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Chronic Recurrent Gluteal Morel-Lavallée Lesion Managed by En Bloc Surgical Excision: A Reconstructive Soft-Tissue Case Report

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Abstract: Case Report

***Introduction*:** Morel-Lavallée lesions (MLLs) are closed degloving injuries resulting from shearing forces that separate the subcutaneous tissue from the underlying fascia. While acute forms may resolve with conservative management, chronic lesions often recur due to fibrous encapsulation, requiring definitive surgical intervention. ***Case Presentation*:** We report the case of a 36-year-old male police officer who sustained a pelvic trauma during a high-velocity accident in 2022. He developed a recurrent, encapsulated gluteal MLL that was incompletely treated by two prior procedures. The lesion persisted and progressively expanded, forming a voluminous soft-tissue mass in the left gluteal region. Imaging showed a hypoechoic, avascular collection measuring 12 × 10 cm. MRI confirmed fibroadipose infiltration and tissue hypertrophy without visible tumoral component. Surgical management consisted of an en bloc excision of the fibrous and adipose mass, followed by layered closure with Redon drainage. ***Results*:** The postoperative course was favorable. Serial ultrasound assessments over 4 months showed resolution of the collection with only inflammatory changes. Histopathology confirmed diffuse adipose hyperplasia without atypia or malignancy. Immunohistochemistry for MDM2 and Ki67 was negative. ***Conclusion*:** Chronic gluteal MLLs, particularly in active patients, pose diagnostic and therapeutic challenges. This case underscores the importance of early MRI diagnosis, recognition of encapsulated evolution, and radical surgical resection in recurrent forms. A reconstructive surgical approach with tension-free closure and appropriate drainage significantly improves outcomes and prevents further recurrence.

Keywords: Morel-Lavallée Lesion, Soft Tissue Injuries, Gluteal Region, Degloving Injury, Chronic Seroma, Surgical Excision, Reconstructive Surgery, Adipose Hyperplasia, Encapsulated Mass, Post-Traumatic Lesion.

1. INTRODUCTION

Morel-Lavallée lesions (MLLs) are closed internal soft-tissue degloving injuries caused by high-energy shearing trauma that separates the subcutaneous tissue from the underlying fascia, creating a potential space filled with blood, lymph, and necrotic adipose tissue [1]. Originally described in 1853 by Maurice Morel-Lavallée, these lesions remain underrecognized in acute trauma settings and are frequently misdiagnosed as hematomas, seromas, or lipomatous tumors [2, 3].

The gluteal region is a well-documented site for MLLs due to its firm fascial attachments and predisposition to shear forces, especially during pelvic trauma. If not promptly diagnosed and adequately treated, these lesions may become chronic, encapsulated, and symptomatic, often requiring surgical management [4, 5]. The development of a

fibrous pseudocapsule in chronic cases limits spontaneous resorption and complicates non-operative treatments such as aspiration or compression alone [6]. Chronic lesions may also present as large, fluctuating masses that mimic neoplastic processes, making histopathological confirmation essential to exclude malignancy [7].

Despite increasing awareness, no consensus exists regarding optimal treatment strategies for recurrent and encapsulated MLLs. Several techniques have been proposed, including percutaneous drainage with sclerotherapy, vacuum-assisted closure, or open surgical excision [8, 9]. Here, we present a rare case of a chronic, recurrent gluteal Morel-Lavallée lesion in a young, active male patient, managed by **en bloc surgical excision**. This case illustrates the reconstructive challenges in managing these complex lesions and underscores the role of complete resection and layered closure in achieving definitive resolution.

2. CASE PRESENTATION

A 36-year-old male police officer sustained high-energy pelvic trauma on April 13, 2022, during a work-related accident. He was diagnosed with a non-displaced pelvic ring injury and extensive soft tissue necrosis of the right leg, managed surgically in two stages (June 28 and October 3, 2022).

From July 2022, the patient developed a progressive, soft, painless swelling in the left gluteal region. Two prior drainage procedures in a private clinic failed to prevent recurrence. On clinical examination, the mass measured 10 × 24 cm and was mobile, pendulous, and located beneath a surgical scar.

Ultrasound in September 2023 showed a 12 cm hypoechoic, avascular collection. A follow-up scan in November 2023 revealed a 10.7 × 2 cm persistent lesion with soft tissue infiltration. MRI in September 2024 showed subcutaneous fat hypertrophy (92 mm thick) with diffuse inflammatory changes but no discrete mass.

Surgery was performed on January 8, 2025. Under spinal anesthesia in prone position, a fusiform incision along the previous scar was made. The fibroadipose mass was dissected and excised in one piece. The cavity was irrigated, and closure was performed in layers with a Redon drain.

Macroscopically, the specimen consisted of four yellow fragments, the largest measuring 16 × 12 × 3 cm. Histology showed adipose hyperplasia with fibrous septa and minimal chronic inflammation. No cellular atypia or neoplastic features were observed. Immunohistochemistry for MDM2 and Ki67 was negative.

The postoperative course was uneventful. No imaging was performed postoperatively, but clinical follow-up confirmed complete resolution. The patient returned to normal activity within six weeks.

