Embase (Elsevier)

CASE REPORT

Nonspecific Low Back Pain (LBP) Can Occult a Serious Pathology: Case Report of Multiple Sclerosis (MS) in a Young Patient

Maselli Filippo[1], Pennella Denis[2], Cataldi Fabio[3], Albertoni Bruno Davide[4], Ciuro Aldo[5]

[1]Lecturer of Genova University, DINOGMI Department, Italy, [2]Lecturer of Roma Tor Vergata University, Italy, [3]Assistant Lecturer of Roma Tor Vergata University, Italy, [4]Lecturer of Genova University, DINOGMI Department, Italy, [5]Lecturer of Genova University, DINOGMI Department, Italy

Article Information

Received: 05 Aug 2015
Accepted: 26 Nov 2015
Plagiarism software: Turnitin

Keywords:
Multiple sclerosis,
Low back pain,
Spine manipulation,
Differential diagnosis

ABSTRACT

Low Back Pain (LBP) is one of the main causes of disability in the whole world. In most cases, its presentation is considered benign and usually managed quite easily. However, in a low percentage of cases LBP is secondary to a serious pathology. Patients with Multiple Sclerosis (MS), for instance, are often affected also by LBP, and LBP could also be an initial symptom of MS. Moreover, patients with MS can present with a w ide range of clinical symptoms, as the Restless Legs Syndrome – RLS. In these specific cases, the ability to recognize a serious pathology is a key component of the physical therapist practice. Both conditions, nonspecific LBP and RLS, have been found in a patient that was referred with diagnosis of bilateral sciatica.

Maselli Filippo

INTRODUCTION

Low Back Pain (LBP) is considered benign and usually managed quite easily, but in a low percentage of cases can be secondary to a serious pathology, as a tumor, fracture, infection or cauda equina syndrome.[1] In the clinical activity of physical therapists, it is not uncommon to have some nonspecific LBP patients with associated more serious symptoms. In these cases, the correlation between LBP and serious pathology is not always clear, and the nonspecific LBP could delay the diagnosis and a more appropriate treatment.

Access this article online	
Website: www.actamedicainternational.com	**Quick Response code**
DOI: 10.5530ami.2016.1.40	

Patients with Multiple Sclerosis (MS), for example, are also often affected by LBP, with a yearly prevalence of 13.8%,[2] and LBP could also be an initial symptom of MS.[3] In these specific cases, the ability to recognize a serious pathology is a key component of the physical therapist practice. MS is an autoimmune disorder characterized by inflammation and demyelination of the nervous system, with the preservation of white matter.[4] Patients with MS can present also a wide range of clinical symptoms, as the Restless Legs Syndrome (RLS). This neurological disorder is characterized by pain and/or unpleasant feelings in the lower limbs, worsening with bed rest and improving with movement, that could become impellent and urgent.[5] MS diagnosis needs accurate clinical examination, clinical history, taking and imaging (MRI).[6]

The patient of this case report presents both conditions, nonspecific LBP and RLS, while he has a medical diagnosis of bilateral sciatalgia.

Corresponding Author:
Dr. Maselli Filippo, DINOGMI Department, Lecturer of Genova University, Italy. Phone: +39 3471951139. E-mail: masellifilippo76@gmail.com

Clinical Case Description

History

A 29 years old Caucasian male firefighter (height 178cm and weight 75Kg) presented with the following symptoms (Figure 1):

A) Horizontal pain in the low back;
B) Light paresthesia in thighs and legs, groin included, with no specific dermatomal distribution;
C) Light and constant numbness in the soles of the feet.

The LBP (VAS 6) had started without apparent cause 10 days previously. It had spread in a Horizontal fashion and, associated with it, there was paresthesia in thighs and legs, as well as numbness in both feet. Specific question were asked about groin sensitivity and genitourinary function, but the patient reported no deficits. The symptoms were worsening with bed rest and, 2 days after the onset of the LBP, the patient started to feel restless and need to keep moving the legs.

