Case report

Rehabilitation of a patient with Wedge Compression with Paraplegia: A Case Report

Abstract

Background: Despite the greatest efforts of many experts to provide realistic therapeutic therapies, spinal cord injury (SCI) is a traumatic event with limited functional recovery. After a spinal cord injury, paraplegia can develop. Damage to the ligaments, vertebrae, or discs of the spinal column causes this. Paraplegia is the loss of muscle function in the lower half of the body, including both legs. Leg paralysis in this case in which affects all part of the pelvic organs,legs and torso.This is partly owing to the complex character of SCI, which involves a great deal of disarray and malfunction as a result of the initial injury.Secondary degeneration is caused by neurotoxicity, vascular malfunction, neuroinflammation, apoptosis, and demyelination.And the patient is started with medical management which usually consists of analgesics.

Presentation of case:34year old male patient with wedge compression was diagnosed on x-ray after a fall from tree.

Discussion: The requirements for regeneration, rehabilitation, and neuroprotection appear to necessitate a diverse set of therapeutic approaches that can be used at different stages of the post-injury response.

Conclusion: We'll focus on one strategy in particular, physical training/exercise, which looks to have a wide range of applications and benefits for those who have a chronic or acute SCI.

Key word: Spinal cord injury, wedge compression, paraplegia, case report

Introduction

A traumatic incident is a spinal cord injury (SCI). This is a serious condition that results in long-term motor and sensory dysfunction. SCI affects between 250,000 and 500,000 persons worldwide each year (WHO,2013). Injuries can be caused by trauma, infections, and malignancies, in addition to the more common motor vehicle accidents, sports injuries, falls, and weaponry (Devivo, 2012). Because the cell and tissue response to injury is extensive and progressive, a precise sequence of therapies to repair damage and produce new neural connections may be required to find a cure for SCI.

SCI is divided into two phases: the first, which involves mechanical trauma to two neurons, glial cells, and their surrounding vasculature, and the second, which involves invasive degeneration of the surrounding spinal cord tissue. Axon retraction, glial scarring, and inflammatory cell recruitment are all instances of cellular events, as are demyelination and subsequent exposure to Myelin-related inhibitory chemicals, and abnormal sprouting/plasticity of a spared nerve fiber pathway(1).For example, excitotoxicity is a metabolic change. Even without the use of modern therapeutic approaches, both humans and animals with partial SCI have showed some degree of

recovery. Spontaneous recovery is a phenomenon that occurs less frequently in patients than in mild-moderate damage animal models. Neuronal properties changes (2). The injury is rostral and/or caudal collateral sprouts (3) and alterations to cortical maps (4). This takes place without the need of invasive therapy, pharmaceutical medications, or rehabilitative training. Because several studies have demonstrated that animals self-train in their home cages after being injured, assessing the degree of spontaneous healing in animal models may be difficult(5). Even if spontaneous recovery occurs, it will not result in significant functional recovery; hence, additional interventions are required.

Patient Information

A 34 years male patient with low back pain came to an orthopedic department with chief complaints of pain and swelling on lower back ,fever , weakness in lower limb, difficulty in walking and no sensation in the lower half of the body, including both legs and patient had a history of present illness that he had fall from tree sustaining injury to lower back.The patient visited AVBRH hospital on date 5/10/21 at Orthopedic department and was suggested for x-ray.His reports diagnosed wedge compression fracture with paraplegia for which he got operated on date 11/10/21 after that he was shifted to general ward on date 12/10/21, since then he was referred to physiotherapy department for rehabilitation.Post operatively patient was treated with antibiotics, drugs,Iv fluids and other medications were given. He was under regular physiotherapy thereafter.

Clinical Findings

Patient mesomorphic by build presents with the following attitude of limbs ankle in planter flexion,hip external rotated.Reflex examination revealed hyporeflexia in bilateral lower limb and normal reflexes in bilateral upper limb.The abdominal reflex were also diminished.ASIA impairment scale revealed the patient in Level C i.e motor incomplete.Sensory examination revealed absence of sensations in bilateral lower limbs.(Light touch and pin prick). Sensations were intact in bilateral upper limb.Motor examination revealed grade 0 power (According to MMT) in bilateral lower limb and grade 4 in bilateral upper limb.

There was bowel and bladder involvement hence the patient was catheterised with intermittent catheterisation.

