

## Chronic Morel-Lavallée lesion in gluteal region

Published on 07.08.2019

**ISSN:** 1563-4086

**Section:** Musculoskeletal system

**Area of Interest:** Anatomy

**Imaging Technique:** MR

**Special Focus:** Abscess Inflammation Ischaemia /

Infarction Case Type: Clinical Cases

**Authors:** Samruddhi Vijay Jain<sup>1</sup>, Foram Gala<sup>2</sup>

**Patient:** 40 years, female

### Clinical History:

A 40-year-old female patient came with complaint of swelling in the right gluteal region for 1-2 months. There was no history of acute trauma; however, she had a history of a fall and injury in the right hip region two years before. She had experienced pain for a few days but did not seek medical advice.

### Imaging Findings:

MR imaging of the right gluteal region was performed on a 3 T system (Achieva, Philips Medical system) using SENSE 6 channel-phased array torso coil and high-resolution matrix. It revealed a well-defined, encapsulated oval lesion measuring 4.3 x 4.4 x 3.8 cm (AP x Trans X CC) in the right gluteal region in the subcutaneous plane. It was predominantly hyperintense on T2-weighted images (Figure 2) and hypointense on T1-weighted images. Multiple foci appearing hyperintense on T1-weighted imaging were seen in the periphery of the lesion which were suppressed on STIR images, suggestive of fat (Figures 3, 4; curved arrow). Few thin internal septae were also seen (Figures 3, 5; straight arrow). Mild surrounding subcutaneous oedema was also noted (Figures 2, 3). Visualised bones, muscle and joint were normal.

### Discussion:

Morel-Lavallée lesions are post-traumatic lesions occurring due to interfacial split between subcutaneous soft tissue and muscle [1] with resultant potential space that is filled by haemolympathic fluid. These are frequently associated with degloving injuries from blunt shearing or tangential forces [1]. This is an uncommon entity with unknown exact incidence rate. Male to female predilection of this lesion is 1:1 [2]. Originally these lesions were described in the region of greater trochanter associated with acetabular fractures [3]. Nowadays multifocal locations of Morel-Lavallée lesions in pelvis [4], lumbosacral [5], gluteal thigh [6] and calf [7] regions is well accepted. Radiograph, ultrasonography and CT are initial modalities for evaluation of Morel-Lavallée lesions; however, MRI is considered best for identification, characterisation and anatomical extension [1]. Radiographic appearances of these lesions are not very characteristic and they appear as irregular soft tissue density. On ultrasonography Morel-Lavallée lesions are located in between deep fat and overlying subcutaneous fascia with acute-subacute lesion revealing irregular margins, and heterogeneous hypoechoic to anechoic cystic appearance [8]. Chronic lesions (>18 months) appears as well-defined, fusiform collection with smooth margins and homogenous fluid echogenicity [8]. On CT, acute lesions show irregular margins, no capsule and hyperdense to heterogeneous hypodense attenuation

with internal fat globules [9]. On evolution, chronic Morel-Lavallée lesions reveal a well-marginated pseudo capsule, and homogeneous fluid density with post-contrast enhancement of the capsule [9]. However, this appearance is not specific as it is similar to contusions or simple haematomas.

MRI is the modality of choice for detailed evaluation and diagnosis. Morel-Lavallée lesion is categorised in 6 different types [1, 10] depending upon its appearance on MR imaging (Figure 1). These lesions are localised between superficial and deep fascia.

Many treatment strategies have been established for these lesions like compression banding, percutaneous drainage, incision and evacuation with or without sclerotherapy and open debridement [11]. In early stages compression bandage, ultrasound-guided percutaneous drainage and sclerotherapy treatment with talc, alcohol and doxycycline can be attempted. However, open debridement is considered necessary in chronic lesions refractory to above treatment, chronic lesions with a pseudo capsule and in acute cases with an underlying open fracture [11]. MR imaging plays an important role not only in the diagnosis and characterisation of Morel-Lavallée lesions but also helps with the selection of an appropriate treatment strategy.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Type 1 chronic Morel-Lavallée lesion , Abscess , Haematoma, Fat necrosis, Serous cystic lesion, Soft tissue sarcoma

