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Clinical Case

Lumbosacral Plexopathy Secondary to a Psoas Abscess

Plexopathie lombosacrée secondaire à un abcès du psoas

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ABSTRACT

Plexopathies are seldom. Among them, lumbosacral plexopathies are less frequent than brachial plexopathies. We report a case of lumbosacral plexopathy secondary to a psoas abscess. A 36-year-old patient was admitted to the surgery department for feverish left flank pain. A CT scan confirmed the diagnosis of the left psoas abscess. Neurological examination showed a monoparesis of the proximodistal left lower limb. The ENMG confirmed the diagnosis of left lumbosacral motor axonal plexopathy. As the lumbosacral plexus roots path inside the psoas muscle body, lumbosacral plexus impairment shall be considered in any psoas abscess.

RÉSUMÉ

Les plexopathies sont rares. Parmi elles, les plexopathies lombosacrées sont les moins fréquentes. Nous rapportons un cas de plexopathie lombo-sacrée secondaire à un abcès du psoas. Il s'agit d'un patient de 36 ans admis en chirurgie pour des douleurs fébriles du flanc gauche. Le diagnostic d'abcès du psoas gauche a été confirmé par le scanner. L'examen et l'ENMG ont confirmé le diagnostic de plexopathie lombo-sacrée. Les racines du plexus lombo-sacré cheminent dans le corps du muscle psoas. Une atteinte du plexus lombo-sacré doit donc être recherchée dans tout abcès du psoas.

INTRODUCTION

Plexopathies are seldom encountered in a daily basis at neurophysiological laboratory, indeed the most-seen peripheral nerve pathology are nerve entrapment, polyneuropathy and radiculopathy [1,2]. Among the plexopathies, brachial plexopathies are more frequent than lumbosacral plexopathies [3,4]. As it less common, lumbosacral plexopathy could be underdiagnosed in routine electroneuromyogram (ENMG) for which the procedure involve only lateral peroneal nerve and tibial nerve stimulation [5]. Indeed the femoral nerve stimulation is not actually systematically performed. Then when a lumbosacral plexopathy is diagnosed the etiology can be difficult to determined. The lumbosacral plexuses roots travel down the psoas muscle body and at its lumbar section it's divided in posterior and anterior branch [6,7]. Hence lumbosacral plexopathies shall be considered in psoas muscle injuries. We report the case of lumbosacral plexopathy (LSP) secondary to psoas abscess with a good recovery after early surgical drainage.

CASE REPORT

A 36 years old male patient, with no significant past medical history, was admitted to the general surgery department for management of feverish impotent left flank pain. Symptoms began one month before his admission with a sudden onset of low back pain with a cracking sensation in the left flank. The patient rated his initial pain at 3/10 on the numeric scale (NS). There was no particular radiation at this time. He was treated with non-steroidal anti-inflammatory drugs (NSAIDs) without success but with worsening of symptoms. Two weeks later, he developed fever and a functional disability of lower limbs. The pain increased up to 9/10 (NS). The patient was transferred from a regional hospital to a level 3 clinic in Libreville. He was treated with morphine for three days. The progressive worsening of the clinical status led his relatives to resort to traditional medicine. There, the patient underwent extensive scarification from the low-back region to the ankle. He was then admitted to the emergency department of the Centre Hospitalier Universitaire dof Libreville (CHUL), which referred him to the surgery department for specialized care.

On examination, the patient was conscious, well oriented in time and space. He had good conjunctival staining. His blood pressure measured in the right arm was 116/75 cm Hg. He had hyperthermia at 38.5°C (101.3°F) and WHO grade 1 asthenia. The skin showed scarring lesions, a red, hot and painful swelling, fluctuating on palpation, of the left flank extending from L3 to L5. The pain was responsible for the limitation of flexion-extension movements of the trunk on the thighs. Chest pulmonary,

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heart and abdominal examinations were unremarkable. The diagnosis of left psoas abscess was evoked and confirmed by abdominal CT scan (figure 1).

