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CASE STUDY

MOREL-LAVALLÉE LESION: CASE REPORT OF ACUTELY PRESENTED EXTENSIVE LESION

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ABSTRACT

Morel-Lavallée Lesion (MLL) is a soft tissue injury that results in separation of skin and subcutaneous fat from underlying fascia and collection of fluid in between them. It is a rare entity thathas been reported in past and needs urgent detection and management. A high suspicion index is required to diagnose these injuries as they can often go undetected and lead to long term complications. We here in report a case of adult female presented with extensive injury where clinical history and examination lead to diagnosis of MLL.

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INTRODUCTION

MLL is a soft tissue injury cause by significant trauma in which subcutaneous tissue is separated from underlying fascia. It forms a cavity which is filled by either seroma, hematoma or liquefied fat. Closed degloving injury is another name given to MLL (HakDj *et al.,* 1997). Imaging studies like MRI plays a vital role in diagnosis and planning appropriate management options (Scaranelo and Davanco, 2005). It should be considered as a differential diagnosis for any patients presented with degloving injury after trauma (Vanhegan *et al*., 2012).

Case Report

We are reporting a case of 51 years old female with no other comorbidities who presented with pain and bleeding from both thighs after a road traffic accident 5 hours prior to presentation. She had run over injury over her both thighs by a mini-truck. Upon arrival she had a pulse of 112 beats per minute and blood pressure of 100/50 mm Hg. She was managed according to the Advanced Trauma Life Support (ATLS) guidelines in the emergency department. Examination revealed fluctuant and tender swelling over both thighs distally while there was an avulsion wound over proximal thigh on the left side with overt hemorrhage (Figure – 1). Ultrasound was carried out which showed fluid filled spaces beneath the subcutaneous region separating the deep fascia and subcutaneous tissues. Blood count showed hemoglobin level of 8.2 gm/dl. Pelvic X-ray showed bilateral pubic rami fractures as shown in Figure – 2. Patient was rushed to Operation Theater for emergency debridement and control of bleeding under general anesthesia. Skin and subcutaneous tissues were separated from underlying fascia with blood collection between them. Around 1.5 liters of fluid was drained from both lower limbs collectively and debridement of devitalized tissues was done. Wound edges were approximated with sutures and closed suction drain was placed. Fluid for culture and sensitivity showed no growth of bacteria. Wounds were healing well on suction drainage and compression dressing was started from 5th post operative day and suction discontinued. Patient was kept in hospital for 2 weeks for wound care. Pubic rami fractures were managed conservatively and she was discharge home without any complications. Sutures were removed on 20th post operative day in an out patient visit after wound healing. She was mobilized out of bed after 6 weeks of injury on instructions of the orthopedic surgeon. She lost to follow up after 6 weeks.

DISCUSSION

Victor Morel Lavallée was a French surgeon who described Morel-LavalléeLesionin 1863 (Mellado and Bencardino, 2005).

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Its synonyms include Morel-Lavalléeseroma, Post-traumatic extravasation, post-traumatic soft tissue cyst or Morel Lavallée effusion (Mellado *et al.,* 2004). MLL is degloving injury of extremities which is closed injury sustained after a shearing force trauma. Skin and subcutaneous tissue gets separated from underlying fascia thus creating a cavity which can accumulate blood, seroma or fat. Blood or seroma accumulates because of disrupted capillaries that continuously drained into perifascial plane. Subsequent inflammation around fascia leads to formation of capsule if left untreated.

Figure 1. Intra-operative picture of the wound over proximal thigh being approximated with tension suturing

