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Case Report

Transverse Myelitis in a Middle-Aged Patient: A Case Report

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ABSTRACT

Transverse myelitis (TM) is a rare inflammatory disease affecting the spinal cord, leading to motor, sensory, and autonomic dysfunctions. This condition can be idiopathic or secondary to various etiologies, including infections, autoimmune diseases, and post-infectious events. Clinically, TM is characterized by the rapid onset of bilateral symptoms, potentially progressing to paraplegia or tetraplegia with varying severity. Studies have indicated a connection between transverse myelitis and demyelinating diseases such as multiple sclerosis and neuromyelitis Optica.

Keywords: Spinal cord; Inflammation; Magnetic resonance imaging; Neuroimmunology

Introduction

Transverse myelitis (TM) is a rare neurological condition characterized by spinal cord inflammation, causing diverse neurological deficits that affect motor function, sensation, and autonomic processes. The term "transverse" refers to inflammation spanning the spinal cords width, often leading to bilateral symptoms[1]. TM is classified as a rare neuroimmunological disease, presenting abruptly and, in some cases, progressively, with symmetrical or asymmetrical signs and symptoms along the spinal cord. The causes of this disease can be idiopathic, associated with autoimmune disorders, viral infections or even complications from medical conditions like multiple sclerosis and systemic lupus erythematosus. Its diverse etiology includes infectious processes, autoimmune diseases, and reactions to biological agents such as vaccines[2-5]. Among the best-known autoimmune causes are multiple sclerosis (MS) and neuromyelitis optica (NMO), conditions with similar clinical presentations, complicating differential diagnoses. Early diagnosis and management of transverse myelitis are essential

to minimize neurological sequelae. Clinical manifestations can range from mild motor deficits to complete paralysis and sensory loss below the lesion level. Complementary exams, such as magnetic resonance imaging (MRI) and cerebrospinal fluid analysis, are crucial for differential diagnoses[6].

Objective

This study aims to describe a clinical case of a young patient and discuss the main causes, differential diagnoses, treatment options, and prognosis of transverse myelitis.

Materials and Methods

A retrospective case report was prepared through electronic medical record research and supported by a brief literature review using the PubMed and Scielo databases.

Case Report

A 36-year-old male patient was admitted to the hospital with complaints of paresis associated with myalgia and action tremor, ascending and symmetrical in nature, with onset 7 days prior. For the past 3 days, he has been unable to walk without assistance. He also reported difficulty sustaining upper limbs and feeding himself, with no other complaints. The patient mentioned having had flu-like symptoms about 20 days before admission and was on the 5th postoperative day of laparoscopic cholecystectomy for biliary pancreatitis. However, as noted, the current symptoms started before the surgery, raising the diagnostic hypothesis of Guillain-Barré syndrome. Laboratory tests, including electrolyte screening and cranial CT, showed no abnormalities. Several differential diagnosis tests were performed, including lumbar puncture, which revealed no cerebrospinal fluid (CSF) cell-protein dissociation, ruling out meningitis. Serologies for syphilis, hepatitis A, hepatitis B, and HIV were all non-reactive. During hospitalization, the patient remained hemodynamically stable without respiratory complaints, walking with assistance and undergoing physiotherapy. He maintained grade 1 paresis in the lower limbs and grade 3 in the upper limbs. Lumbar CT showed a slight L4-L5 intervertebral disc bulge, and cervical CT revealed subcortical sclerosis and small marginal osteophytes in the odontoid process and anterior arch of the atlas. A neurologist recommended ICU admission due to the possibility of respiratory failure and prescribed immunoglobulin at 2g/kg over 5 days. Upon ICU admission, neurological examination showed altered strength in all four limbs, grade 2 paresis in the lower limbs, and grade 3 in the upper limbs, with preserved neck mobility and no aphasia. After returning to the ward, the patient experienced worsening weakness in both upper and lower limbs, becoming unable to walk and presenting reduced reflexes, swallowing difficulty for solids, but no visual acuity impairment. A new CSF analysis showed no abnormalities. Neurological evaluation led to ICU readmission and a second cycle of immunoglobulin at 2g/kg for 5 days. Cervical spine MRI showed small posteromedian disc protrusions at C5-C6 and C6-C7 without spinal cord compression. Brain MRI revealed a residual hemosiderin focus in the left frontal periventricular white matter. Thoracic spine MRI showed mild signal alteration in the central thoracic medullary segments, raising the possibility of transverse myelitis. Following these findings, corticosteroid pulse therapy (methylprednisolone 1g/day for 5 days) was initiated in consultation with neurology. Despite these measures, the patient showed no significant improvement. After 10 days in the ICU, he was transferred back to the ward for rehabilitation and continued investigations. Throughout hospitalization, the patient underwent various medication protocols and received multidisciplinary care, including physiotherapy and speech therapy. Given the limited treatment response, transfer to a tertiary care center with greater technological support was arranged for possible plasmapheresis **(Figure 1)**.