**Final Diagnosis:** Type 1 chronic Morel-Lavallée lesion

#### References:

- Bonilla-Yoon I, Masih S, Patel DB, White EA, Levine BD, Chow K, Gottsegen CJ, Matcuk GR. Jr. (2013) The Morel Lavallée lesion: pathophysiology, clinical presentation, imaging features, and treatment options. *Emerg Radiol* 21(1):35–43 (PMID: [23949106](#))
- Nickerson TP, Zielinski MD, Jenkins DH, Schiller HJ (2014) The Mayo Clinic experience with Morel-Lavallée lesions: Establishment of practice management guideline. *J Trauma Acute Care Surg* 76(2):493–7 (PMID: [24458056](#))
- Letournel E, Judet R (1993) *Fractures of the Acetabulum*. 2nd edition. Berlin, Germany: Springer
- Harma A, Inan M, Ertem K (2004) The Morel-Lavallée lesion: a conservative approach to closed degloving injuries. *Acta Orthopaedica et Traumatologica Turcica* 38(4):270–273 (PMID: [15618769](#))
- Zhu Y, Xu Y, Li J, Dai Y, Yang X, Zhao H (2010) Surgical treatment of Morel-Lavallée lesion with perineal lacerations. *Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi* 24(6):726–729 (PMID: [20632510](#))
- Luria S, Yaakov A, Yoram W, Meir L, Peyser A (2006) Talc sclerodhesis of persistent Morel-Lavallée lesions (Posttraumatic Pseudocysts): case report of 4 patients. *Journal of Orthopaedic Trauma* 20(6):435–438 (PMID: [16825972](#))
- Moriarty JM, Borrero CG, Kavanagh EC (2011) A rare cause of calf swelling: the Morel-Lavallée lesion. *Irish Journal of Medical Science* 180(1):265–268 (PMID: [19618237](#))
- Neal C, Jacobson JA, Brandon C, Kalume-Brigido M, Morag Y, Girish G (2008) Sonography of Morel-Lavallée lesions. *J Ultrasound Med Off J Am Inst Ultrasound Med* 27(7): 1077–1081 (PMID: [18577672](#))
- McKenzie GA, Niederhauser BD, Collins MS, Howe BM (2016) CT characteristics of Morel-Lavallée lesions: an under-recognized but significant finding in acute trauma imaging. *Skeletal Radiol* 45(8):1053-60 (PMID: [27098352](#))
- Mellado JM, Bencardino JT (2005) Morel-Lavallée lesion: review with emphasis on MR imaging. *Magn Reson Imaging Clin N Am* 1(4): 775–782 (PMID: [16275583](#))
- Sreelatha Diviti, Nishant Gupta, Kusum Hooda, Komal Sharma, and Lawrence Lo (2017) Morel-Lavallee Lesions- Review of Pathophysiology, Clinical Findings, Imaging Findings and Management *J Clin Diagn Res* 11(4): TE01–TE04 (PMID: [28571232](#))

