Morel Lavalle lesion - A case series

SOUMYA GUPTA DKGUPTA
Department of Plastic Reconstructive Surgery,
CHRISTIAN MEDICAL COLLEGE

Abstract:
The Morel Lavalle lesion was described first by French physician Maurice Morel Lavalle in 1853\(^1\). It is defined as a closed soft tissue injury produced by degloving which results in a cavity between subcutaneous tissue and the muscular fasciae or a hemolymphatic mass between skin and fascia. This condition is often missed in the trauma centre. It is a result of shearing force at the junction of subcutaneous tissue with muscle. As plastic surgeons we, come across this condition less often compared to orthopaedic counterparts. Most of the literature describes this lesion with pelvic and acetabular fractures\(^2\). It is important to diagnose and treat the condition early for better outcome. We present a case series of six patients presented to us in 3 years.

Keyword: Morel Lavalle lesion, closed internal degloving

INTRODUCTION:

The Morel Lavalle lesion is a condition discussed less often in plastic surgery forums. It occurs as a result of shearing force separating skin and subcutaneous tissue from the underlying fascia. The presentation may be acute or chronic depending on when it is recognized. We present a series of 6 patients with varied extent of involvement of the lesion.

Case I

A 32 year old overweight lady presented with swelling over the left thigh for one year. She gave history of injury to her left thigh after being hit by a truck. The swelling was soft cystic measuring 10x15 cm on the lateral aspect of.
proximal thigh. Her Magnetic Resonance tomography (MRI) revealed a well defined T2 hyper-intense lesion with a hypointense rim seen in subcutaneous plane with few fat globules trapped inside (Image 1), suggestive of Morel Lavelle lesion. She underwent excision of the cyst with its capsule (Picture 1,2). Post operatively compression bandage was applied. Her swelling completely dissolved after surgery. The biopsy was consistent with a pseudocyst.

Case II
A 35 years old obese gentleman presented with soft tissue defect over the posterior aspect of right leg following collision with a car. There was no bony injury. He underwent debridement and split thickness skin grafting for the right leg wound two months at our hospital. He again presented to outpatient department with swelling over the right thigh after 45 days of injury. The swelling was soft, cystic and fluctuant.

The diagnosis was made clinically as Morel Lavelle lesion on the right thigh. Due to financial issues the MRI was deferred. On aspiration, a straw coloured fluid was retrieved from the cyst (Picture 3). The collection recurred again following aspiration and compression. Patient was offered sclerotherapy and surgery but he opted for latter. He then underwent curettage with primary closure of the wound. Post operatively he was given compression bandage. His contour was restored with satisfactory outcome.
Case III
A 50 years old gentleman presented with right thigh swelling, two months after a road traffic accident as he fell from a two wheeler. He was also overweight. Prior to referral to our centre, he underwent multiple stab incision and fluid drainage at a local hospital but the swelling recurred in 15 days. On examination he had a cystic swelling on the lateral lower thirds of the right thigh measuring approximately 10x15 cm. He also has a 5x5 cm eschar on the upper aspect of the right leg. The MRI showed T2 Hyperintense lesion with hypointense rim (Image 2) consistent with Morel Lavelle on the right thigh. He underwent excision of the pseudocapsule with primary closure on the right thigh and STSG on the right leg after removal of eschar. The histopathology showed dense fibrosis with minimal chronic inflammation. Post operatively he was placed on compression bandage. He did not have recurrence and his condition settled well.

Case IV
A 52 years old lady presented to accident and emergency with injuries to both lower limbs as she was hit by a heavy vehicle while walking. On the right side she had open degloving of the leg with Type IIIB both bone fracture. On the left side she had internal degloving from mid thigh till the leg along with first metatarsal fracture and soft tissue loss on the dorsum of foot. She underwent debridement with external fixator and free ipsilateral latissimus dorsi flap cover and Skin grafting for the right leg injury. On the left side she underwent K- wire fixation for the first metatarsal fracture with skin grafting on the dorsum of foot. Compression bandaging was done for the internal degloving of the left leg. However after 1 week she developed eschar on the anteromedial aspect of mid third of leg measuring 8x7 cm and another 4x4 cm eschar on the distal part of the leg. The eschar was debrided and fluid was drained and the cavity was washed. She later underwent skin grafting for the residual raw areas, which settled well. The MRI could not be done as the patient was on external fixator for the right leg injury.