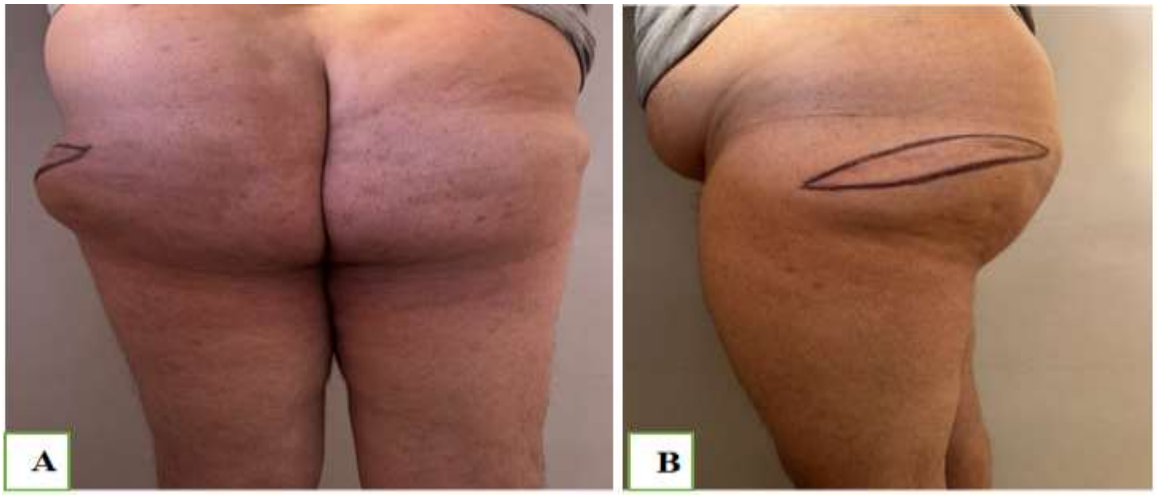

Figure 1: Preoperative photographs of a patient presenting with Morel-Lavallée syndrome involving the lateral region of the left gluteal region, showing the planned fusiform skin incision marking: A) Strict posterior view; B) Strict lateral profile view of the involved area

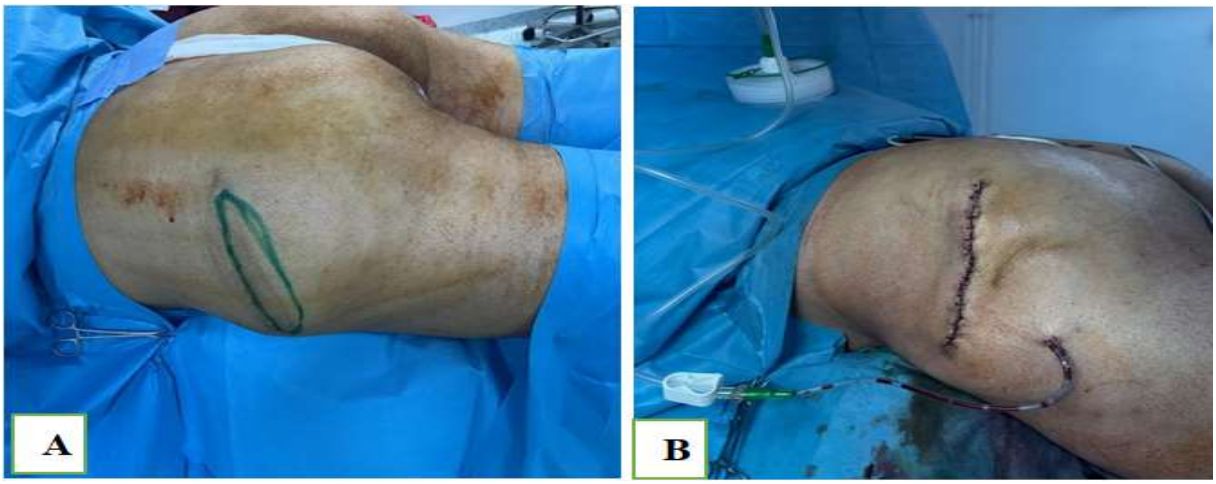

Figure 2: Intraoperative photographs of the patient during surgical management of the Morel-Lavallée lesion: A) View before skin incision; B) End-of-procedure view

3. DISCUSSION

MLLs are increasingly reported but remain underrecognized in the acute trauma setting. When diagnosis is delayed or treatment incomplete, the lesion may become encapsulated and persist as a chronic seroma [1, 2].

In gluteal lesions, chronicity is frequent due to deep fascial planes and constant mechanical stress. Conservative options, including aspiration and compression, are effective in acute stages but insufficient once a pseudocapsule forms [3, 4].

MRI is essential in staging the lesion and identifying fat hypertrophy, fluid content, and capsular formation. In our patient, the imaging confirmed a chronic, non-enhancing lesion consistent with an encapsulated MLL [5].

Surgical en bloc excision remains the gold standard in chronic or recurrent MLLs. Several reports advocate for resection followed by multi-layered closure and negative pressure or suction drainage to minimize dead space [6–8]. Our case supports this approach, achieving a definitive resolution.

Histopathological confirmation is crucial in chronic cases to rule out neoplasms, particularly atypical lipomatous tumors (WDL). Infiltrative masses with persistent inflammation may mimic soft tissue sarcomas. In this case, negative MDM2 and Ki67 staining excluded malignancy [9, 10].

From a reconstructive standpoint, gluteal MLLs present unique challenges. Closure must consider tension, dead space, and aesthetic contour. Adequate drainage and compressive management are essential to prevent recurrence [11].

This case reinforces the importance of early diagnosis, MRI-based staging, and surgical planning in chronic gluteal MLLs. A reconstructive surgical approach is effective and durable in active, working-age patients.

4. CONCLUSION

Chronic recurrent Morel-Lavallée lesions, especially in the gluteal region, require a multidisciplinary strategy combining diagnostic imaging, surgical resection, and histopathological confirmation. En bloc excision with layered closure remains the most definitive treatment for encapsulated forms. Reconstruction-focused closure with drain placement and compression allows for optimal recovery and functional return.

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