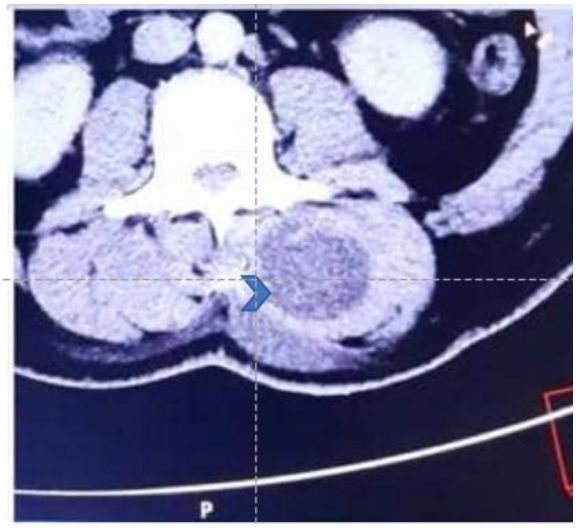
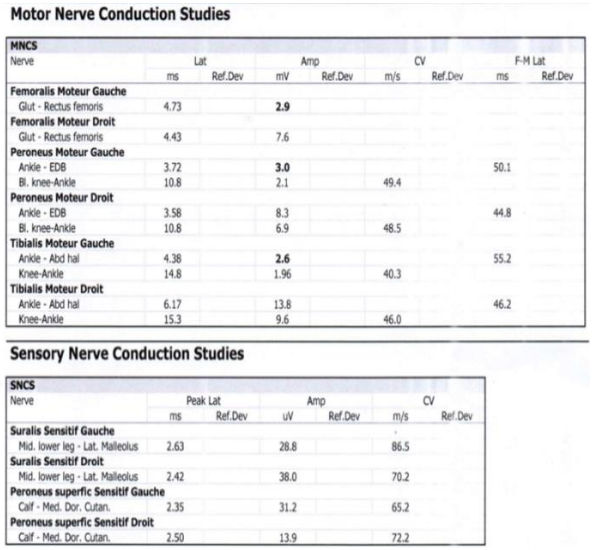


Figure 1 : axial lumbar CT scan without injection of contrast: The head of arrow shoes hypodensity in the body of psoas suggesting of abscess

The biological workup showed hyperleukocytosis (count 17,000) with neutrophilia, inflammatory anemia of 8.1 g/dL, thrombocytosis of 1025,000 and elevated CRP (96 mg/L). A percutaneous drainage under local anesthesia for diagnostic and therapeutic purposes was performed. The patient received dual antibiotic therapy: amoxicillin-clavulanic acid combined with metronidazole. Bacteriological analysis of the sample found Staphylococcus aureus sensitive to erythromycin, clindamycin, clarithromycin. Amoxicillin-clavulanic acid was then replaced by erythromycin. After seven days of antibiotic therapy and analgesic treatment of level 1, the pain decreased and were scaled at 4/10 (NS). The patient still complained of difficulty in moving his left lower limb. Given the presenting symptoms, both neurological and orthopaedic differential diagnosis was first considered. After the relief of pain, neurological examination was easier and showed a monoparesis of the proximodistal left lower limb. The segmental muscle strength rating according to the MRC scale was 3/5 on the foot lifters and on the leg extensors on the leg. The leg flexors on the thigh and plantar flexors of the foot were at 5/5. Osteotendinous reflexes were abolished in both lower limbs and tactile hypoesthesia was noted on the L3, L4 and S1 dermatomes, more marked on the left than on the right. The pattern of muscle weakness was that of mononeuritis multiplex or lumbosacral plexopathy. The ENMG confirmed a left lumbosacral motor axonal plexopathy (figure 2 and 3) with signs of renervation on muscular detection.

Control CT scan (figure 4) showed a hypodense lesion of the left psoas, measuring 20x25x44mm at the level of L5, minor osteophytosis at the level of the peduncle and transverse apophysis of L5 and L4. That was consistent with a residual abscess of the psoas with radiological amelioration.



Motor Nerve Conduction Studies

MNCS

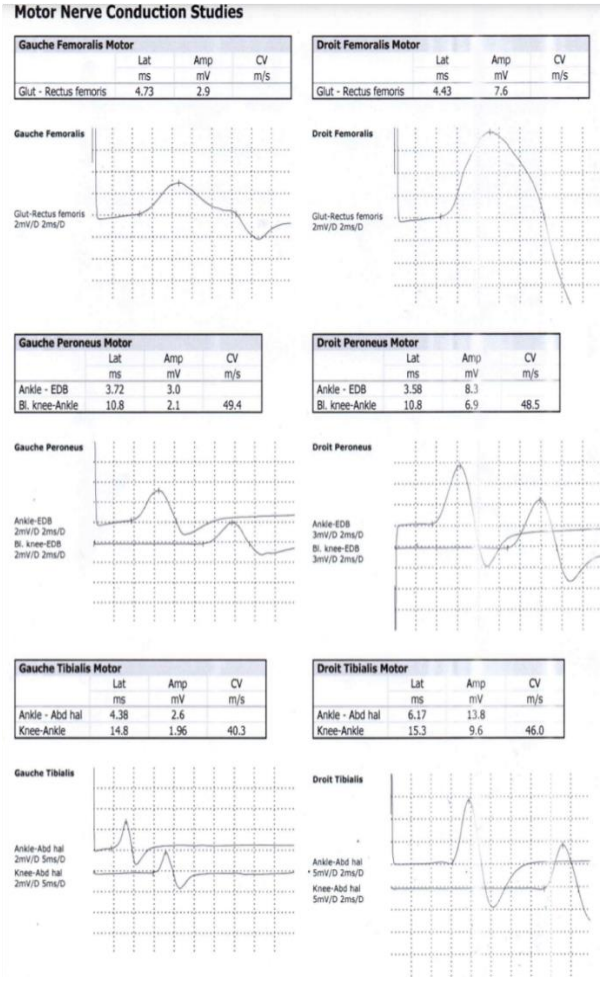
Nerve	Lat ms	Lat Ref.Dev	Amp mV	Amp Ref.Dev	CV m/s	CV Ref.Dev	F-M Lat ms	F-M Lat Ref.Dev
Femoralis Moteur Gauche								
Glut - Rectus femoris	4.73		**2.9**					
Femoralis Moteur Droit								
Glut - Rectus femoris	4.43		7.6					
Peroneus Moteur Gauche								
Ankle - EDB	3.72		**3.0**				50.1	
Bl. knee-Ankle	10.8		2.1		49.4			
Peroneus Moteur Droit								
Ankle - EDB	3.58		8.3				44.8	
Bl. knee-Ankle	10.8		6.9		48.5			
Tibialis Moteur Gauche								
Ankle - Abd hal	4.38		**2.6**				55.2	
Knee-Ankle	14.8		1.96		40.3			
Tibialis Moteur Droit								
Ankle - Abd hal	6.17		13.8				46.2	
Knee-Ankle	15.3		9.6		46.0			