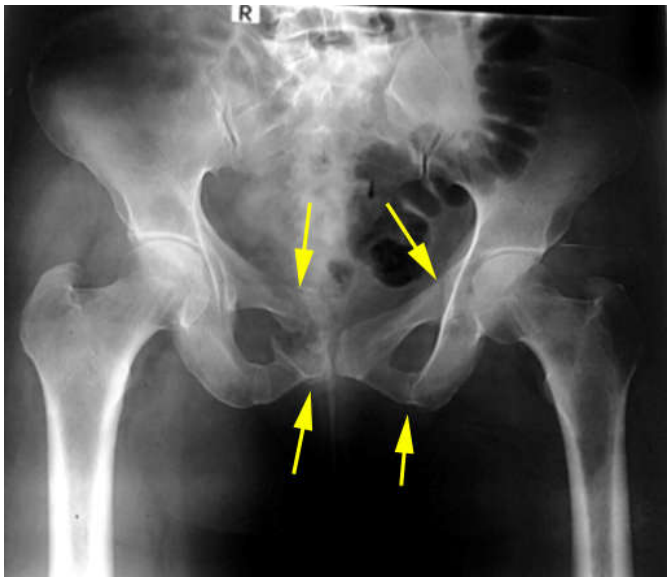

Figure 2. Pelvic radiograph of the patient. Arrows indicate bilateral superior and inferior pubic rami fractures

The accumulated collection will either resolve spontaneously or become encapsulated permanently (Mellado *et al.,* 2004). MLL manifest itself within hours to days after massive degloving trauma. However, there are few case reports in which patient's presents after months or years. MLL may be associated with fractures of underlying bone. Main presenting symptoms of patient with MLL are pain, swelling and stiffness. Clinical examination includes soft fluctuant swelling with or without skin discoloration. Sensation of skin may be lost or decreased as compared to opposite side. Skin may be necrosed early or later in disease process (Gummalla *et al.,* 2014). Closed degloving injuries usually found near to osseous protruberances. Most common location is greater trochanter of femur but can occur at flank, buttocks, lumbar spine, scapula, knee, calf and along abdominal wall after liposuction (Mellado *et al.,* 2004; Moriarty *et al.,* 2011). Size of MLL varies significantly. Presentation ranges from small lesions to several centimeter thick swelling. Chronic lesions usually manifest as ovoid swelling adherent to underlying fascia. Imaging studies include plain X ray which shows non calcified soft tissue mass with or without fractures of underlying bones (Zecha and Missotten, 1999). These lesions on ultrasound usually present as anechoic or hypoechoic masses. However, they might present as echoic lesion if there is internal debris present or fluid filled levels (Parra *et al.,* 1997). MRI is key imaging modality which can show relationship of collection present with involved underlying fascia. They manifest as oval-well defined lesions either crescenteric or fusiform in appearance with tapering but defined margins. Fluid may show hypointense or hyperintense signalsdepending on its consistency and duration. Mellado and Bencardino put forth a classification in 2005 dividing MLL into six types (Mallado and Bencardino, 2005). Their classification relies on the shape, signal character, enhancement of the lesion, and the presence or absence of capsule.

Subcutaneous hematoma, hemangioma, soft tissue sarcoma, fat necrosis and early stage myositis ossificans; all should be considered in differential diagnosis of MLL (Nair *et al.,* 2014). History of degloving injury, characteristic locations and clinical examination play a significant role in diagnosing MLL at early stages. MRI play additional contributory role towards correct diagnosis (Vanhegan *et al.,* 2012). Management depends on mainly three factors; Size of lesion, duration of lesion and presence or absence of capsule. Compression bandage is only treatment required for lesions in which capsule are not formed. However, if the lesion still persists and capsule forms then more aggressive treatment options are required. Options include early drainage either percutaneously or open, sclerodesis, debridement, irrigation and suction drainage. Complications of these lesions are infections which could be prevented by antibiotics and debridement. MLL in our case was quite extensive as it was bilateral and was associated with a large proximally located wounds, so surgical intervention was carried out for wound care and also to minimize the chances of the collection getting infected. Mainstay of diagnosing the lesion in our case was history and high clinical suspicion aided by ultrasonographic examination. MRI may be helpful but in acute settinghistory and clinical findings plays a pivotal role in diagnosis. The trauma surgeon should be aware of the diagnosis of MLL in patients who presented with degloving crush injuries (Gummalla *et al.,* 2014). In conclusion, MLL can present with acute findings where clinical history and examination plays a key role in its diagnosis. As in our case it present in emergency with extensive bilateral thigh involvement.

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