During the history taking, the patient appeared to be restless and unable to keep a fixed position. He reported having had LBP in the past, but that it always resolved spontaneously without any specific treatment.

For over 10 years he had been an amateur body builder, training for 6-8 hours per week. He did not report any sickness or fatigue, but he was worried about his situation because of an approaching military medical assessment that would be relevant for his job career. He also stated that he did not have any serious pathology and, despite the symptoms, he was able to work and play sport without any problem.

Prior to presenting at the clinic, the patient had been given a diagnosis of LBP with bilateral sciatica. He reported that he had been treated with NSAID for one week with no benefit.

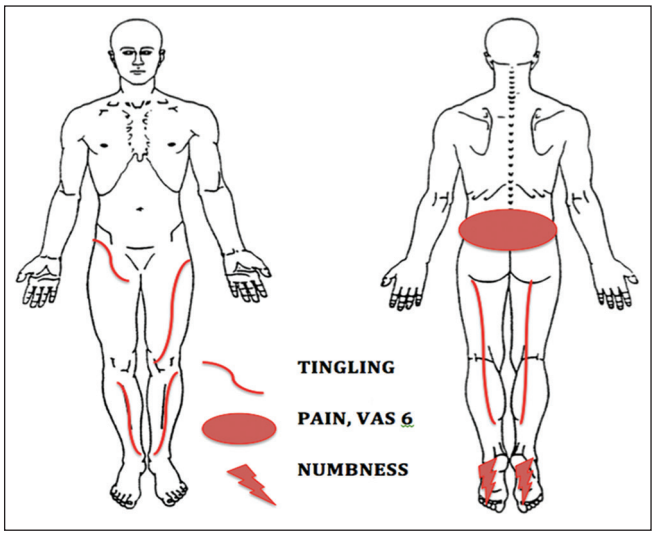

Figure 1: Localization of bilateral and unilateral symptoms in first clinical examination

Clinical Examination 1 – Day 1

Examination was performed, with the following result:

- Active and repeated movements did not evoke symptoms;
- There were not deficits in the lower limb passive mobility, bilaterally
- There were not strength deficit in lower limb muscles;
- There were not deficits in the tactile and pain superficial sensitivity
- Deep sensitivity (with 256 MHz tuning fork) was fairly altered in an asymmetrical and irregular way (medial and lateral femoral condyles, patella, medial and lateral malleoli and the head of the fifth metatarsal were assessed in both legs);
- Achilles and quadriceps osteotendons reflexes were normal and non-exhaustible, bilaterally;
- Neuro-dynamic tests were negative: SLUMP, SLR, crossed-SLR, PKB
- Palpation was positive for pain and hypomobility on L4's and L5's spinous processes.
- More neurological tests, for complete the neurological examination, were performed:
- Lhermitte's sign, which was observed during the SLUMP test. It is an electrical sensation (tingling) evoked by elongation brought about by flexion of the head on the trunk, in patients affected by SM.[7]
- Hoffman sign[8] The Hoffmann's reflex is typically used to help detect the presence of an upper motor neuron lesion. A positive reflex may denote spinal cord compression or intracranial pathology. This test was conducted with the patient's head in the neutral position. A reflex was considered positive if there was flexion of the interphalangeal joint of the thumb, with or without flexion of the index finger proximal or distal interphalangeal joints, while snapping the distal phalanx of the middle finger.
- Mingazzini Manoeuvre, which evaluates the patient's ability of maintaining the lower limb against gravity, with the hip and the knee in a 90° flexed position, in order to find a pyramidal paresis of the leg.[9]
- Babinski sign and Puusepp sign: the Babinski sign is a commonly used clinical test for cord compressive myelopathy and other forms of upper motoneuron lesions. A positive test is associated with a pyramidal defect and is earmarked by great toe extension, and sometimes adduction, during stimulus and fanning of the digits 2 through 5.[10] The eliciting of Puusepp's sign does not differ from that of Babinski's sign. The response, however, is different and consists of a tonic slow abduction of the little toe. Puusepp himself considered his sign as pathognomonic of extrapyramidal lesions in contrast to Babinski's sign for a dysfunction of the pyramidal tract.[11]

All the signs and test were clearly negative.

