

A Case Report of Reversible Iatrogenic Compressive Myelopathy

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Abstract

Physical rehabilitation is a proven method of non-specific lower back pain treatment in contrast to manual therapy which has no evidence of clinical effectiveness. But sometimes, in the search for relief, patients develop complications resulting from the actions of unscrupulous healthcare providers in this field. A 35-year-old patient developed unbearable pain, impaired sensitivity, decreased muscle strength, stiffness in both legs, and urinary retention after rough manual-barefoot manipulation. Computed tomography scans of the cervical, thoracic, and lumbar spine regions revealed signs of hematomyelia involving the Th9-Th10, Th10-Th11, and L1-L2 spinal cord segments. After undergoing therapy with nonsteroidal anti-inflammatory drugs and glucocorticosteroids, the patient reported a significant improvement in his condition. The description of this clinical case demonstrates a complication of the manual-barefoot manipulation presenting as compressive myelopathy.

Keywords

Compressive Myelopathy; Hematomyelia; Manual Manipulations; Spinal Cord Diseases; Case Report

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Introduction

Compressive myelopathy encompasses a range of neurological deficits resulting from spinal cord compression [1]. Iatrogenic spinal cord injuries are rare, although isolated cases of such etiology have been documented in the literature. Possible causes include surgical interventions (laminectomy, discectomy, vascular surgery), interventional techniques (vertebroplasty, arterial embolization, acupuncture), medications (antiplatelet agents, acenocoumarol), and physical therapy (manipulations) [2]. Hematomyelia resulting from manual manipulation and spinal cord compression is a rare occurrence and mainly involves the cervical spine [3]. In the presented case, manual manipulation resulted in the involvement of the thoracic and lumbar spine regions, which is uncommon as well as an iatrogenic case of such origin.

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Case Report

Patient Information

A 35-year-old patient without apparent comorbidities developed acute non-specific low back pain. He sought treatment from a manual therapist, and after following manual-barefoot manipulation, he experienced unbearable pain (rated 9/10) in the thoracic and lumbar regions, along the anterior surface of the chest and abdomen, radiating to the right leg down to the popliteal fossa, right scrotum, and worsening with changes in body position. In addition, the patient reported bilateral numbness extending from the level of the navel to the mid-thigh, decreased muscle strength, bilateral leg stiffness, and urinary retention.

Clinical Findings

The neurological examination revealed restricted active and passive movements of the lower limbs due to severe pain in the thoracic and lumbar spine, decreased muscle strength in the right (3/5) and left lower limbs (4/5), and reduced muscle tone in both lower limbs. Tendon reflexes from the upper limbs were not elicited on the right side, while from the lower limbs, there were the knee jerks with equal amplitude (D = S), the ankle jerks with a polykinetic response (D > S), a clonus in the right foot, and clonus-like

responses in the left foot. Superficial and deep abdominal reflexes were not elicited bilaterally. There was paravertebral muscle guarding in the lower thoracic and lumbar regions and marked tenderness on palpation of the spinous processes at the Th9-Th10 level, as well as tenderness on percussion of the spinous processes at the Th9-Th10 level. The patient assumed an antalgic posture and dragged his right lower limb while walking. There were signs of nerve root tension, including the Tripod sign, the positive Lasegue's sign at 10° on the right side, and the crossed Lasegue's sign at 10° on the left side. In terms of sensory function, there was root hypoesthesia at the C6-C7 level on the right side and segmental-conducting dissociated hypoesthesia at the Th7 level. Bladder and bowel dysfunction was present in the form of urinary retention.

Diagnostic Assessment

Computed tomography (CT) scans of the cervical, thoracic, and lumbar spine were performed: multiple hyperdense foci were observed in the Th9-Th10 (Fig. 1), Th10-Th11 (Fig. 2), and L1-L2 (Fig. 3) spinal cord segments (+54, +73, and +66 HU respectively), that might indicate a hemor-

rhagic origin. Moreover, degenerative-dystrophic changes consistent with osteochondrosis, spondylosis, and spondyloarthrosis were noted. There was a disc protrusion at the C6-C7 level and a disc protrusion at the Th9-Th10 level. Disc herniations were present at the L2-L3, L3-L4, L4-L5, and L5-S1 levels with signs of degenerative stenosis at the L4-L5 level.

