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RESEARCH ARTICLE

Morel-Lavallée Lesion as a Cause of Calcaneal Tendon Retraction with Algofunctional Impact : A Case Report

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Abstract

Introduction: Morel-Lavallée lesion is a serolymphatic post-traumatic effusion between the skin and the underlying fascia. Often diagnosed late or unrecognized, it most commonly affects young adult males. Diagnosis is based on clinical suspicion confirmed by ultrasound or MRI. There is no consensus on its management.

Clinical Case: We report the case of a 20-year-old woman who was involved in a road traffic accident with tangential trauma to the left calcaneal tendon. Ultrasound scan showed a Morel-Lavallée collection and an MRI scan concluded that there was infiltration of the soft tissues opposite the calcaneal tendon. The patient was referred to the department of physical medicine and rehabilitation because of its functional impact. The treatment consisted of pain management and functional rehabilitation. The evolution was marked by a regression of the effusion and pain, with an improvement in the functional assessment.

Conclusion: Morel-Lavallée lesions are a little-known nosological entity in the context of violent trauma. Ultrasound is important for diagnosis and MRI remains the key examination for assessing the extent of chronicity. Conservative treatment using pressure dressings or even puncture and aspiration remains the first-line treatment.

Keywords: Effusion, Morel - Lavallée, Tangential Trauma, Rehabilitation.

1. Introduction

Morel-Lavallée lesion is a serolymphatic effusion following tangential trauma to a richly vascularised soft tissue upon the underlying fascia, with the formation of a neocavity filled with blood, lymph and fat. It most commonly affects young adult males in the context of trauma with shearing mechanism. The main complications are superinfection, necrosis and chronicity (1).

Diagnosis is based on clinical suspicion of a collected mass following a violent trauma, often with free interval (2). Ultrasound in the acute stage and MRI in the acute and chronic stages are the standard paraclinical examinations (3).

There is no consensus on management, which often involves conservative treatment using ultrasound-guided puncture and aspiration. Several new therapeutic options are currently being considered(3).

2. Clinical Case

We report the case of a 20-year-old woman, with a medical history of ongoing rheumatic valvular disease, who was involved in a road traffic accident five years previously resulting in tangential trauma to the left calcaneal tendon with local pain. X-rays eliminated bone lesion and analgesic treatment was started.

Four years later, with increasing pain, progressive

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swelling and functional impotence forcing the patient to use a walking aid, ultrasound scan was performed (figure 1) showing a fibrous reshuffle of subcutaneous fat dilaceration due to Morel-Lavallée lesion with moderate attraction of the calcaneal tendon. MRI scan was performed too (figure 2) concluding to subcutaneous infiltration of the soft tissues opposite to the calcaneal and the fibular tendons.

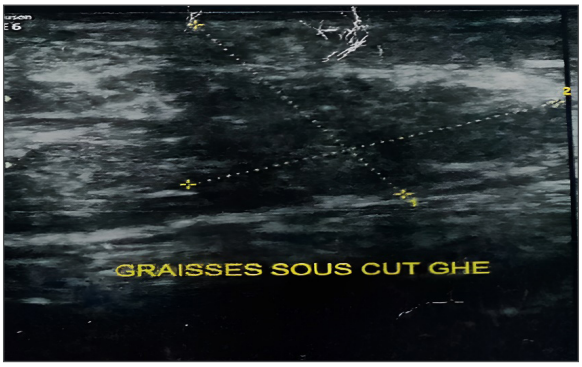

Figure 1. *Echographic hypodermal hetergenous fluid collection due to Morel-Lavallée lesion.*

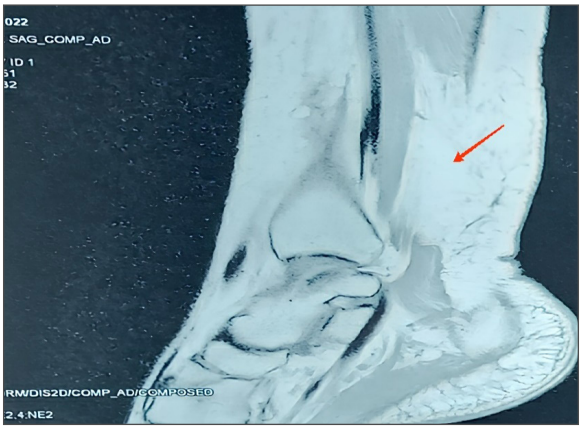

Figure 2. *MRI image of Morel-Lavallée lesion opposite to the calcaneal tendon.*

The patient was referred to our department because of the functional impact on the lower limb, especially when walking. A clinical examination revealed painful swelling (visual analog scale VAS = 6/10 at rest) and renitence over the left calcaneal tendon with limitation of foot dorsiflexion and hypoextensibility of the calcaneal tendon.