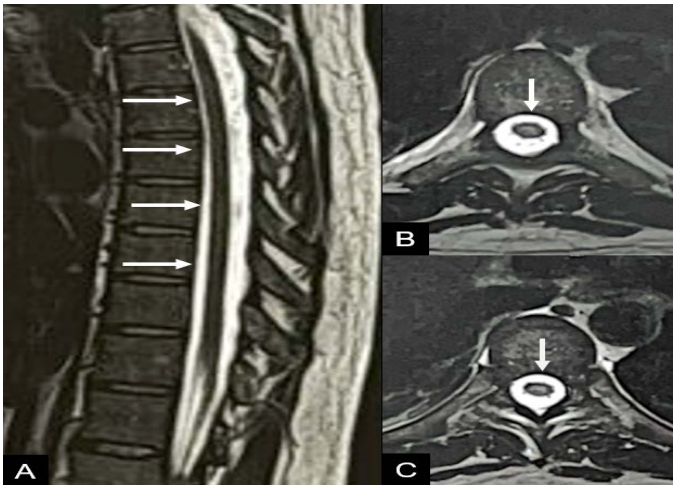

Figure 1: Sagittal (A) and axial (B) T2-weighted images of the thoracic spine, showing a slight area of signal alteration in the central portion of the spinal cord (arrows in A and B).

Discussion

Transverse myelitis presents a broad range of clinical manifestations that vary according to the extent and location of spinal cord inflammation. Major symptoms include back pain, flaccid or spastic paralysis, sphincter dysfunction, and sensory deficits, often appearing rapidly[7-9]. The variability in symptom severity reflects the condition's etiological heterogeneity, involving infectious, autoimmune, and even traumatic factors. The diagnosis is typically based on clinical examination and confirmed through imaging studies, such as MRI, and laboratory tests, including cerebrospinal fluid analysis[10]. MRI often reveals inflammation, while cerebrospinal fluid analysis frequently shows lymphocytic pleocytosis and elevated protein levels, aiding in distinguishing TM from other neurological conditions like infections and spinal neoplasms. Treatment options include high-dose corticosteroids, intravenous immunoglobulin, and plasmapheresis in certain cases[11]. Therapeutic approaches vary based on the suspected etiology, with early intervention being most effective. In refractory or recurrent cases, immunomodulatory therapies such as rituximab have been explored. Prognosis remains uncertain, with recovery often being partial and dependent on the initial severity and timeliness of treatment initiation. Studies suggest that approximately one-third of patients recover fully, one-third experience mild to moderate sequelae, and another third sustain significant deficits[12].

Conclusion

Transverse myelitis poses a clinical challenge due to its etiological variability and unpredictable treatment response. Early recognition and proper management are crucial to improving prognosis and reducing long-term complications. Advances in imaging techniques and immunomodulatory treatments hold promise for substantial improvements in managing this condition. Recent developments in neuroimaging and laboratory testing, such as aquaporin-4 (AQP4-IgG)

and myelin oligodendrocyte glycoprotein (MOG) antibody assays, have enabled better differentiation of TM from other demyelinating diseases, particularly neuromyelitis optica. Despite the limitations of current treatments, progress in understanding TM pathophysiology may pave the way for more effective and targeted therapies. Although existing treatments show benefits in reducing inflammation, there is a growing need for more focused therapeutic strategies.

Ethical Statement

Informed consent has been provided by the patient for publication of this case report.

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