In conclusion the only positive tests were for deep sensitivity and for spine segmental pain and mobility.

Treatment 1

Though some Red flags have been noticed (bilateral B and C symptoms as in Figure 1), the neurologic test done had examined all the amnestic areas and the fundamental stages, according Rives and Douglass[12] without remonstrating any clinical evaluative elements.

The typical LBP specific symptoms lack, the negative neuro-dynamic tests, the preservation of all the working and sport activities of the patient, did not mark any contraindication to the specific per non-specific LBP treatment, using mobilizing and manipulative techniques.[13]

It was decided to treat the patient and, at the same time, to analyze literature in order both to understand the relevance and the possible meaning of the restlessness of lower limbs and to examine the temporary evolution of the symptoms in the later weeks.[14]

A physical therapy treatment was performed in order to reduce low back pain but with an important attention to monitoring the other symptoms until the next session. The features of the patient matched the Clinical Prediction Rules (CPR)[15] for High Velocity Low Amplitude Thrust (HVLAT), then it was performed:

- Segmental PA mobilization to reduce pain (L4 and L5);
- HVLAT in the low back; side-lying lumbar spine manipulation technique used.

The next session was planned a week later. The patient was advised to stay active and, in case of onset of other symptoms or worsening of paresthesia in the lower limbs, or loss of urinary or bowel continence, to go to the Emergency Department.A written clinical history of the patient was sent to the medical doctor, to inform him about the patient condition that is not consistent with diagnosis of bilateral sciatica.

At the end of the first treatment the patient refers almost complete resolution of LBP and paresthesia.

Clinical Re-examination at the 7° Day

After one week, the patient continued to report no pain in the low back, no abnormal feelings in the lower limbs, and the palpation on L4 and L5 was negative for pain and hypomobility. It was still present, instead, the restless feeling of the lower limbs and numbness on the sole of the feet (Figure 2), that the patient had told during the first visit: his features are consistent with diagnostic criteria of Restless Leg Syndrome (Table 1)[16] and the patient could also have this pathology. But the features of the patient were still not clear, and, even if the patient never reported difficulties in working or sports activities, were did other two neuromotor tests:

- Romberg test: it is requested to the patient to stand up with his hands beside his hips, joining his feet and closing his eyes. You can calculate in seconds the capability of maintaining the same position no losing the balance (until 1 minute). In case of serious difficulties, the test could be carried out by opening eyes.[17]

Fukuda test The amount of rotation and displacement are measured after taking 50 or 100 steps in place with the eyes closed and blindfolded in a quiet, dim-lit room with arms outstretched at 90°.[18] the use of the instrument is recommended from the Neurology Section of the American Physical Therapy Association's Multiple Sclerosis Taskforce (MSEDGE), Parkinson's Taskforce (PD EDGE), Spinal Cord Injury Taskforce (PD EDGE), Stroke Taskforce (StrokEDGE), Traumatic Brain Injury Taskforce (TBI EDGE) and Vestibular Taskforce (VEDGE). With surprise, these last tests were