Case V
A 31 years old lady with 3 months of gestation was referred from department of orthopaedics with circumferential eschar on the right mid thigh. She was obese. She sustained shear injury to the right thigh when she slipped from the moving train. She was initially treated at a local hospital for 8 days till the eschar demarcated (Picture 4). She was then referred to our hospital for further management.
Case VI
A sixty year old overweight gentleman presented with severe crush injury to bilateral lower limbs when he was hit by a truck. The right midthigh had circumferential internal degloving along with closed fracture femur. He underwent bilateral below knee amputation with fracture femur fixation. The degloved skin later became non viable. The eschar was debrided and the wound was skin grafted in stages.

Table 1: Showing summary of the cases

DISCUSSION:
Morel Lavelle extravasation, Morel-Lavelle hematoma and effusion\(^3\) Clinical presentation can be acute or chronic. In acute scenario it may be identified within hours of injury as soft fluctuant swelling with skin discoloration and delayed necrosis. Patient generally complains of pain, swelling and anaesthesia over the region. There may be underlying associated fractures. Chronic condition presents as contour deformity\(^5\). The diagnosis is generally clinical and radiological. Upto one third of the lesions may be missed and present as chronic contour deformity. For chronic lesions ultrasonography, computed tomography and MRI are the modality to aid diagnosis. On ultrasound the lesion is seen between subcutaneous fat and fascia. The echogenicity of the lesion depends on the fat and blood content of the fluid. MRI is the diagnostic tool of choice. The early lesions may be ill defined with hyperintense collection on T2 weighted images. As the lesion organises with time, the T1 images become hyper intense and the periphery hypointense. Mellado et al gave a classification of Morel Lavelle lesion of six types based on MRI findings\(^6\). Acute lesions may be confused with abscesses, fat necrosis and soft tissue tumours. The differential diagnoses for chronic collections are seromas, bursitis and lymphoceles\(^7\). Multiple treatment options have been proposed based on timing of presentation and extent of injury. Small lesions may require less invasive methods like aspiration with compression bandaging\(^9\). Larger lesions may not respond to repeated needle drainage and often need open drainage and healing by secondary intention. Early treatment can be done by multiple stab incision and drainage and compression\(^10\).
Debridement with drainage is also recommended to prevent infections. In cases of delayed skin necrosis, eschar excision with skin grafting would suffice. In chronic condition, it is essential to remove the pseudocapsule to prevent recurrence. Conservative options like sclerodermis with tcalc, Doxycycline and alcohol may be done after seroma aspiration. Other surgical techniques are placing quilting sutures and liposuction.

The area of significance in our series is that 5 out of 6 patients were overweight or obese. In such patients the diagnosis is easily missed. In the series by Carlson et al. most of the patients were obese. Three patients had chronic lesion which were managed with excision of pseudocapsule drainage and primary closure. Two patients had extensive circumferential degloving requiring debridement of eschar and skin grafting. One patient was initially managed conservatively but eventually required small skin grafting. The longest duration of presentation was 12 months (case I) and earliest diagnosis was made within few hours of injury (Case IV). The treatment was delayed in two patients as they were referred to us late when the eschar had formed following circumferential degloving of the thigh. The common location in our patients were thigh and leg.

CONCLUSION:
Morel Lavelle lesion has a varied presentation depending at what time it is diagnosed. Timely recognition not only saves the morbidity but also ensures definitive early management. In our series most of the patients were overweight with extensive circumferential degloving ultimately amounting to skin necrosis requiring skin grafting. Circumferential degloving frequently result in nonviable skin. Missed diagnosis leads to formation of eschar and later requiring debridement and skin grafting.

Bibliography:


