

Professional issue

Low back pain misdiagnosis or missed diagnosis: Core principles

A.P. Monie^{*}, P.J. Fazey, K.P. Singer

Centre for Musculoskeletal Studies, School of Surgery, The University of Western Australia, Perth, Western Australia 6009, Australia

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ABSTRACT

Consensus guidelines for the management of low back pain recommend that the clinician use contemporary best practice for assessment and treatment, consider biopsychosocial factors and, if chronic, use a multimodal and multi-disciplinary approach. Where guidelines are not followed and basic assessment is inadequate the diagnosis may be compromised and the sequelae of errors compounded. Factors such as a lack of knowledge or recognition of the common structure specific pain referral patterns, poor clinical reasoning, inappropriate referral and predilection for popular management approaches also contribute to mis-diagnosis and mis-management. This report describes two cases of chronic low back pain with lengthy histories of multiple failed interventions to highlight the consequences of focussing on a singular approach to the exclusion of evidence based pathways and the resulting risk of a missed diagnosis. The eventual management to mitigate these problems is reported with the aid of low back pain outcome measures, computer-aided combined movement examination, disability and pain questionnaires and health quality of life surveys.

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1. Introduction

Low back pain (LBP) is a major public health system problem, being one of the five most common reasons for physician consultation, with a lifetime prevalence as high as 85% (Joud et al., 2012). Chronic low back pain (CLBP) often includes psychological factors, such as higher than usual levels of stress, depression and/or anxiety, with the potential for fear-avoidance and catastrophising behaviours (Besen et al., 2015; Deyo, 2015). Furthermore, social factors involving relationships, family, work and navigating the medico-legal system, may amplify or prolong pain (Deyo, 2015).

Minimum clinical assessment of LBP includes obtaining a medical history and a physical examination (NHMRC, 2004; SAH, 2011). Physical examination incorporates a movement assessment which can include a multi-planar combined movement examination (CME) (Edwards, 1979; Barrett et al., 1999), soft tissue palpation, passive movement examination and neurological screening if implicated. Together, the history and physical assessment should result in a provisional diagnosis (Grieve, 1988). Progressing to treatment without a thorough assessment or without correlating

symptoms with examination findings, increases the prospect of misdiagnosis and mismanagement. Where indicated, focussed spine imaging assists with diagnosis and staging interventions (Deyo et al., 2014). Where the condition is complex, not responding to treatment, or where symptoms masquerade as more sinister pathology (Greenhalgh and Selfe, 2015), referral to appropriate health professionals is encouraged.

A wide variety of approaches are recommended for treatment of LBP, ranging from passive manual therapy (Maitland, Mulligan, manipulative therapy) to active management (general exercise, Pilates, hydrotherapy, changes to workplace and sleeping habits) and those with a focal psychosocial component (cognitive behavioural therapy) (Beck, 2011). Jull and Moore (2012) advocate finding the balance which optimises a multimodal approach and the outcome.

In recent years there has been much focus on the psychosocial component of LBP and graded movement rehabilitation (O'Sullivan and Lin, 2014; Deyo, 2015; O'Sullivan et al., 2015). This emphasis risks compromising the importance of assessing fundamental pathoanatomical sources of LBP (Hancock et al., 2011). Additionally, Moore and Jull (2000) remind clinicians to select an appropriate approach based on clinical guidelines. "With our enthusiasm for new trends to seem smart and stylish in our therapeutic practice, we must be careful that we don't fall into the trap of not adhering to recognised and established practices" (Moore and Jull, 2000:197).

^{*} Corresponding author. Centre for Musculoskeletal Studies, School of Surgery M424, The University of Western Australia, 35 Stirling Highway, Nedlands, WA 6009, Australia. Tel.: +61 8 9313 3999.

E-mail address: aubrey.monie@research.uwa.edu.au (A.P. Monie).

This report describes two cases, highlighting the consequences of focussing on a singular emphasis to the exclusion of a conventional systematic assessment and the resulting risk of a missed diagnosis.

2. Method

Two CLBP cases with lengthy histories of multiple failed interventions are reported. The eventual effective management is also reported along with: CME (Monie et al., 2015a), visual analogue scale (VAS) (Ogon et al., 1996), Roland Morris disability questionnaire (RMDQ) (Chapman et al., 2011) and short form health survey (SF-12) (Ware et al., 1996) outcome measures, pre- and post-intervention.

2.1. Case 1

This 55 year old male consulted his local GP for right side intermittent LBP (Fig. 1A), aggravated by walking >200 m, or any attempt to run, and when standing longer than 10 min, which resulted in a pain level of 7/10 (VAS). The GP referred the patient for three physiotherapy sessions in a tertiary hospital, to develop a rehabilitation program and requested lumbar x-ray and a gluteal region ultrasound scan. Both were reported as normal. After two months of prescribed exercises and using simple analgesics, the GP referred the patient to an orthopaedic spinal surgeon for an opinion. The specialist requested a CT investigation, which showed a L4-5 right side paracentral disc bulge with possible L4 nerve root compromise (Fig. 1B and C). The specialist referred the patient for image-guided L4-5 epidural injection, followed by a hip, trochanteric bursa, injection after four months, and finally a repeat L4-5 epidural after an additional four weeks. All three interventions failed to improve the patient's LBP. Both GP and specialist did not offer any further management strategies.