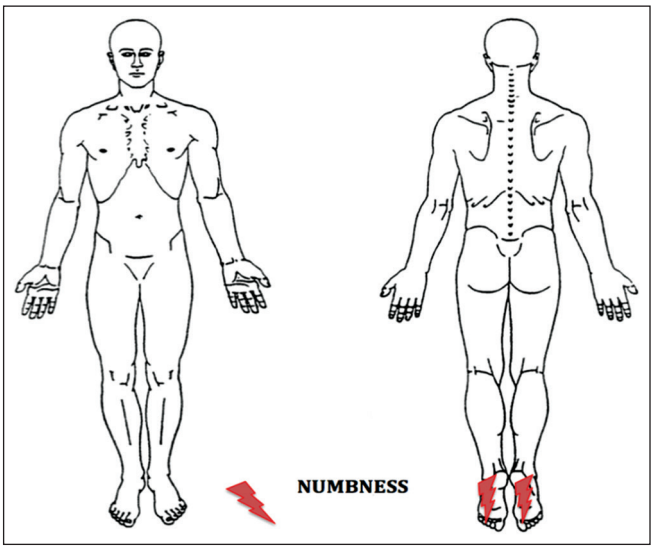

Figure 2: Localization of bilateral symptom in second clinical examination

Table 1: Essential diagnostic criteria for RLS

An urge to move the legs, usually accompanied or caused by uncomfortable and unpleasant sensations in the legs (sometimes the urge to move is present without the uncomfortable sensations and sometimes the arms or other body parts are involved in addition to the legs)
The urge to move or unpleasant sensations begin or worsen during periods of rest or inactivity such as lying or sitting
The urge to move or unpleasant sensations are partially or totally relieved by movement, such as walking or stretching, at least as long as the activity continues
The urge to move or unpleasant sensations are worse in the evening or night than during the day or only occur in the evening or night (When symptoms are very severe, the worsening at night may not be noticeable but must have been previously present)

clearly positive for loss of balance and coordination, in association with evident trembling of upper limb and ataxic performance. The patient showed also clear balance deficit during jumping, lunges and squat exercise.

Although the patient had normal strength, a negative basic neurological examination, and no difficulties in sports and Activity Day Life (ADL), he showed bad coordination strategies, problems in balancing and stabilization during specific functional tasks.

The patient was then sent to the neurologist with a suspect of CNS pathology, and the doctor asked for an MRI without contrast of the brain.

The result of the MRI was the following:
"Presence of multiple small areas of altered signal in peri-ventricular-frontal, temporal and occipital, peritrigonal, frontopariental subcortical, sites. Presence of multiple small areas of altered signal of the corona radiata, bilaterally in the semioval centers, bilaterally in the hemispheric-cerebellar regions, pontocerebellar regions, and in the left lenticular-caspular basal region and in the anterior and posterior white callose ways on the right.The described findings are to be referred to a clinical picture of myelin suffering with an autoimmune inflammatory origin...."

The patient was taken to hospital, in the Neurology Department of the "Azienda Ospedaliera Universitaria Consorziale Policlinico, Bari", from which he was dismissed after 2 weeks with a diagnosis of Multiple Sclerosis and started therapy with interferon.

DISCUSSION

Nonspecific Low Back Pain, as it is described in the literature and also observed in clinical practice, is maybe the most common disorder a physical therapist has to manage. The fact is it, in vast majority of cases, being benign and easy to manage, as it was reported in this case, should not let lower the level of attention in taking into account a serious pathology. Nonspecific LBP could be also a symptom of onset or an associated symptom of a serious pathology, delaying the diagnostic and therapeutic pathway of the patient. Most common symptoms of MS include paresthesia or numbness, muscle weakness, disturbance in the view of one eye, double-vision, poor coordination, disturbance of the gait, dizziness. There can be also other associated symptoms as fatigability, spasticity, ataxia, nystagmus, loss of sensitivity, neuropathic pain, urinary retention or incontinence, sexual dysfunctions, depression and other ones,[19] but also LBP.

The patient of this case study presented an atypical manifestation of MS, with the following symptoms:

- LBP
- Paresthesia of both legs
- RLS
- Numbness on sole of both feet.

The symptoms of the patient, however, were so soft and mild that only in the second session, with the resolution of main symptoms, including LBP, it was performed aneurological examination, with tests that usually are not performed in clinical practice, in patients with LBP and without history and evidence of coordination and movement dysfunctions.