# Figure 1

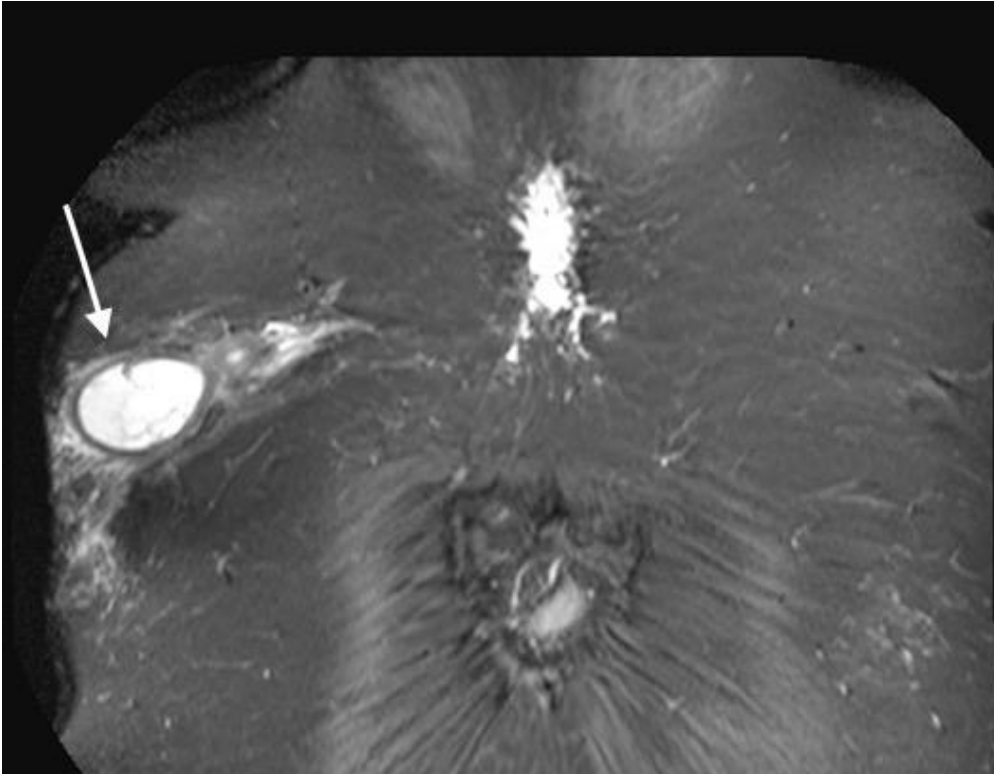
a

Type	Characteristic	Appearance	T1	T2
I	Seroma	Homogenous	Hypointense	Hyperintense
II	Sub acute hematoma	Homogenous; sometime heterogeneous with fat lobules and blood separation products	Hyperintense	Hyperintense
III	Organizing hematoma	Heterogeneous due to hemosiderin deposits, debris, blood products and fibrin	Hypointense	Hypointense
IV	Closed laceration	Absent capsule	Hypointense	Hyperintense
V	Pseudo nodular	Small, round pseudo nodular and may have enhancement	Variable	Variable
VI	Superimposed infection	Thick enhancing capsule with sinus tract	Hypointense	Hyperintense

**Description:** Table of types of MRI appearance of Morel-Lavallée lesion. **Origin:** Types of MRI appearance of Morel-Lavallée lesion (Bonilla-Yoon I, 2013)

**Figure 2**

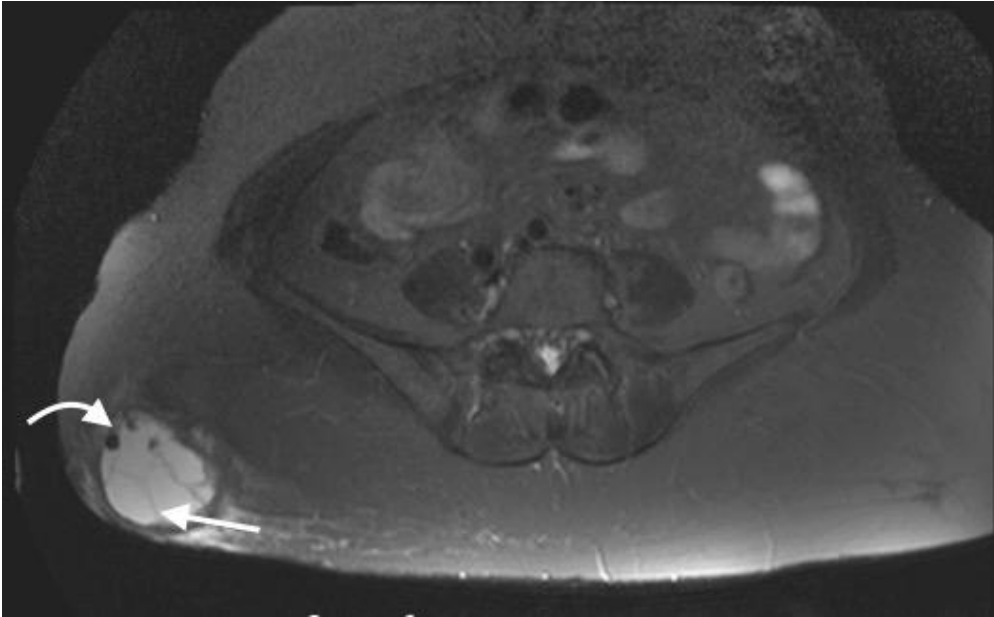
a



**Description:** Coronal STIR image of right gluteal region shows well-defined, encapsulated oval hyperintense lesion in the subcutaneous plane. **Origin:** © Lifescan imaging center, Malad, India 2019