Therapeutic Intervention and Outcomes

The treatment lasted for seven days and included parecoxib 40 mg intramuscularly (IM) once a day and dexamethasone 4 mg IM once a day.

All the above symptoms regressed following the treatment course.

Discussion

Manual therapy is becoming increasingly popular among patients with various musculoskeletal pathologies and pain syndromes. This often leads to a delay in a search for qualified medical care. In fact, adequately performed manual manipulations can provide the expected relief by reducing pain intensity, improving mobility, and promoting overall

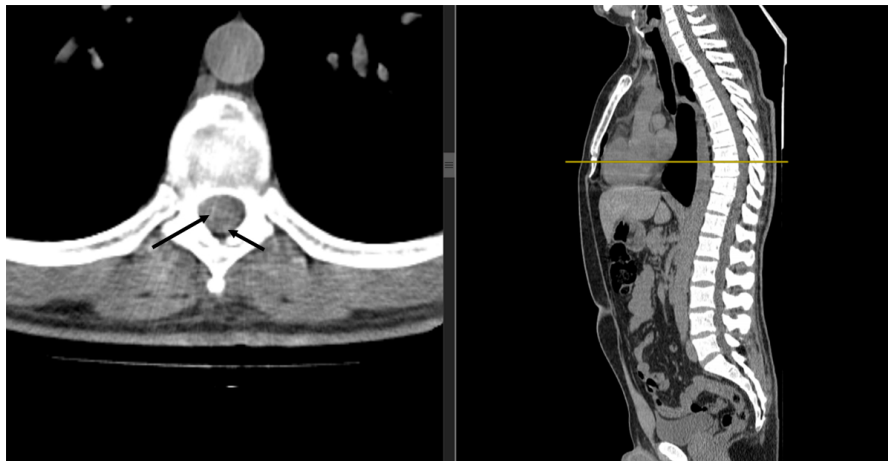


Figure 1. The thoracic spine at the level of Th9-Th10 spinal cord segments. Black arrows indicate hyperdense foci (most likely of hemorrhagic origin).

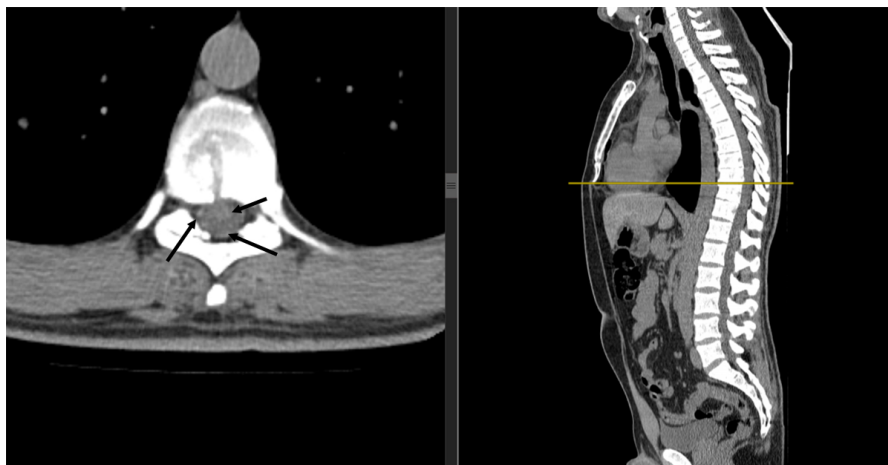


Figure 2. The thoracic spine at the level of Th10-Th11 spinal cord segments. Black arrows indicate hyperdense foci (most likely of hemorrhagic origin).

