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THE MOREL LAVALLÉE LESION – A CLOSED DEGLOVING INJURY AND THE ENSUING COLLECTION

[1]Dr. S. N. Saravana Sundaram MBBS, MS., [2]Dr. Rufus Ranjithsingh Edwin MBBS, MS, [3*]Jyothsna Chelikam, [4]Arihanth Ravichandran, [5]Dr. Rekha Arcot MS, FRCS(G)

[1]Senior Resident, Department of General Surgery, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.
[2]Assistant Professor, Department of General Surgery, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.
[3]Post Graduate, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.
[4]Medical Student, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.
[5]Professor of Surgery, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.

***Corresponding Author: Dr. Jyothsna Chelikam**
Post Graduate, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Tamil Nadu, India.

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INTRODUCTION

A collection of blood, lymph and blood products occurs after a closed degloving injury, with a potential to form cellulitis abscess, and osteomyelitis. This Morel Lavallée lesion presents late after trauma and is very often undetected. A knowledge of this condition is essential for prompt diagnosis and appropriate treatment.

CASE REPORT

A 44 year old lady came to the surgery emergency with complaints of a swelling in the right gluteal region for one month. She had a history of a road traffic accident with injury to the hip 2 months prior to this. She had history of fever, had abrasions over the gluteal region and a 12× 13 cm swelling present. This was soft, tender, not warm and seemed fluctuant(Fig 1). A screening ultra sound showed a fluid filled swelling with septations and internal echoes extending from the right iliac crest to the antero-lateral aspect of the right thigh, in the deep subcutaneous plane. A CT done showed a hypodense fluid collection of 1800 ml with fat stranding, suggestive of a haematoma(Fig 2). Under anaesthesia a small incision was made and a suction cannula was inserted and all the contents(serous fluid) were suctioned out(Fig 3 with inset showing the aspirated contents). The cavity was drained with a closed suction system for 3 days. Sclerodesis with streptomycin was done and a compression dressing was applied. The post operative USG shows a small residue of collection(Fig 4).

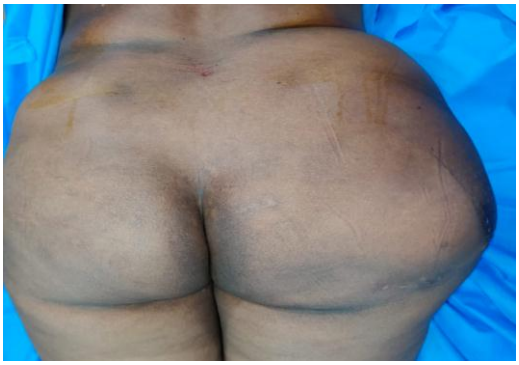

Figure 1: The clinical image showing the MLL in the right iliac crest and lateral thigh.

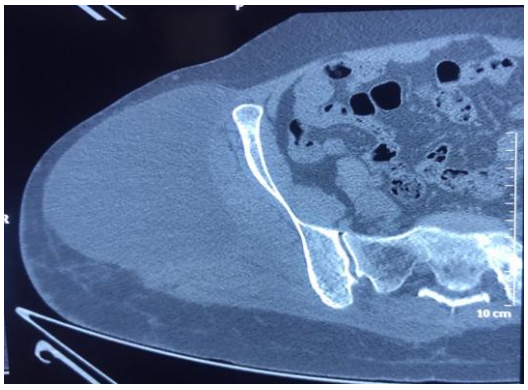

Figure 2: CT image showing a collection of 1800ml in subcutaneous plane of right iliac, right gluteal, lower lumbar region.

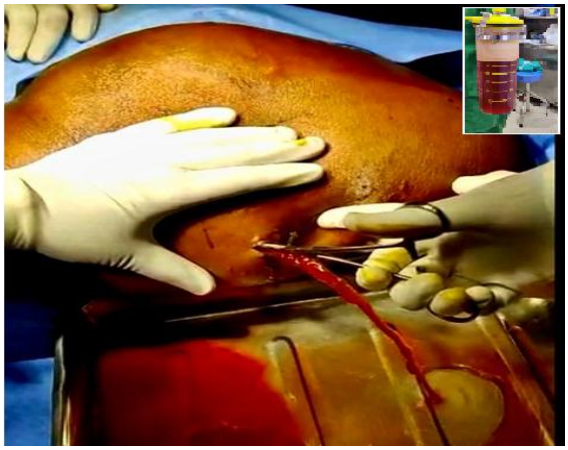

Figure 3: Intra operative picture showing serous fluid with inset showing aspirate contents.

