

Morel-Lavallée Syndrome in Young Patient: What Management?

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Abstract: The effusion of Morel-Lavallée is a rare disease. Its rapid diagnosis is essential, based on the post-traumatic context and ultrasound. We collected 10 cases of young patients who developed this syndrome in the orthopedic surgery department at Ibn Sina hospital in Rabat, over a period of 3 years between 2014 and 2016. The average age of our patients was 22 years and 80% were men. 70% of them developed the effusion as a result of a motorcycle accident. The effusion was located in the trochanteric region in 6 cases, the thigh in 3 cases and the gluteal region in 1 case. The mean time between the trauma and the occurrence of the effusion was 13 days. The ultrasound of the soft parts, realized in all our patients, has objectified an effusion varying between 500 cc and 2 liters, with an average of 1.04 liter. Eight patients evolved well after a single puncture, one patient required a second puncture, whereas in one patient, non-improvement after the first puncture led us to perform surgical drainage.

Keywords: Effusion, Morel-Lavallée, Young.

INTRODUCTION

Morel-Lavallée syndrome is a rare entity. It corresponds to a subcutaneous liquid Collection resulting from a brutal tearing between the cellulose-fatty tissue and the underlying muscle fascia, resulting in a tear of the capillaries and especially of the lymphatic vessels which makes the lymphostasis impossible.

The local inflammatory reaction may result in the formation of a fibrous capsule around the collection. The free interval between the initial trauma and the onset of symptoms can be as long as several years [1].

METHODS

We conducted a retrospective study of 10 young patients who developed a Morel-Lavallée syndrome, collected within the department of orthopedic surgery at Ibn Sina hospital in Rabat, over a period of 2 years from January 2014 to December 2016. And all patients with postoperative effusions were excluded.

RESULTS

The average age of our patients was 22 years, with extremes of 16 years and 44 years. In our series we note a male predominance since the 80% were men. 70% of our patients developed sero-haemorrhagic effusion following a road accident; precisely during high speed motorcycle fall accidents, while 20% developed it as a result of a sports accident and specifically football. In one patient, a fall on the stairs was the cause. The delay between the trauma and the

onset of effusion was between the 7th and the 30th day with an average delay of 13 days.

The clinical examination revealed a fluctuating and depressible pain swelling, sitting in the trochanteric region in 6 cases (Figure 1), the thigh in 3 cases and the gluteal region in 1 case. The left side was interested in 8 cases, while the right side was interested in 2 cases.

These patients benefited from a standard radiography of the affected segment, which showed no case of fracture sitting opposite the effusion. An ultrasound of the soft tissues was carried out in a systematic way, making it possible to objectify the presence of a hypo or anechoic zone, located between the hypodermis and the per muscular superficial fascia. It confirmed the diagnosis, and also quantified the effusion whose volume varied between 500 cc and 2 liters, with an average of 1.04 liters.

The initial therapeutic management was made in the emergency department for all the patients who underwent a puncture followed by a compression bandage. The puncture was performed under conscious

sedation with MEOPA, and without ultrasound guidance in all cases of our series. In 4 cases, a second puncture was deemed necessary after one week. In one patient, surgical treatment was deemed necessary after the first puncture. The latter patient consulted a month after tangential trauma of the thigh following a fall of his motorcycle at high speed, and whose initial ultrasound showed an effusion of about 700cc having an encapsulated appearance. In the absence of regression of the volume of the effusion one week after

the first puncture, the collection was drained surgically according to the fascial fenestration technique of Ronceray.

In our series, the duration of evolution varied between 1 and 3 months, with an average of 1.6 months (Table 1). No patient developed skin necrosis or infection. After an average follow-up of 14 months, no case of recurrence was noted.

Table-1: Summary of our patients

Patient	1	2	3	4	5	6	7	8	9	10
Age (years)	22	31	16	44	25	25	16	26	21	21
Affected area	Troch	Thigh	Troch	Tight	Troch	Troch	Thigh	Gluteal region	Troch	Troch
Time (days)	15	30	10	21	10	7	7	15	10	7
Quantity of the liquid (liters)	0,5	0,7	1,5	0,7	1,5	1	1	1	2	0,5
Treatment	1 P	1 P then Surg	1 P	1P	2 P	1 P	1 P	1 P	1 P	1 P
Duration of evolution (months)	1	1,5	1,5	3	2	1	1,2	2,5	1,5	1,3

Troch = Trochanteric Region. P= Puncture. Surg=Surgical treatment.



Fig-1: Clinical aspect of an effusion of Morel-Lavallée

DISCUSSION

The sero-haematological effusion of Morel-Lavallée was described for the first time in 1853 by a French surgeon named Victor-Auguste-François Morel-Lavallée (1811-1865). It corresponds to a rare traumatic lesion where shearing forces cause a detachment between the subcutaneous tissues and the underlying fascia, causing tearing of the capillaries and especially of the lymphatic vessels [1].

Its classical location is in the lower limbs, but it can be observed wherever there is bone relief: in comparison with the major trochanters (30.4%), the thigh (20.1%), the pelvis (18.6%), % at the knees

(15.7%), at the buttocks (6.4%), and also in the lumbosacral region (3.4%) [1,2].

Its evolution is preferentially done in the chronic mode with recurrences in the absence of well conducted treatment. The challenge lies in an early diagnosis, in order to avoid local complications such as infection or cutaneous necrosis and, secondly, to quickly achieve the most effective treatment possible and thus avoid the transition to chronicity [2].

The morphological aspects are variable according to the duration of evolution and the possible organization of a fibrous capsule [2,3]. His diagnosis is based on traumatic history and imaging, but it is often

delayed because it is a little known pathology and masked by the associated lesions. The traumatic context must be sought by the interrogation because of the delay of appearance of the symptoms compared to the responsible traumatism, which can reach months or even years [2].

Ultrasound examination usually shows a hypoanechoic zone, homogeneous most often but sometimes heterogeneous, located between the hypodermis and perimuscular superficial fascia, of oval or well-defined spindle shape, encapsulated in the forms diagnosed with delay, compressible [4].

Magnetic resonance imaging is considered by some authors as the reference technique for the diagnosis and characterization of Morel-Lavallée effusions. It shows a collection between the subcutaneous tissue and the underlying muscle, in fluid T2 hypersignal, of variable signal in T1 according to the seniority of the lesion [1, 2, 5, 6]. Its accessibility remains a problem. Ultrasound is much easier to access.

Conservative treatment combines aspiration-aspirations and a compression bandage, knowing that the recurrence rate can reach 44%, especially in the case of volumes aspirated greater than 50 ml [2] and that the evolution is generally in months rather than in weeks. Sclerosing injection of doxycycline has been proposed in recurrent collections.

Surgical treatment is indicated in the forms resistant to punctures-evacuations iterative. The surgical procedure is based on the fascial fenestration of Orneri whose principle is an active internal drainage by resorption of the liquid by the underlying muscle fibers. After incision of the skin in the middle of the detached area, the entire capsule is excised. Then aponeurotic windows are made through which the muscle fibers will communicate with the cavity [7].

CONCLUSION

The effusion of Morel-Lavallée is a rare pathology. Its rapid diagnosis is essential, based on the post-traumatic context and imaging, including ultrasound. Its treatment is not consensual; it is a function of the stage (acute or chronic), its extent and associated lesions. Dominated by the aspiration puncture followed by a compression bandage, however, the forms seen late are experiencing a difficulty of management that gives recourse to surgery.

Conflicts of interest

The authors do not declare any conflict of interest.

Contributions of the authors

All authors have read and approved the final version of the manuscript.

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