Date of Incidence	5/10/2021
Date of Admission	6/10/2021
Date of Operation	11/10/2021

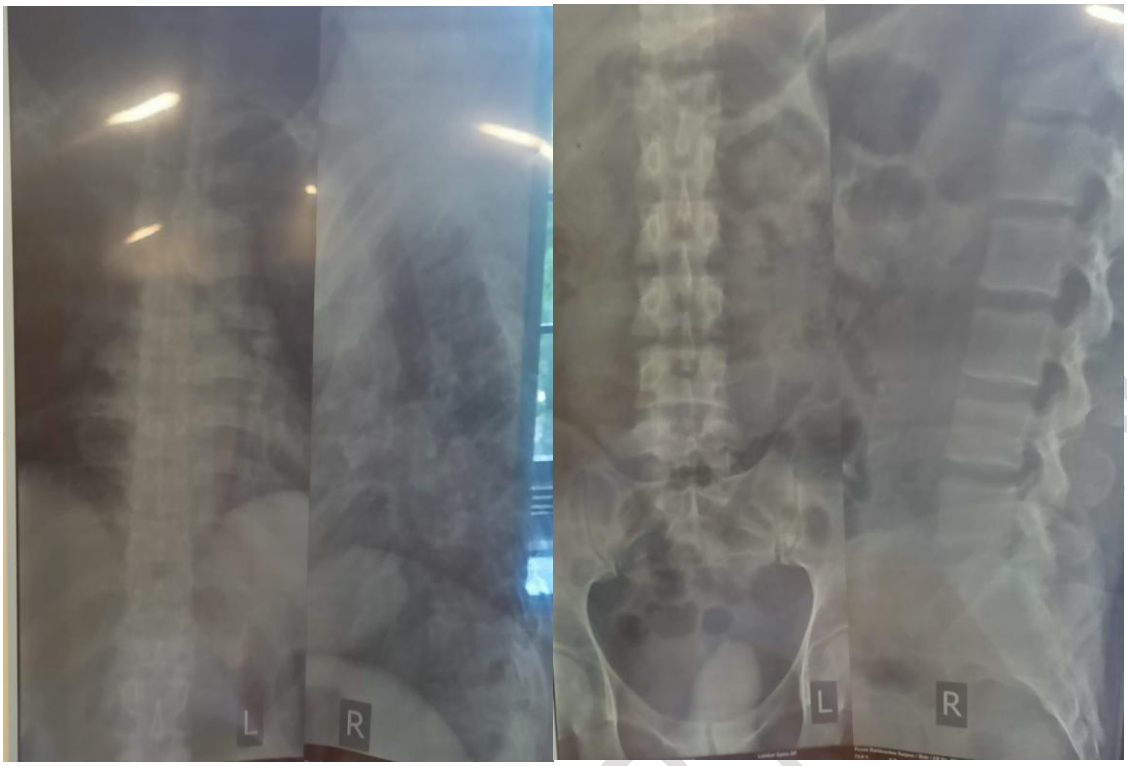

Fig 1: X-ray of lumbar spine

Fig 2: MRI of lumbar spine

Physiotherapy Interventions:

Physiotherapy was primarily focused on prevention of secondary complications and management of primary problems.Vigorous strengthening program for the upper limb to improve the use intact upper limb, with the help of weight cuffs that increased in weight progressively. Breathing exercises were provided to improve lung compliance. For lower limbs, stretching was provided to prevent tightness and contractures, developing due to increased immobility. Bed mobility exercises were taught to the prevent bed sores and other complications. Positioning every hourly was taught to the patient and the relatives as well. Proper bowel and bladder training was provided to the patient for easy defecation and prevention of infection. Trunk stability exercises were incorporated that would improve both static and dynamic sitting balance. Scooting exercises and pelvic shifts also were taught, that will help in future foe wheelchair transfers.

Discussion:

High-energy or compound-energy trauma is the most common cause of spinal cord injury. Patients frequently suffer from high-energy or compound-energy trauma, as well as many injuries, making diagnosis and therapy difficult(6). Phantom limb discomfort, neuropathic pain, and low back pain are among the patient's complications. The loss of motor and sensory function as a result of a spinal cord injury, as well as the loss of body image following amputation, will impede recovery(7,8). Locomotor training is a simple and effective technique for spinal cord injury patients to increase their motor recovery

and walking capacity(9,10). In patients with spinal cord injuries, rehabilitation and training are more difficult.

Conclusion:

In our present study we conclude that early physiotherapy intervention for this patient helped in avoiding major secondary complications like pressure sores, joint contractures also it helped in maintaining proper chest compliance and improved trunk control also.Hence, early physiotherapy intervention has to be started following spinal cord as it plays a major role in further prognosis and outcomes.

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