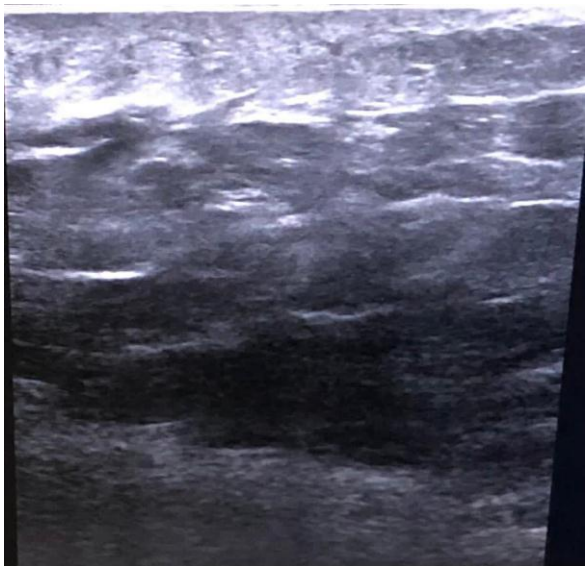

Figure 4: Post procedure Ultrasonogram showing a thin rim of collection.

DISCUSSION

The French physician, Victor-Auguste-François Morel-Lavallée, first described the lesion[1] in 1863, however it was Letournel and Judet who gave it the eponymous term Morel-Lavallée lesion The Morel Lavallée lesion(MLL) happens when a closed degloved injury allows the hypodermis to separate from the fascia.[2,3] The ensuing trauma tears the bridging lympho vascular plexus and results in an effusion in the peri fascial space formed by blood, plasma, desquamated cells and necrotic fat.[4]

The size of the collection maybe very small and may accommodate almost 2 litres of blood and lymph. The patient often gives a past history of trauma, and may have associated acetabular or pelvic fractures. Risk factors include a BMI greater than 25 and female gender. Most of the lesions are noted over the peri trochanteric region. This has been attributed to the large surface area of the gluteal region, an abundance of soft tissue and the mobility and the rich capillary network in that region. MLL have been less often reported from other locations. The clinical presentation depends on the rate and size of the MLL. Small collections are often asymptomatic and are detected on imaging. Shunsuke Takahara et al reported that MLLs were present in 8 - 44% of injuries.[5] The patient often complains of an asymmetry depending on the body habitus and is more pronounced in the slender frame. Once the MLL starts to grow it may be associated with discomfort, not amounting to pain. Large MLL can cause restriction of function. When the collection doesn't resolve, or is not drained, it can get inoculated with bacteria and transform into an abscess that causes pain, redness, fever and sepsis. The development of a pseudo capsule can mimic a neoplasm.

Ultrasound shows a hypoechoic lesion with debris. CT often shows a haematoma like picture with a fluid –fluid level with sedimentation of the blood in the fluid.MRI is often the image that clinches the diagnosis. The lesions are often homogeneously hypointense on T1W sequences and hyper intense on T2W sequences, and may resemble a simple fluid collection.

The shape of lesion, signal characteristics, enhancement, and the presence or absence of a capsule were the variables based on which Mellado and Bencardino described six types of lesions.[6] The Mellado-Bencardino classification of Morel-Lavallée lesions is based on shape, signal and enhancement characteristics, and the presence or absence of a capsule.

- **type I**: laminar-shaped and seroma-like with increased T2 signal.
- **type II**: oval-shape that resembles a subacute hematoma with increased T1 and T2 signal; thick capsule and variable enhancement.
- **type III**: oval shaped resembling a chronic organizing hematoma; thick capsule and internal/peripheral enhancement.
- **type IV**: linear; looks like a closed laceration with hypointense T1 signal and hyperintense T2 signal; no capsule and variable enhancement.
- **type V**: pseudonodular with a round shape, variable T1 and T2 signal, a thin or thick capsule, internal/peripheral enhancement.
- **type VI**: infected with variable T1 and T2 signal; variable sinus tract formation, a thick capsule, and internal/peripheral enhancement.

The treatment depends on the symptoms[7] and the size of the lesion and vary from expectant watchfulness, aspiration, incision and drainage, elastic compression bandage, sclerodesis with doxycycline, fibrin or talc.[8-15] Often the underlying fracture must be treated.