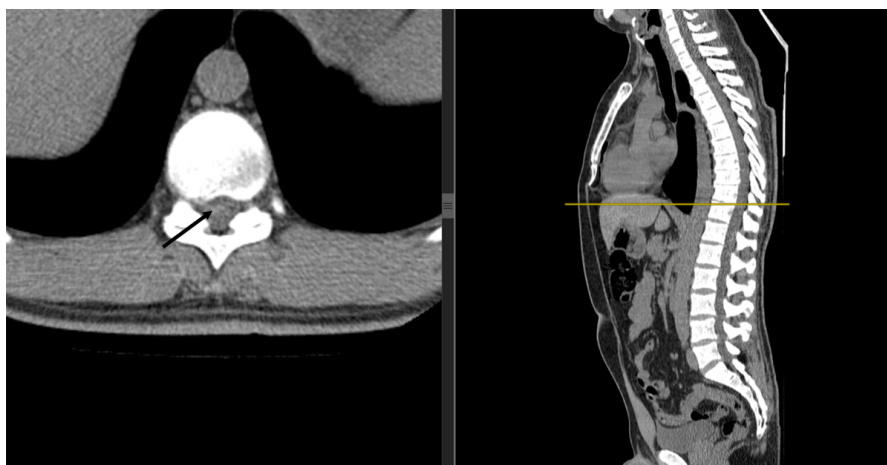


Figure 3. The lumbar spine at the level of L1-L2 spinal cord segments. Black arrow indicates hyperdense focus (most likely of hemorrhagic origin).

well-being. They rarely result in severe consequences, with common side effects being mild pain and muscle stiffness lasting for a few days [4, 5]. However, despite the positive aspects, potential risks and complications need to be taken into account.

Side effects arising from manual manipulations are generally mild and, according to the literature, occur in 23–83% of cases [6]. This is supported by recent randomized controlled trials [7]. Nevertheless, the presented clinical case is an example of a severe outcome resulting from rough manual-barefoot manipulation, causing spinal cord compression, and leading to petechial hemorrhages, which resulted in clinical manifestations of the affected segments. Although magnetic resonance imaging (MRI) of the corresponding spinal cord region, with or without contrast enhancement, is considered the gold standard for diagnosing this complication [8], CT, when carefully reviewed, can provide sufficient information that in combination with clinical data allows for a reliable diagnosis of iatrogenic compressive myelopathy. The patient’s conservative treatment was successful, resulting in a full recovery. However, it should be noted that among the published clinical cases, there is an increasing occurrence of severe consequences that may necessitate surgical intervention [9, 10].

We believe that this clinical case should draw the attention of clinicians and manual therapists to the potential neurological complications of manual therapy and encourage a comprehensive understanding of the appropriate indications and contraindications. It would be appropriate to consider a prior consultation with a neurologist and conduct neuroimaging studies to minimize potential risks. Manual therapists should avoid performing forceful manipulations, especially “cracking” techniques, high-velocity manipulations, and, as in the presented case, combining manual and foot techniques without certainty about the safety of the procedure for each individual patient.

Conclusions

Manual manipulations can be a valuable part of treatment when performed correctly and guided by the principle of

“do no harm.” Patients with back pain should primarily consult qualified specialists for accurate diagnosis and treatment decisions. Manual therapists, in turn, should be aware of contraindications to manual manipulations and their possible complications, avoid aggressive techniques, and collaborate with neurologists to provide qualified patient care.

Patient’s Perspective

The patient acknowledges that his condition resulted from the actions of the manual therapist but has no intention of pursuing legal action in this matter.

Ethical Statement

The study has been carried out according to the ethical principles stated in institutional guidelines and the WMA Declaration of Helsinki.

Informed Consent

The patient provided informed consent for publishing before drafting and submitting the manuscript.

Data Availability

This report presents the clinical details and management of the clinical episode; data sharing is not applicable.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Financial Disclosure

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