Case Report

The occurrence of the ilio-lumbar syndrome in a spinal cord injury patient

A Chantraine^{*1}, L Bosson², M Malaise³, A Onkelinx⁴ and J de Leval⁵

¹Department of Physical Medicine and Rehabilitation, University of Geneva, Switzerland; ²General Practitioner Liege, Belgium; ³Service of Rheumatology, University Hospital Liege, Belgium; ⁴Physical Medicine and Rehabilitation, University Hospital Liege, Belgium; ⁵Urological Clinic, University Hospital Liege, Belgium

Study design: Case report of a 71-year-old man having sustained a spinal cord injury (SCI) for 26 years. He started to suffer from low back pain 21 years after his onset and this was diagnosed as ilio-lumbar syndrome (ILS).

Objectives: To describe the problem of low back pain occurring after a change of wheelchair in a SCI, and to indicate the importance of the ilio-lumbar syndrome as a possible cause of low back complaint.

Outcome: Clinical findings supported by echotomography confirmed the diagnosis of ILS in our case.

Conclusion: ILS should be considered when some changes and deterioration of the status of SCI occur due to low back complaint.

Spinal Cord (2001) **39**, 237–239

Keywords: low back pain in spinal cord injury; etiology of ILS; clinical aspects of ILS

Introduction

Low back pain is a frequent complaint in spinal cord injury (SCI) patients. Its cause is not always known. We present a case of Ilio Lumbar Syndrome (ILS) which has not been described in the literature of SCI.

Described in 1979 by Hirschberg *et al*¹ this syndrome is characterized by symptoms and signs localized to one iliac crest. It can be distinguished clinically from pain due to root irritation as well as from other non-specific low back pain syndromes. It may present with pain across the ilio-lumbar area and, on examination, findings are localized to one side. The pain is described as a constant dull ache that is aggravated by activity and at times may become extremely severe. It may present after prolonged sitting or standing or for a brief period after getting out of bed.

Since the original description by Hirschberg *et al*¹ this syndrome has been widely reported associated with or without trauma.^{2–5} It may also be due to a discrepancy in leg length¹ scoliosis or other pelvic malformation.²

X-ray of the lumbosacral spine is frequently normal but in one case⁶ it showed ossification of the ilio-lumbar ligament in a woman who complained of pain in this area. Computerized tomographic scanning of this region is also normal.⁵ Ultrasound or echotomography of the ilio-lumbar ligament may show a ligamentous lesion suggestive of a tear.

Laboratory findings such as inflammatory markers are within normal limits in all cases of ILS reported in the literature.

Neurological examination is within normal limits, however, in some neurological disorders, ILS may coexist.

Case report

We report a case of spinal cord injury in a patient who suffered from low back pain for 5 years diagnosed as ILS.

LB (a 71-year-old male) sustained (at age 46) a fall from his bicycle. He was immediately transferred to a University Neurosurgical Department. The diagnosis of a complete lesion at C6 (grade A, ASIA scale) was made and on the following day an arthrodesis of C3–C4 and C6–C7 was performed associated with a laminectomy from C3 to C7. He was then transferred

*Correspondence: A Chantraine, Physical Medicine and Rehabilitation, University Hospital, Beau-Séjour, Geneva, Switzerland

to a spinal cord injury Center. He recovered complete sensation and motor power of the right side and to a lesser degree on the left side (grade D, ASIA scale).

At the end of 1994 (21 years after his injury), following a change of wheelchair, he started to have some low back pain. Despite several modifications to the seat to improve posture and comfort, the back pain progressed. Lying on his back in a kyphotic position and on standing in a forward flexed position was the only position to prevent pain. A variety of treatment modalities which included mobilization, stretching exercises, physiotherapy, acupuncture and injections of the left iliac crest with corticosteroids and local anesthetic were used. The condition in his left arm and leg deteriorated quickly with increased spasticity (lower > upper). He required assistance to walk and became more dependent in activities of daily living. Rotation or straightening of the thoracic spine was followed by contractions and pain in the ilio-lumbar region 1–3 h later. At times he complained of spontaneous pain in the low back which was not related to movement and he had to flex his spine or lie down in order to get some relief. Clinical examination revealed no new neurological or urological findings except for increased spasticity and weakness of the left side. A trigger point was noted on the left iliac crest with a contraction of muscles in this area (between L3 to S1). Further X-rays and MRI did not reveal any new data. Echotomography (performed at the Uni-

versity Hospital of Liege) showed a tear of the left ilio-lumbar ligament (Figure 1).

The clinical assessment supported by echotomography confirmed the diagnosis of ILS.