Conclusion The greater trochanter/hip, thigh, pelvis, knee, gluteal region, lumbosacral area, abdominal area, calf/lower leg, and head can be locations for the MLL[16], which is also called as a pseudolipoma, chronic expanding haematoma and a post traumatic soft tissue

cyst. The MLL is often recalcitrant to management[17] and often an alogorithmic approach is necessary.[18]

REFERENCES

1. Morel-Lavallée VAL: Decollements traumatiques de la peau et des couches sous jacentes. Arch Gen Med, 1863; 1: 20-38, 172-200, 300-332.
2. J.A. Scolaro, T. Chao, D.P. Zamorano The Morel-Lavallée lesion: diagnosis and management J. Am. Acad. Orthop. Surg, 2016; 24(10): 667-672.
3. F. Zairi, Z. Wang, D. Shedid, G. Boubez, T. Sunna Lumbar Morel-Lavallée lesion: case report and review of the literature Orthop. Traumatol. Surg. Res, 2016; 102(4): 525-527.
4. Bonilla-Yoon I, Masih S, Patel DB, et al. The Morel-Lavallée lesion: Pathophysiology, clinical presentation, imaging features, and treatment options. Emerg Radiol, 2014; 21(1): 35-43. 23949106.
5. Shunsuke Takahara, Keisuke Oe, Hironori Fujita, Atsushi Sakurai, Takashi Iwakura, Sang Yang Lee, Takahiro Niikura, Ryosuke Kuroda, Masahiro Kurosaka, "Missed Massive Morel-Lavallee Lesion", Case Reports in Orthopedics, vol. 2014, Article ID 920317, 4 pages, 2014. https://doi.org/10.1155/2014/920317.
6. Mellado JM, Bencardino JT: Morel-Lavallée lesion: Review with emphasis on MR imaging. Magn Reson Imaging Clin N Am, 2005; 13(4): 775-782. 16275583.
7. T.P. Nickerson, M.D. Zielinski, D.H. Jenkins, H.J. S chiller The Mayo Clinic experience with Morel-Lavallée lesions: establishment of a practice management guideline J. Trauma Acute Care Surg, 2014; 76(2): 493-497.
8. M. Mooney, M. Gillette, D. Kostiuk, M. Hanna, N. Ebraheim Surgical treatment of a chronic Morel-Lavallée lesion: a case report J. Orthop. Case Rep, 2020; 9(6): 15.
9. T. Vander Doelen, A. Manis Conservative management of Morel-Lavallée lesion: a case study J. Can. Chiropr. Assoc, 2019; 63(3): 178.
10. Carlson DA, Simmons J, Sando W, Weber T, Clements B: Morel-Lavalée lesions treated with debridement and meticulous dead space closure: Surgical technique. J Orthop Trauma, 2007; 21(2): 140-144.17304071.
11. S. Tseng, P. Tornetta III Percutaneous management of Morel-Lavallée lesions JBJS, 2006;88(1): 92-96
12. P. Li, X. Ning, L. Jia, G. Du, S. Jiang, Z. Gong, *et al.*A minimally invasive incision and loop drainage technique for the treatment of lower limb Morel-Lavallée lesions: Nose ring drainage technique Injury, 2020; 51(2): 570-573
13. S. Luria, Y. Applbaum, Y. Weil, M. Liebergall, A. P eyser Talc sclerodhesis of persistent Morel-Lavallée lesions (posttraumatic pseudocysts): case report of 4 patients J. Orthop. Traumatol. Rehabil, 2006; 20(6): 435-438.
14. Bansal A, Bhatia N, Singh A, Singh AK: Doxycycline sclerodesis as a treatment option for persistent Morel-Lavallée lesions. Injury, 2013; 44(1): 66-69. 22204771.
15. Liu Y, Sadowski RM, Plastini MA: Treatment of rare Morel-Lavalée lesion of the arm with liposuction. Inj Extra, 2014; 45(1): 6-8.
16. Vanhegan IS, Dala-Ali B, Verhelst L, Mallucci P, Haddad FS: The Morel-Lavallée lesion as a rare differential diagnosis for recalcitrant bursitis of the knee: Case report and literature review. Case Rep Orthop, 2012; 2012: 593193.23320230
17. Nickerson TP, Zielinski MD, Jenkins DH, Schiller HJ: The Mayo Clinic experience with Morel-Lavallée lesions: Establishment of a practice management guideline. J Trauma Acute Care Surg, 2014; 76(2): 493-497.24458056
18. Dawre S, Lamba S, Sreekar H, Gupta S, Gupta AK: The Morel-Lavalée lesion: A review and proposed algorithmic approach. Eur J Plast Surg, 2012; 35(7): 489-494.