After two years of unsuccessful LBP management, the patient consulted a Physiotherapist privately, where a structured examination was completed. This assessment reproduced his symptoms during CME in lumbar extension with added right side-flexion (EwRSF); consistent with a regular compression pattern (Monie et al., 2016). Passive joint assessment directed to the right side L5 level reproduced the patient's symptoms (Maitland, 1997; Cook et al., 2015). The patient was then examined using computer-aided CME (Monie et al., 2015a) (Fig. 1D), along with RMDQ and SF-12 health survey outcome instruments. A provisional diagnosis

of right side facet dysfunction was made on the basis of (a) pain location, (b) patterns of lumbar innervation (Bogduk, 1985; Groen and Stolker, 2000), (c) CME pattern being consistent with loading posterolateral vertebral structures (Brown, 1988) and (d) eliminating the disc as a source of local pain following two unsuccessful epidural injections. A corticosteroid injection into the right L4-5 facet joint was recommended by the physiotherapist, as both a diagnostic and therapeutic intervention. The patient was referred by his GP for the facet injection and reported excellent pain relief within one week (VAS for pain was 1.6 during CME in the EwRSF position). Lasting benefit was evident at an eleven week reassessment, with obvious changes to CME (Fig. 1D) and clinically significant total change scores for VAS and RMDQ of 54.0% and 45.8%, respectively (Deyo et al., 1998). SF-12 health survey scores were rated normal by the eleven week retest (refer Table 1).

2.2. Case 2

This 42 year old female presented with severe low back pain (VAS 8.5) and right lower limb pain (Fig. 2A). She described emotional issues and stated that she had occasionally consulted a psychologist.

The patient was prescribed NSAIDs and Diazepam and referred by her GP for an MRI within 6 weeks of onset. Physiotherapy consisted of four manual therapy treatments and swimming was recommended. However this did not have any reported effect. Imaging showed disc protrusions at L4-5 and L5-S1 with bilateral facet arthropathy at both segments. Five months later the GP referred her for a L5-S1 epidural cortisone injection and prescribed Pregabalin medication. However, the symptoms did not change. The patient was advised by her physiotherapist to continue exercise and recommence physiotherapy treatment. Approximately six months later, a left S1 nerve root injection was performed for an episode of left lower limb pain. This provided temporary relief only. The patient requested a repeat MRI from the GP, but was refused and told that they knew the pain was from the disc bulge and anxiety. This view was reinforced by a second physiotherapist who implemented a program comprising cognitive functional therapy (O'Sullivan et al., 2015), manual therapy, home stretches and swimming five days per week. The advice reported to the patient was that the sciatic pain was anxiety related, and she needed to relax and practice breathing exercises. Her LBP increased with now significant right lower limb pain and she developed a left side lateral shift (Laslett, 2009). After complaining that she could no longer get

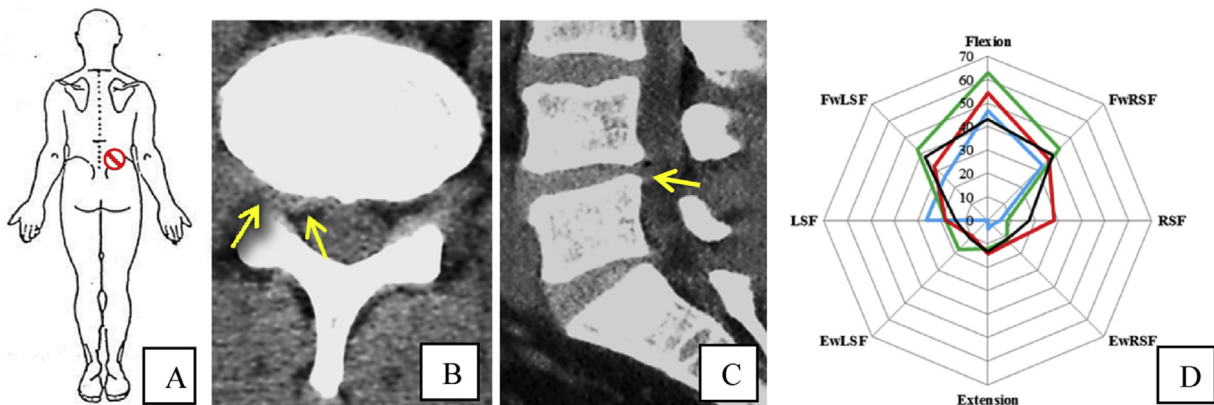


Fig. 1. Case 1 Pain diagram illustrating the area of right side, intermittent low back pain (red) (A), axial CT showed a right side posterolateral disc protrusion (B) and sagittal image (C) (arrows in black) and computer aided CME radial plot illustrating a restricted movement in the direction of lumbar extension combined with right side flexion (EwRSF), marked improvement at 11 weeks and an age (50–59) and gender matched normal reference range (NRR) (D). Legend for CME: – Pre-injection, – 1/52 post-injection, – 11/52 post-injection, – 50-59YO male NRR. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

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