Indeed, with a distribution of the sensibilities deficit that can be attributed to multiple spine levels, the patient had a negative basic neurological examination (reflexes, strength and provocative tests); and he reported no decrease in quality of life (no problems in sport and working activities). This absence of problems in sport and working activities have been misleading, delaying a deeper examination of the neuromotor functions in the first session. In this kind of situation, no considering the more spinal segments involvement in the perception deficit, as in red flags(with a neurological test completely negative), it has been decided to treat equally the main symptom accused by the patient, the LBP, with the manipulation that would have surely been the most efficient mean.

Only in the second session, the assessment with other specific tests allowed to identify clear deficits in balance and coordination that suggested evaluating the function of CNS.

In MS patients, the lesions in the CNS cause changes and deterioration of the postural control system[20] and even if the Romberg test has a low sensitivity in identifying balance dysfunctions in MS patients,[21] in this case it has been relevant to the referral to the neurologist. Romberg test is a fast and easy one and it could be useful to perform it, when clinical picture of the patient is not clear. Moreover,

BOX: Learning point

Learning point
RLS can be a symptom of onset of Multiple Sclerosis in a young patient, associated with other symptoms, such as numbness of the sole of both feet
A LBP, with associate sign and symptoms not clearly related to it, could hide a serious pathology, without necessarily being caused by it
Being able to normally perform sports and working activities does not exclude a serious pathology, also in the CNS
Test with a low sensitivity, as the Romberg, could be useful in some clinical situation in which better tests could not be helpful in diagnostic process
In absence of validated cluster for serious pathology of CNS, it is useful to perform different tests, to reduce false negative results
The assessment of the patient could need more than one session, before being able to recognize red flags that could suggest a serious pathology

the RLS is significantly related with MS, especially in patients with severe sensory and pyramidal dysfunction, with a prevalence of the 19% versus the 4.2% of the general population and with a relative risk of 5.4 in patients with MS versus general population;[5] its diagnostic criteria proposed by IRLSSG[16] are easy to perform and to take into account in a clinical reasoning of differential diagnosis, when it is needed.

CONCLUSION

An early diagnosis of MS, improves the prognosis of patients and reduces the risk of neurological damage.[22]

Because of the low sensitivity of the specific tests for serious pathology of the CNS[23] and there are no validated clusters, it is necessary to combine of different tests of the clinical examination with the clinical history, to recognize any clue of serious pathology, but with caution to inconsistent red flags, namely the so-called red herrings.[24,25] In this case report, the application of diagnostic criteria of the RLS and administration of Romberg and Fukuda tests has been essential to avoid a delayed diagnosis of MS. However, in this case, a second assessment was needed to recognize a suspected serious pathology of the CNS, confirming that it should be never underestimated the risk for serious pathology, even after an appropriate clinical evaluation. An important advice is useful also for the treatment, in which the more appropriate technique, in according to the CPR, as the HVLA Thrust for the LBP, does not exclude a serious pathology.

Funding Sources and Potential Conflicts of Interest

No funding sources or conflicts of interest were reported for this study.

Patient Consent

Obtained.

