Morel-Lavallée lesion

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A 58-year-old man with a history of mental retardation and type 2 diabetes mellitus presented to the emergency department following a ground-level fall. The patient had an adjustment in his insulin dose by his primary care physician one month ago and had multiple episodes of hypoglycemia at home and multiple falls in the past month. He had no history of using anticoagulants and nonsteroidal anti-inflammatory drugs. The patient had a left knee hematoma following a fall 3 weeks ago and had left knee hemarthrosis at an outside facility. The patient had another fall one week ago, he hit his right ear on the corner of a counter table causing the development of a large earlobe hematoma, and this pain increased and brought him to the hospital. The patient's caregiver stated that the left knee hemarthrosis was completely drained at the outside facility but continued to reaccumulate. Physical examination showed a right auricular hematoma involving the entire ear and significant swelling at the left knee and distal thigh with tenderness at the left knee (Figure 1).

Figure 1. Photograph illustrating swelling in the left distal thigh and around the knee.

Computed tomography of the left knee showed a 17.3 × 18.2 × 44.1 cm heterogenous intermediate density structure coursing medially along the proximal aspect of the left thigh and distally in the soft tissues anterior to the knee and left tibia and fibula (Figure 2A and 2B). The orthopedic service was consulted, and a left knee arthrocentesis drained 120 ml serosanguinous fluid. Synovial fluid cultures were negative. The hematologic workup was negative. On hospital day 3, the hemoglobin decreased from 8.9 to 8.0 gm/dL, and he was transfused 2 units of packed red blood cells. The left knee drain continued to drain; the maximum output on hospital day 4 was 3070 ml (Table 1). Repeat CT left knee showed a decrease in the size of the fluid collection measuring 12.6 × 2.8 × 28 cm in the anterior subcutaneous tissues at the level of the mid-left femur, extending distally to the level of the knee suggesting a Morel-Lavallée lesion. Interventional radiology was consulted for ultrasound-guided catheter drainage due to persistent fluid collection (Figure 3). After the placement of the drain, the patient continued to have output, but his hemoglobin was stable. The patient was discharged and had a follow-up appointment with an orthopedic surgeon at an outside facility.

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DOI: 10.12746/swrccc.v11i47.1163

Discussion

The Morel-Lavallée lesion was first described in 1848 and is a closed degloving soft tissue injury with an abrupt separation of skin and subcutaneous tissue from the underlying fascia.[1,2] This avulsed channel leads to leakage of blood and lymph into the cavity resulting in fluid collection. Over time, blood in the cavity starts reabsorbing, and only serosanguinous fluid remains in the cavity. The cavity is surrounded by the

