound left hip after 4 months

Fig 16. Wound left hip after 5 months

Fig 17. Wound right hip after 5 months

Fig 18. Wound right hip after 6 months

Fig 19. Wound left hip after 6 months
2 Conclusion

Morel-Lavallée lesions are post-traumatic closed degloving soft tissue injuries where the skin and subcutaneous tissues are separated from fascia superficial to underlying muscle plane. Shear injury disrupts perforating vessels and lymphatics, thus creating a potential space filled with serosanguinous fluid, blood, and necrotic fat.

Morel-Lavallée effusions may be associated with pelvic, acetabular fractures or may also occur with blunt trauma in the absence of fracture. Morel-Lavallée lesions are most commonly seen in the trochanteric region and proximal thigh. Clinically, Morel-Lavallée lesions usually present as an enlarging painful lesion within the anterolateral portion of affected thigh with soft tissue swelling and fluctuance. Other reported sites of involvement are the trunk, lumbar, prepatellar, and scapular regions.

Perifascial plane gets filled up with blood, lymph, and debris due to disrupted capillaries. An inflammatory reaction results in the formation of a peripheral capsule, which may account for the perpetuation and occasional slow growth of the lesion.

In an acute trauma, Morel-Lavallée lesions require surgical interventions so as to prevent infection. However, these effusions may be initially missed or may take some time to develop, which can make clinical diagnosis difficult. In longstanding cases, these lesions may subsequently enlarge and become painful, leading to misdiagnosis of soft tissue tumor.

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