REFERENCES

1. Downie A, Williams CM, Henschke N, et al. Red flags to screen for malignancy and fracture in patients with low back pain: systematic review. BMJ 2013.
2. Martinelli Boneschi F, Colombo B, Annovazzi P, et al. Lifetime and actual prevalence of pain and headache in multiple sclerosis. Mult Scler, 2008; 14: 514.
3. Miguéns Blanco I, Rego Sieira E, García Méndez L. Low back pain: atypical presentation of multiple sclerosis. Semergen. 2013; 39(6):335-7.
4. Frohman EM, Racke MK, Raine CS. Multiple sclerosis-the plaque and its pathogenesis. N Engl J Med. 2006; 354:942-55.
5. Manconi M, Ferini-Strambi L, Filippi M, et al. Multicenter Case-Control Study on Restless Legs Syndrome in Multiple Sclerosis: The Italian REMS Study Group, the REMS Study, 2008; 31(7):944-52.
6. Waubant E. Early recognition and diagnosis of multiple sclerosis.J Clin Psychiatry 2012; 73(4):14.
7. Lhermitte J, Bollak A, Nicholas M. Les douleurs a type de decharge electrique consecutives a la flexion cephalique dans la sclerose en plaques. Un cas de forme sensitive de la sclerose multiple. RevNeurol 1924; 2:56-62.
8. Sung RD, Wang JC.Correlation between a positive Hoffmann's reflex and cervical pathology in asymptomatic individuals. Spine (Phila Pa 1976). 2001; 26(1):67-70.
9. Koeher PJ. The Barré and Mingazzini test. In: koehler PJ, Bru- yn GW, Pearce JMS, editors. Neurological Eponyms. New York, NY: Oxford University Press, 2000; 119-26.
10. Babinski JF.On the phenomenon of the toes and its semiologic value. SemMedicale. 1898; 18:321–2.
11. Pearce JM. Lhermitte's sign. J Neurol Neurosurg Psychiatry. 1994; 57(7):846.
12. Rives PA, Douglass AB. Evaluation and treatment of low back pain in family practice. J Am Board Fam Pract. 2004; 23-31.
13. Rubinstein SM, Terwee CB, Assendelft WJJ, de Boer MR, van Tulder MW. Spinal manipulative therapy for acute low-back pain. Cochrane Database of Systematic Reviews 2012; 9.
14. Henschke N, Maher C. Red flags needs more evaluation. Rheumatology (Oxford). 2006; 45(7):920-1.
15. Flynn T, Fritz J, Whitman J, et al. A clinical prediction rule for classifying patients with low back pain who demonstrate short-term improvement with spinal manipulation. Spine (Phila Pa 1976). 2002; 27(24):2835-43.
16. Allen RP, Picchietti D, Hening WA, Trenkwalder C, Walters AS, Montplaisi J; Restless Legs Syndrome Diagnosis and Epidemiology workshop at the National Institutes of Health; International Restless Legs Syndrome Study Group. Restless legs syndrome: diagnostic criteria, special considerations, and epidemiology. A report from the restless legs syndrome diagnosis and epidemiology workshop at the National Institutes of Health. Sleep Med. 2003; 4(2):101-19.
17. Bourdiol JR: Pied et statique. Moulin- les-Metz: Maisonneuve Press, 1980.
18. Fukuda T. The stepping test, two phases of the labyrinthine reflex. Acta Otolaryngol 1959; 50:95–108.
19. Compston A, Coles A. Multiple sclerosis. Lancet 2008; 372:1502–17.
20. Corradini ML, Fioretti S, Leo T, Piperno R. Early Recognition of Postural Disorders in Multiple Sclerosis through Movement Analysis: A Modeling Study. IEEE Trans Biomed Eng. 1997; 44(11):1029-38
21. Fanchamps MH, Gensicke H, Kuhle J, Kappos L, Allum JH, Yaldizli O. J Screening for balance disorders in mildly affected multiple sclerosis patients. Neurol. 2012; 259(7):1413-9.
22. Noyes K, Weinstock-Guttman B. Impact of diagnosis and early treatment on the course of multiple sclerosis. Am J Manag Care. 2013; 19(17):321-31.
23. Cook CE, Hegedus E, Pietrobon R, Goode A. A pragmatic neurological screen for patients with suspected cord compressive myelopathy. Phys Ther. 2007; 87(9):1233-42.
24. Greenhalgh S, Selfe J. Margaret: a tragic case of spinal Red Flags and Red Herrings. Physiotherapy, 2004; 90: 73-76.
25. Delladio M, Maselli F, Testa M. Red flags or red herrings: what is the actual weight of the signs and symptoms of alarm in the evaluation of patients with low back pain? Scienza Riabilitativa 2013; 15(2); 5-23.

How to cite this article: Filippo M, Denis P, Fabio C, Davide AB, Aldo C. Nonspecific low back pain (LBP) can occult a serious pathology: Case report of multiple sclerosis (MS) in a young patient. Acta Medica International. 2016;3(1):202-206.

Source of Support: Nil, **Conflict of Interest:** None declared.