

# THE SILENT POISON: CHRONIC MERCURY TOXICITY MASQUERADING AS NEURODEGENERATIVE DISEASE

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## Background

Heavy metal toxicity may lead to permanent dysfunction across multiple organ systems. The central nervous system, peripheral nervous system, renal, cardiovascular, and hematopoietic systems are most commonly affected. Mercury, a well-known environmental contaminant, is particularly neurotoxic. Chronic exposure often results in CNS dysfunction, with intention tremor being its most consistent neurological manifestation. Neurological deficits are typically slow to resolve and may be only partially reversible.

## Case report

A 66-year-old male presented with progressive gait instability, hand tremors, gingivitis, and insomnia. Over six months, he experienced worsening balance, impaired coordination, and speech disturbances. Initial workup, based on a suspicion of encephalitis, included brain MRI and laboratory tests, which revealed only mild diffuse cerebral atrophy; routine labs were unremarkable. He was referred for orthodontic, psychiatric and psychological evaluation, and which continued as outpatient care. Six months later, his condition deteriorated, marked by aggravated speech impairment, vertigo, and further gait instability. Extended laboratory testing revealed serum mercury levels three times above the reference range. Cervical spine imaging showed changes consistent with transverse myelitis/myelopathy related to vitamin B12 deficiency. Detailed occupational history revealed chronic exposure to heavy metals at a waste disposal site. A multidisciplinary evaluation was initiated, including neurological, psychiatric and physiatric assessments. The patient was treated with vitamin B&E supplementations, antiparkinsonian and selenium, and referred for neurorehabilitation using the Bobath concept. Mild functional improvement was noted. Following a severe psychosocial stressor after a few months, he experienced a relapse with worsening speech, pronounced gait instability, nocturnal lower limb spasms, and loss of balance. Pharmacologic therapy was adjusted, and he underwent another cycle of physical and occupational therapy focused on adaptation strategies for daily living. Functional improvement in balance, coordination and performance in ADL followed.

## Conclusion

This case underscores the value of thorough history-taking and individualized, multidisciplinary management in diagnosing and treating rare toxic exposures.

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