E-Poster

EP-797

Case Study: Subacute Combined Degeneration of the Spinal Cord and Sensorimotor Polyneuropathy Due to Alcohol and Nitrous Oxide Abuse

Topic: Health Conditions (Nervous System, Musculoskeletal System, Cardiopulmonary System)

Mariya Sadek[1], Samantha Vargas[1], John Sedrak[1], Nina Bhupathiraju[2], Punit Patel[2], Jihad Jaffer[2], Andres Zuleta[3], Rishi Shah[2]

[1]*Palomar Health Rehabilitation Institute, San Diego, United States*
[2]*PM&R, Palomar Health Rehabilitation Institute, United States*
[3]*Internal Medicine, Benchmark, San Diego, CA, United States*

BACKGROUND

Subacute Combined Degeneration (SCD) of the spinal cord is a neurological condition commonly associated with vitamin B12 deficiency. Chronic alcohol consumption and nitrous oxide abuse are leading causes of this deficiency, which can result in significant sensorimotor polyneuropathy and spinal cord damage. This case highlights a 53-year-old male with SCD due to alcohol and nitrous oxide abuse, focusing on the importance of early diagnosis, vitamin B12 supplementation, and the role of physical medicine and rehabilitation in improving his functional status.

CASE DESCRIPTION

The patient, a 53-year-old male with a history of chronic alcohol and nitrous oxide abuse, presented with progressive sensory and motor deficits, including numbness, tingling, weakness in the hands and feet, and balance issues. Over several months, he became increasingly unable to walk without assistance and had significant difficulties with daily activities. Neurological examination revealed bilateral lower extremity weakness, impaired proprioception, and decreased vibratory sensation. Magnetic resonance imaging (MRI) results confirmed subacute combined degeneration, with T2 hyperintensities in the posterior columns of the spinal cord. His vitamin B12 levels were markedly low, supporting the diagnosis of SCD.

Treatment involved high-dose vitamin B12 supplementation, and the patient was admitted for inpatient rehabilitation to address his motor and sensory deficits. Upon admission, he required substantial assistance for most activities of daily living (ADLs), including eating, grooming, and bathing. He needed help with bed mobility, sit-to-stand movements, and toilet transfers. Due to safety concerns, he was unable to walk or attempt any mobility. His cognitive function remained intact, as he was alert and oriented x4, and his comprehension and expression were unaffected.

DISCUSSION

Subacute Combined Degeneration is often caused by vitamin B12 deficiency, frequently seen in patients with chronic alcohol use and nitrous oxide abuse. Early diagnosis and vitamin B12 supplementation are critical to prevent further damage. In this patient's case, rehabilitation played a key role in improving his functional abilities. Through physical and occupational therapy, he made remarkable progress, regaining independence in many ADLs, including bed mobility, sit-to-stand transitions, and car transfers. Although he still required supervision for some mobility tasks, his functional improvement was significant, highlighting the importance of physical medicine and rehabilitation.

CONCLUSION

This case highlights the importance of early recognition and treatment of subacute combined degeneration from vitamin B12 deficiency, especially in patients with alcohol or nitrous oxide abuse. Timely B12 supplementation and rehabilitation can significantly improve outcomes, restoring independence and quality of life despite severe neurological deficits.

Statement of Disclosures

None

Corresponding Author:
Mariya Sadek
Palomar Health Rehabilitation Institute, San Diego, United States
Email: mariyasadek.ms@gmail.com

Doi: 10.5606/archisprm.2026.EP-797