Discussion

There is little information in the literature, to our knowledge, about the patho-physiological role of the ILS in patients suffering from spinal cord injury. The ilio-lumbar ligament (ILL) is one of the three pelvic-lumbar ligaments. The directions in which the two bands of the ligament run suggest that they serve different functions in maintaining stability of the lumbo-sacral joint. Biomechanical studies have been conducted to verify the function of this ligament and justify its clinical significance.^{3,7,8} The role of the ligament in flexion, extension, and lateral bending of the L5 on the sacrum has been confirmed in different studies.^{3,4,7,9}

In Hirschberg's experience¹ the chronic ilio-lumbar syndrome is reported to be the most common cause of permanent or recurrent low back disability. In patients who are seen several weeks, months, or years after the onset of low back pain, the prognosis for complete recovery is not good. While there may be a favorable temporary response to infiltration of the iliac crest with corticosteroids and lidocaine, back pain usually recurs. In its mildest form the patient complains of

Figure 1 Echotomography: Ilio lumbar region. The left side (GH) shows the left ilio lumbar ligament (ILL) which is thickened (6.3 mm) compared with the right ILL (3.3 mm) on the right side (DR). There also exists a hypoechogenic aspect of central fibers of the left ILL. These findings are compatible with a tearing of this ligament associated with a moderate inflammatory process

pain getting out of bed or after prolonged sitting and standing. Strenuous physical activities lead to acute attacks of severe low back pain. This may subside with rest or may persist and require the use of narcotics. Our patient exhibits all the symptoms and signs of a chronic ILS as described by different authors and its course is similar to those published in the literature. As he sustained a spinal cord injury 21 years prior to onset of the low back pain different investigations were carried out. The neurological examination was unchanged except for increased spasticity and associated weakness on the left side. This corresponds to factors lowering the threshold of spinal reflex activity. It is well known that distension of any internal organ below the spinal lesions, particularly the bladder, may initiate reflex spasms. Another factor that causes reflex spasms is irritation of sensory organs in contracted tendons and joints. This occurs in both complete and incomplete lesions of the spinal cord.¹⁰ Radiological investigation, particularly MRI of the cord, did not show any abnormality at the site of the lesion or in the surrounding tissue. Echotomography showed a tear of the ilio-lumbar ligament on the left.

Urological investigation showed no change. In December 1997 an intravenous urography confirmed the presence of a stone in the right kidney which has been present for years, without any deterioration of upper urinary tract. The kidneys were of equal and normal sizes. There was a slight bladder retention and the walls of the bladder were regular without any deformity. The patient was voiding normally.

In this case, this ILS is probably the likely cause of the chronic back disability. It has resulted in a significant deterioration in his quality of life.

Inadequate support while sitting in his wheelchair led to some pressure and abnormal posture has likely resulted in some dysfunction of the ILL. This could have been the trigger which initiated the problem. The age of the patient and the effects of 21 years spinal cord injury on the 'elasticity' of this ligament could not be totally ruled out. Furthermore the stretching of the ilio-lumbar ligament could also be a factor of irritation. The presence of nociceptors in the ligamentous structures of the lumbar spine has been demonstrated.¹¹ Hirschberg has suggested that the

pain may originate at the insertion of the ILL or the quadratus lumborum as the localization of the complaint is specific and some movements initiating the pain in the ILS do not provoke similar symptoms in root compression syndrome or other low back pain problems.¹

It is suggested that this syndrome be considered when increased spasticity and disability due to low back pain is observed in spinal cord injury patients.

References

- 1 Hirschberg GG, Froetscher L, Naeim F. Iliolumbar syndrome as a common cause of low back pain: diagnosis and prognosis. *Arch Phys Med Rehabil* 1979; **60**: 415–419.
- 2 Broudeur P, Larroque CH, Passeron R, Pellegrino J. Les aspects radiologiques du syndrome ilio-lombaire (S.I.L.). *J Radiol* 1982; **63**: 259–266.
- 3 Leong JC, Luk KD, Chow DH, Woo CW. The biochemical functions of the iliolumbar ligament in maintaining stability of the lumbosacral junction. *Spine* 1987; **12**: 669–674.
- 4 Sims JA, Moorman J. The role of the iliolumbar ligament in low back pain. *Medical Hypotheses* 1996; **46**: 511–515.
- 5 Jakim I, Meerkotter DV, Sweet MBE. Post-traumatic unilateral lumbosacral ligamentous instability. *Br J Accident Surg* 1992; **23**: 279–280.
- 6 Lapadula G, Covelli M, Numo R, Pipitone V. Case report: Iliolumbar ligament ossification as a radiologic feature of reactive arthritis. *J Rheumatol* 1991; **18**: 1760–1762.
- 7 Chow DH, Luk KD, Leong JC, Woo CW. Torsional stability of the lumbosacral junction: significance of the iliolumbar ligament. *Spine* 1989; **14**: 611–615.
- 8 Hanson P, Sonesson B. The anatomy of the iliolumbar ligament. *Arch Phys Med Rehabil* 1994; **75**: 1245–1246.
- 9 Maigne JY, Maigne R. Trigger point of the posterior iliac crest: painful iliolumbar ligament or cutaneous dorsal ramus pain? An anatomical study. *Arch Phys Med Rehabil* 1991; **72**: 734–737.
- 10 Guttman L (ed). *Spinal Cord Injuries*. Blackwell Scientific Publications, Oxford, 1973, p 694.
- 11 Korkala O, Gronblad M, Liesi P, Karaharju E. Immunohistochemical demonstration of nociceptors in the ligamentous structures of the lumbar spine. *Spine* 1985; **10**: 156–157.