The examination also revealed a muscular deficit of the lower limb more marked distally, with neuropathic pain reported by the patient (tingling, painful cold, burning, electric shocks, numbness, itching and hypoesthesia to touch) with a DN4 questionnaire = 7/10. The functional assessment noted walking with technical aid, plantigrade step attack, step propulsion deficit, dodging limp and reduced walking perimeter (the 6-minute walk test noted a perimeter < 300 m with pain rated at 7/10 on the VAS).

We started treating nociceptive pain with level II analgesics and neuropathic pain with pregabalin, accompanied by functional rehabilitation based on gain in active and passive ankle range of motion, gentle stretching of the suro-talo-calcaneal plane respecting the pain threshold with muscle strengthening of the foot and muscles involved in walking, in addition to work on the gait pattern with gradual weaning of the technical aid. The evolution was marked by a regression of the effusion, the nociceptive pain (VAS = 4 at rest) and of the neuropathic pain (DN4 = 4/10) with an improvement of the functional assessment marked by the disappearance of the limp, weaning of the walking stick, improvement of the dorsiflexion of the foot in propulsion phase and increase in the walking perimeter (the 6-minute walk test noted a distance of 500 m with pain rated at 2 on the VAS).

3. Discussion

Morel-Lavallée lesion is a post-traumatic soft tissue effusion characterised by detachment between the hypodermis and the deep fascia, leading to an accumulation of serosanguinous fluid (4,5). Although this syndrome mainly affects the trochanteric, gluteal or lumbar regions. Other locations are possible, such as the ankle or the Achilles tendon (2,3,6,7).

The mechanism of retraction of the calcaneal tendon in Morel-Lavallée lesion can be explained by direct trauma (crushing, blow, fall) which causes both soft tissue detachment and damage to the tendon by the inflammatory reaction which, if chronic, causes fibrosis and secondary retraction (1,5).

In some cases, the Morel-Lavallée fluid collection may compress neighbouring structures, including the calcaneal tendon, affecting its mobility. Scarring or adhesion between the tendon and detached tissues may also promote retraction. Concurrent damage to the triceps sural muscle (through trauma or compartment syndrome) can also contribute to proximal retraction of the tendon. The clinical consequences are stiffness with limited dorsiflexion (equinus foot), pain on palpation (of the tendon and the posterior compartment) and difficult walking (lameness, difficulty taking steps). Ultrasound and MRI are the two examinations of choice, but MRI is more specific, especially for atypical locations (2,8,9).

The differential diagnosis of retraction of the calcaneal tendon in Morel-Lavallée lesion may be made with a partial or complete rupture of the tendon, retro-calcaneal bursitis, or isolated post-traumatic fibrosis (10). However, the initial or concomitant presence of a collection suggestive of Morel-Lavallée lesion even confirmed should rule out these diagnoses.

The management of retraction of the calcaneal tendon depends on the management of the effusion. This is done either by conservative treatment (if the retraction is moderate), by drainage of the effusion (puncture or prolonged drainage), by progressive rehabilitation (cryotherapy, stretching, gentle mobilisation) (3) and possibly by a walking orthosis (heel cup to relieve tension) (1, 11). We opted for conservative treatment in the first instance, despite the chronic nature of the lesion, because of the patient's refusal of an invasive procedure: medical treatment and rehabilitation reduced pain and improved functional assessment.

Surgical treatment (in case of severe retraction or associated rupture) involves cleaning the Morel-Lavallée lesion, lengthening the tendon if necessary, releasing adhesions and possibly reinserting of the tendon (7, 12).

4. Conclusion

Morel-Lavallée lesion is a little-known nosological entity in the context of violent trauma, which can have significant functional repercussions. Hence the importance of a systematic ultrasound examination for any oedematous or ecchymotic contusion following violent trauma or tangential impact. MRI remains the key examination for assessing the extent of chronicity.

Conservative treatment using pressure dressings or even puncture and suction remains the first-line treatment to avoid chronicity and tendinomuscular complications. In this context, tendon retraction through remodelling of a chronic adjacent Morel-Lavallée lesion is rare but possible. Careful clinical and radiological assessment is required to adapt management (conservative or surgical). Early rehabilitation is crucial for restoring mobility and improving quality of life.

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