### Figure 3

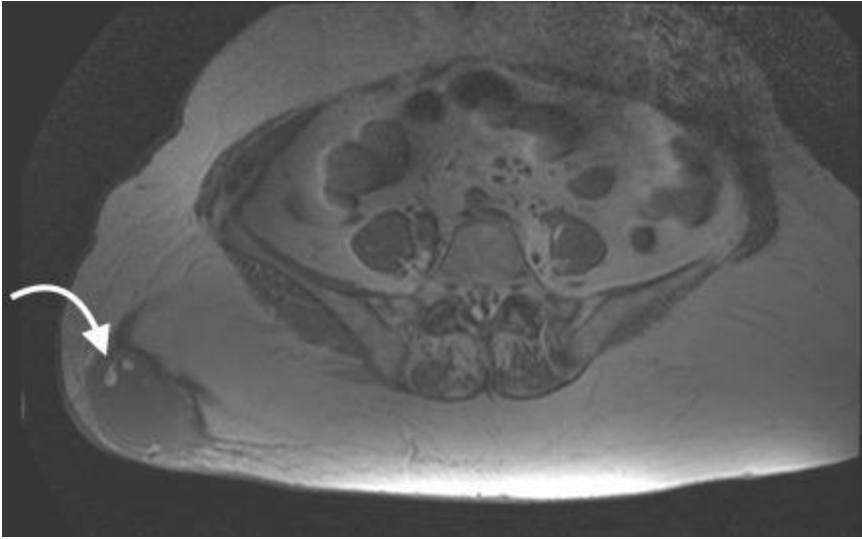
a



**Description:** Axial STIR images of gluteal region shows hyperintense lesion with peripheral foci of fat (curved arrow) and thin internal septae (straight arrow). **Origin:** © Lifescan imaging center, Malad, India, 2019

## Figure 4

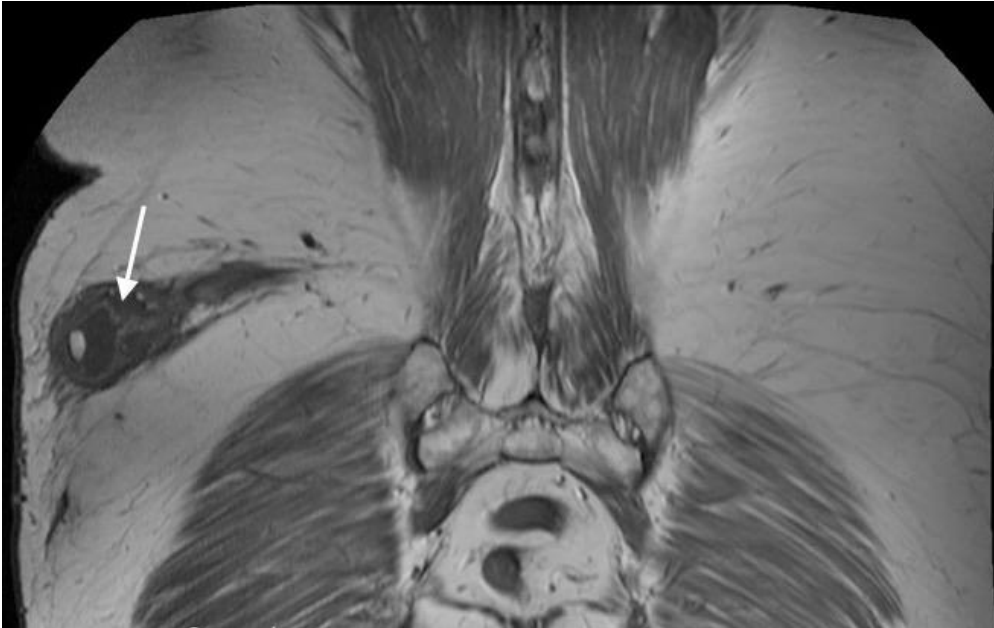
a



**Description:** Axial T1 image shows predominantly hypointense lesion with peripheral foci appearing hyperintense suggestive of fat (curved arrow). **Origin:** © Lifescan imaging center, Malad, India, 2019

## Figure 5

a



**Description:** Coronal T1 image showing thick-walled hypointense lesion with septae. **Origin:** © Lifescan imaging center, Malad, India, 2019