

ORIGINAL REPORT

Morel-Lavallée lesion: Diagnosis and treatment with imaging techniques[☆]



J. Martel Villagrán^{a,*}, M.J. Díaz Candamio^b, A. Bueno Horcajadas^a

^a Hospital Universitario Fundación Alcorcón, Alcorcón, Madrid, Spain

^b Complejo Hospitalario Universitario de Ferrol, Ferrol (A Coruña), Spain

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KEYWORDS

Magnetic resonance imaging;
Computed tomography;
Ultrasound;
Drainage;
Avulsion lesions

Abstract

Objectives: We aim to review the characteristics of Morel-Lavallée lesions and to evaluate their treatment.

Material and methods: We retrospectively reviewed 17 patients (11 men and 6 women; mean age, 56.1 years, range 25–81 years) diagnosed with Morel-Lavallée lesions in two different departments. All patients underwent ultrasonography, 5 underwent computed tomography, and 9 underwent magnetic resonance imaging. Percutaneous treatment with fine-needle aspiration and/or drainage with a 6–8F catheter was performed in 13 patients. Two patients required percutaneous sclerosis with doxycycline.

Results: All patients responded adequately to percutaneous treatment, although it was necessary to repeat the procedure in 4 patients.

Conclusions: Radiologists need to be familiar with this lesion that can be treated percutaneously in the ultrasonography suite when it is not associated with other entities.

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PALABRAS CLAVE

Resonancia magnética;
Tomografía computarizada;
Ecografía;
Drenaje;
Lesiones por avulsión

Lesión de Morel-Lavallée: diagnóstico y tratamiento con técnicas de imagen

Resumen

Objetivo: Revisar las características de las lesiones de Morel-Lavallée y valorar su tratamiento.

Material y métodos: Hemos revisado de forma retrospectiva 17 pacientes diagnosticados de lesión de Morel-Lavallée en dos servicios diferentes: 11 hombres y 6 mujeres, edad

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* Corresponding author.

E-mail address: jmartel@fhalcorcon.es (J. Martel Villagrán).

media 56,1 años, rango de edad 25-81 años. En todos se hizo un estudio con ecografía, en cinco se realizó tomografía computarizada y en nueve resonancia magnética. Trece fueron tratados de forma percutánea mediante aspiración con aguja fina o drenaje con catéter de 6-8 F, o con ambos procedimientos. Dos pacientes requirieron esclerosis percutánea con doxiciclina.

Resultados: Todos los pacientes respondieron de forma adecuada al tratamiento percutáneo, aunque en cuatro hubo que repetir el procedimiento.

Conclusiones: El radiólogo debe estar familiarizado con esta patología cuyo tratamiento percutáneo, cuando no está asociada a otras afecciones, puede realizarse con éxito en la sala de ecografía.

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Introduction

The Morel-Lavallée lesion (MLL) was described for the first time by a French surgeon back in the year 1863. The disease is named after him. This collection proximal to the greater trochanter is due to one tangential impact that causes shear between the hypodermis and the underlying muscle fascia, forming a cavity that fills up with blood or lymph, with presence of other fibrous remains. This fact determines its variable radiological presentation.^{1,2} Some additional findings can be inflammatory changes, and the formation of one pseudo-capsule that not only prevents the resolution of this collection, but also promotes its growth and chronicity.³⁻⁵

The name of MLL-type lesions is applied to similar collections located in the abdominal wall, scapular region, buttocks, calves, or suprapatellar region of the knees.⁶⁻⁸

The radiological findings are based on the chronology of the lesion. On the ultrasound we may find one hyperechogenic collection if the hematoma component is predominant, that may become progressively hypoechoic, and even anechoic.⁹ The computed tomography (CT) scan shows fluid attenuation too, and even fluid-fluid levels can be seen when the lesion is subacute or chronic. Similarly, on the magnetic resonance imaging (MRI), its appearance can be highly variable, which is why a MLLs have been categorized into five (5) different categories: type I is one homogeneous and hypointense seroma on T1, hyperintense on T2; type II is one subacute hematoma of hyperintense appearance, and one hypointense ring on all sequences that is representative of the pseudo-capsule; type III looks like one chronic organized hematoma; types IV (closed laceration) and V (pseudonodular image) are more rare.^{10,11}

Although most of the time the diagnosis is easy to achieve due to the presence of traumatic history and one subcutaneous collection, at times, differential diagnosis is difficult to achieve, and it can be suggested with other soft tissue lesions.^{5,10-13}

When it comes to management, there is not such a thing as one established standard treatment.¹⁴ In small lesions, conservative treatment is feasible by draining the collection and using compression bandage systems. In complex lesions, especially in the presence of pseudo-capsule formation, surgery is the most widely accepted treatment. Recently, the techniques of alcohol or doxycycline sclerotherapy have proven valid.¹⁵

Our goal is to review the radiological characteristics of the MLL, especially the ultrasound and the MRI, and describe our own experience with ultrasound-guided percutaneous treatment in the cases reported by our hospitals during the last 7 years.

Methods

We retrospectively reviewed all cases with an ultrasound diagnosis of MLL achieved in the services of radiology of two different hospitals consecutively back in 2010. Patients with fractures or open lesions were not included. Given the retrospective nature of the study, it was not deemed necessary to have the authorization of the hospital ethical committees.

In total, the series included 17 patients with the aforementioned diagnosis: 11 men and 6 women, mean age 56.1 years old (range: 25–81 years). In 12 patients, there was a traumatic history, and 5 patients did not mention or could not remember it.

All patients underwent ultrasound procedures on their soft tissues, including Color Doppler ultrasounds. Nine (9) patients underwent an MRI (in two of them with the IV administration of gadolinium contrast) and five (5) patients underwent one CT scan without IV contrast. In general, complementary studies were conducted in patients with soft tissue tumors of long duration.

The MLL was found in the thigh and trochanteric region of 11 patients; three patients had tumors in their back region, two in their gluteal region, and one in the knee (lateral side).

The characteristics of echogenicity and MRI were studied (Table 1).

Following recommendations from their treating physicians, all patients were offered the possibility of undergoing ultrasound-guided percutaneous treatment, although the possibility of undergoing surgery was discussed as well. Three (3) patients rejected all kinds of treatment, one case resolved spontaneously, and the remaining ones were treated percutaneously.

The percutaneous treatment, always ultrasound-guided and administered after obtaining the patient's written consent, was initially planned through puncture-aspiration of the lesion using a 22-gauge fine needle and placement of compression bandage systems. The second therapeutic step was placing one 6–8F pigtail drainage catheter.

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