Brown Sequard Syndrome: A Case Report

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ABSTRACT
A very unusual neurological disorder known as Brown-Séquard Syndrome (BSS) may develop when the spinal cord is severed or damaged on one side. Ipsilateral motor paralysis, loss of proprioception, and a lack of pain and temperature sensitivity on the opposite side are hallmarks of this disorder's distinctive pattern of neurological impaired functions. A 45-year-old man with a history of severe injuries who acquired Brown-Séquard Syndrome is the subject of this case report.

1. Introduction

In 1850, scientist Charles-Edouard Brown Sequard was the first to describe a disorder that would later be dubbed Brown Sequard syndrome. An damage to the spinal cord from a fall, a penetrating trauma, a puncture to the cervical or thoracic spine, ischemia (the blockage of a blood vessel), or an infectious or inflammatory condition like MS or Tuberculosis might be the reason. Paralysis may set in after a typical case of Brown-Sequard syndrome starts.

2. Case Presentation

45year old male who is a construction worker was brought to the emergency department with history of fall from a height of approximately 15 feet and landed on his right side, immediately experiencing severe pain in his neck and right arm. On examination, patient's vitals were stable; CVS-S1,S2 heard with no murmurs, RS-NVBS+ with no added sounds, Per Abdomen-soft, non-tender CNS- Right sided weakness (Grade 3/5) in both upper and lower extremities, Sensory system- Propioception and vibration were both lost on the right side, Pain and temperature sensations were lost on the left side, Hyperrreflexia was noted in the right lower limb, Cranial nerves-intact, Spinal tenderness present at the level of the upper thoracic spine. X-ray C-Spine was done which showed no fractures or dislocations. All routine investigations were sent- Hb-13.5mg/dl, TLC-7K, Plt-2.3L, Sr.Urea-15, Sr.Creatinine-0.9, Sr.Sodium-133, Sr.Potassium-4.7, Sr.Chloride-115.m MRI whole spine screening revealed a lesion on the right side of the spinal cord at the C2-C3 level consistent with a hemisection.

Cervical collar was placed to stabilize the spine.Neurology opinion was obtained-advised to start the patient on high dose intravenous corticosteroids, oral muscle relaxants and other supportive medications-orders were followed. Over a period of six months, the patient showed gradual improvement in motor function on the right side. Proprioception and vibration sense partially returned, but deficits in pain and temperature sensation on the left side persisted. The patient continued with rehabilitation and adapted to his neurological deficits, achieving a reasonable degree of independence. The patient is on regular follow-up in neurology OPD.

Fig 1- MRI C-Spine Showing prolapsed intervertebral disc at C2-C3 level

Fig 2- X-ray C-Spine showing no fracture or dislocation

3. Discussion

Rarely does a person get a spinal cord damage called Brown-Séquard Syndrome. There are two main categories of injuries that might induce Brown-Séquard syndrome: traumatic and nontraumatic. The most prevalent types of trauma are gunshot wounds, knife wounds, car accidents, blunt trauma, and vertebral fractures caused by falls. Herniated discs in the spine, cysts, cervical spondylosis, tumors, MS, radiation, and decompression sickness are among the many nontraumatic causes of the condition

that might manifest to a lesser degree. Hemorrhage or ischemia of the spinal cord are two other vascular causes. Also seen are infectious causes such as meningitis, TB, herpes zoster, transverse myelitis, and empyema. One sure indicator of ipsilateral paralysis is a lack of sensation for pain and warmth on the affected side of the body, along with impaired motor and proprioceptive ability[1]. The use of imaging and clinical examinations for early diagnosis is of the utmost importance. It is important to take steps to protect the spine until the severity and stability of the lesion can be assessed.[2]The next steps in treating Brown Sequard Syndrome center on avoiding complications, which are dependent on the kind and degree of injury.[3] Given the increased risk of infection and other problems without a discernible improvement in neurologic prognosis, the use of steroids—specifically, high-dose intravenous methylprednisolone—in traumatic spinal cord injuries is a contentious topic. Nevertheless, it is advised to use conventional perioperative prophylactic antibiotics.[4]When a patient has mechanical spinal canal stenosis or compression, decompression surgery may be an option. Through a collaborative effort including doctors, nurses, PTs, OTs, and social workers, non-surgical treatment for spinal cord injuries aims to lessen patients' reliance on others for everyday tasks while simultaneously enhancing their quality of life.[5]Patients' ability to go about their everyday lives and enjoy life more with the use of specialized gadgets including wheelchairs, limb supports, and hand splits.[6]There are a number of devices that may be used to help patients who are having trouble eating or breathing; depending on the severity of paralysis, cervical collars can also be used. The possibility of a stroke, malignancies, or cysts should be considered as a hypothesis. Syringomyelia, epidural abscesses, anterior cord syndrome, central cord syndrome, and epidural hematoma are among the other potential sources of injury to the spinal cord and compression.[7]The degree of spinal cord damage and the kind of injury determine the prognosis for patients with Brown Sequard Syndrome. Because BSS is often an incomplete spinal cord injury, there is a good chance that the patient will make a full recovery. Compared to anterior and central cord disease, the long-term prognosis for Brown Sequard disease is better.[8]The majority of individuals with posttraumatic motor function regain it, while over 50% of patients with Brown Sequard Syndrome make a full recovery. After the first three to six months, healing slows down, and it might take up to two years for continuous neurological recovery.

4. Conclusion

This case illustrates the classic presentation and management of Brown-Séquard Syndrome following traumatic spinal cord injury. Prompt recognition and intervention are essential for optimizing patient outcomes. Further research into the underlying mechanisms and potential therapeutic interventions for spinal cord injuries may enhance recovery prospects for patients with this rare syndrome.

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Ethical Consent

The individual consented to take part in the study after receiving full information about it.

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Conflict of interest

The writers state that there are no conflicts of interest.

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