Sensory Nerve Conduction Studies

SNCS

Nerve	Peak Lat ms	Peak Lat Ref.Dev	Amp uV	Amp Ref.Dev	CV m/s	CV Ref.Dev
Suralis Sensitif Gauche						
Mid. lower leg - Lat. Malleolus	2.63		28.8		86.5	
Suralis Sensitif Droit						
Mid. lower leg - Lat. Malleolus	2.42		38.0		70.2	
Peroneus superfic Sensitif Gauche						
Calf - Med. Dor. Cutan.	2.35		31.2		65.2	
Peroneus superfic Sensitif Droit						
Calf - Med. Dor. Cutan.	2.50		13.9		72.2	

Picture 2 Motor and sensory nerves conduction study at ENMG showing a motor a left lumbosacral motor axonal plexopathy



Picture 3 ENMG layout of motor nerves conduction study showing a left lumbosacral motor axonal plexopathy

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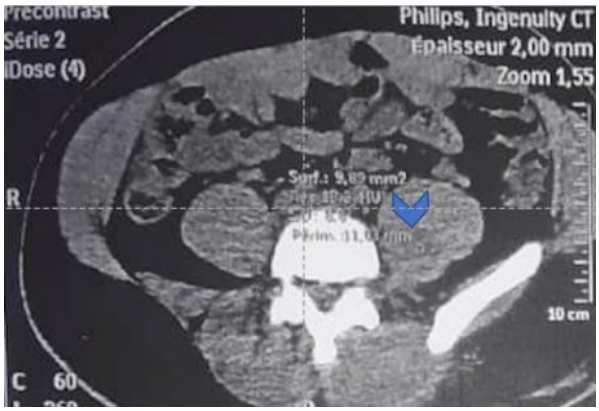

Picture 4 Axial lumbar control's CT scan without injection of contrast done after the surgery: The head of arrow shoes the body of psoas is almost isodense suggesting good recovery of psoas abcess

Biological check-up one week after induction of antibiotic treatment showed an improvement of the biological parameters with leukocytes at 10,900, thrombocytes at 666,000 and a hemoglobin at 8.5 g/dL. The final diagnosis was that of a left primary psoas abscess due to Staphylococcus aureus with associated lumbosacral plexopathy resulting from compression of the nerve trunks in their intramuscular course.

DISCUSSION

Although LSP is a rare condition, it should be considered in a patient with low-back or flank pain, motor weakness, abolition of tendon reflexes and sensitive disorders [7]. Among the multiple causes of LSP, the most common are diabetes, neoplasms, tuberculosis and traumatic injuries [7,8]. At the peak of the pain, neurological examination is more difficult than it could be at its nadir. In fact the neurological impairment can be falsely associated with the pain. When there is lumbar collection, flank pain and neurological impairment, spondylitis or spondylodiscitis should be considered as the probable cause of LSD, since this occurrence is frequent in this situation [9]. CT-scan is the best diagnosis tool for evaluating psoas abscess [8]. In our case, it showed a psoas collection without any bone lesion. As the lumbosacral plexus forms within the psoas major muscle [6] the plexopathy was then due to the abscess. What was unclear was if the plexopathy was due to an entrapment or to an infectious mechanism.

After surgical procedure, the patient improved quickly. Applying early surgical drainage is associated with a good functional prognosis, even though for post traumatic LSP without trunk avulsion, some authors stated that conservative treatment is also associated with a good spontaneous recovery [10]. In our case early management of the abscess was associated with an early recovery.

CONCLUSION

Spontaneous psoas abscess is rare as well as lumbosacral plexopathy. As lumbosacral roots travel down inside the psoas, in any psoas lesion one should consider a lumbosacral plexopathy. Indeed, early identification and appropriate management are critical improving the nerve recovery and overall morbidity.

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