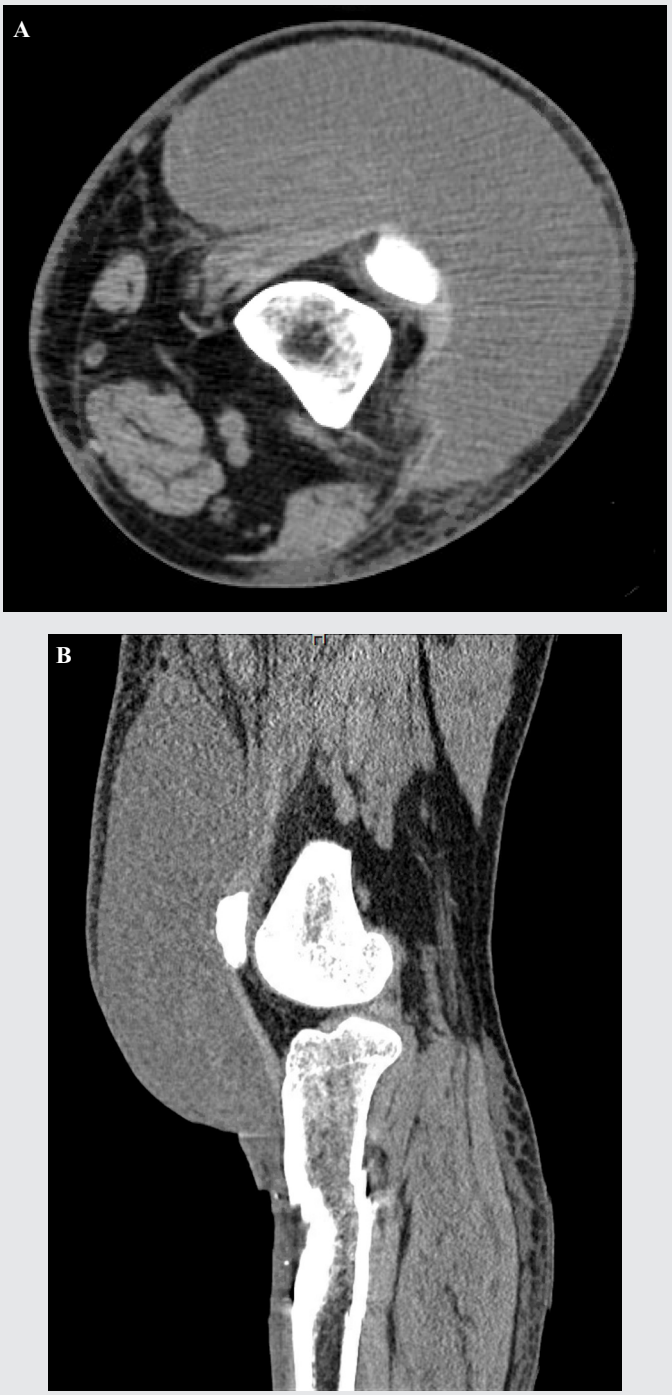

Figure 2. A: Computed tomography illustrating large heterogeneous soft tissue density in the medial left leg. **B:** Computed tomography illustrating a homogeneous soft tissue density extending below the left knee anterior over the tibia and fibula.

Figure 3. Photograph of body fluid collection from the distal left leg.

hemosiderin layer. This layer then forms a capsule that prevents further fluid reabsorption and develops a chronic fluid cavity described as a Morel-Lavallée lesion. The common locations include the greater trochanter, proximal femur, pelvis, and acetabulum with the greater trochanter being the most common location (60%).[3] Clinical presentation includes gradually increasing swelling associated with pain.[3] The diagnosis is usually made by magnetic resonance imaging or ultrasound which is a less sensitive test. The disease can have a variable appearance on images depending on the size, contents of the lesion, and chronicity of the lesion but usually appears as a soft tissue density.[4] There is no established guideline on management; conservative management is recommended in small acute Morel-Lavallée lesions without capsule formation. Percutaneous aspiration can have a high recurrence rate, and surgery is required in the chronic case with excision of the capsule.[3] This case demonstrates

Table 1. Catheter Drainage of the Fluid Collection

Hospital Day	1	2	3	4	5	6	7	8	9	10
Left Knee Drain Output (ml)	1401	830	1560	3070	580	270	500	785	225	100
Hgb (gm/dL)	8.9	8.3	8.0	10.1	9.6	10.1	10.2	9.9	9.6	9.7
Notes			2 units transfused					IR-guided catheter		

IR–interventional radiology.

that a Morel-Lavallée lesion can occur in chronic non-healing hemarthrosis despite fluid drainage; orthopedic surgeons should be involved in these cases.

Keywords: Morel-Lavallée lesion, knee swelling, trauma, hemarthrosis, hematoma, injury

Article citation: Songtanin B. Morel-Lavallée lesion. The Southwest Respiratory and Critical Care Chronicles 2023;11(47):70–72
From: Department of Internal Medicine, Texas Tech University Health Sciences Center, Lubbock, Texas
Submitted: 3/20/2023
Accepted: 3/22/2023
Conflicts of interest: none

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