Human T-cell Lymphotropic Virus-Associated Myelopathy Mimicking Paraneoplastic Syndrome

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Background

- Progressive weakness with hyperreflexia suggests a broad differential, including autoimmune, endocrine, metabolic, nutritional, toxic, neoplastic, and infectious pathophysiology.
- Human-T cell Lymphotrophic Virus, type 1 (HTLV-1) is a retrovirus that can cause HTLV-1 associated myelopathy (HAM).
- HAM is an inflammatory spinal cord disease manifesting with progressive spastic muscle weakness, hyperreflexia, and urinary incontinence.
- HTLV-1 infection is endemic in the Caribbean but rare worldwide with only 5-10 million cases[1].
- 1-4% of those infected with HTLV-1 develop HAM in their lifetime.
- No treatment has proven benefit in HAM, with most patients becoming wheelchair bound over a median of 21 years[2].
- We report a case of HAM, initially thought to be a paraneoplastic neuromyotonia.

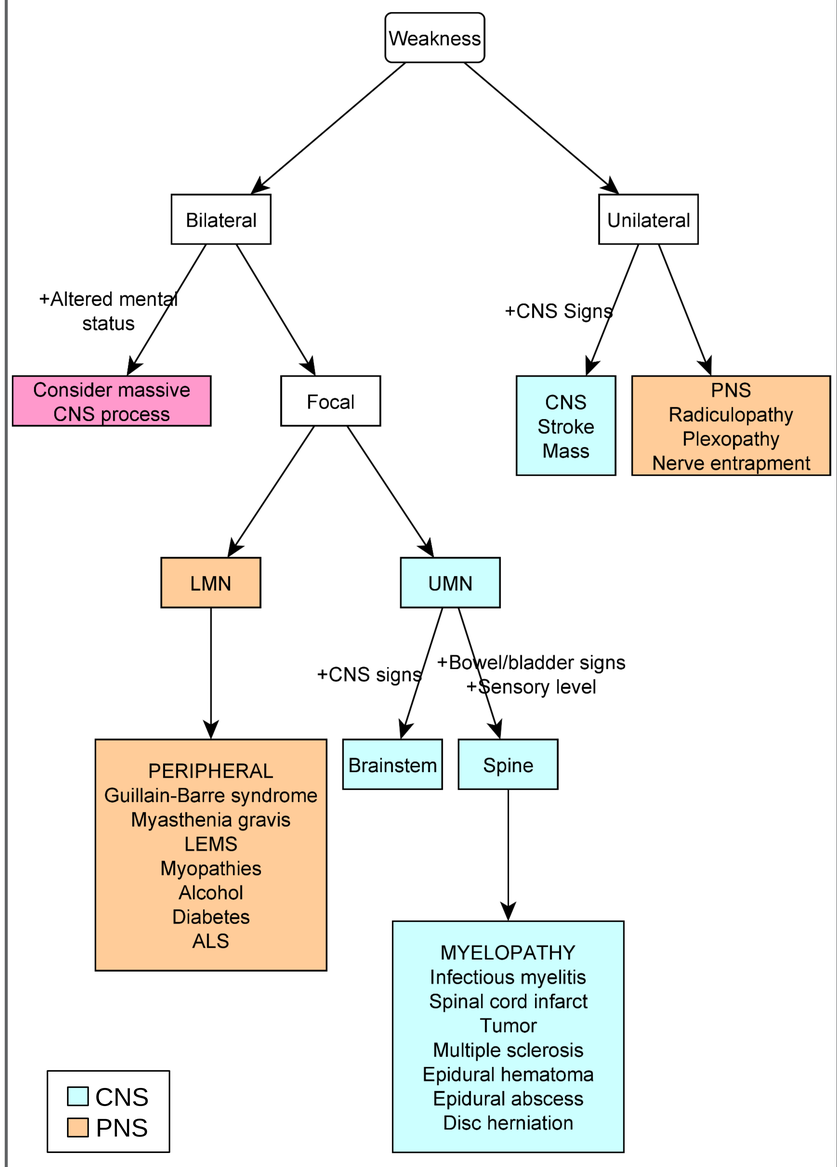
Case Presentation

A 67-year old Haitian male presented with progressive lower extremity weakness for 2 months and bladder incontinence. There was no associated pain. Vital signs were unremarkable. Physical examination revealed bilateral lower extremity hyperreflexia, Babinski sign, and reduced vibration sense.

Initial workup:	Result	Units	Reference
White blood cells	**10.2**	**k/mm3**	**4.0-10.0**
Hemoglobin	**12.8**	**g/dL**	**13.2-17.2**
MCV	86.6	fL	80.0-98.0
Platelets	277	k/mm3	130-385
Anti-nuclear antibody	**1:320**		**<1:80**
Lyme, RPR, HIV, Hepatitis	Negative		
Imaging:	**Result**	**Units**	**Reference**
CT C/A/P	Unremarkable		
MRI C/T/L	Unremarkable		
Cerebrospinal fluid:	**Result**	**Units**	**Reference**
White blood cells	**48**	**/mm3**	**0-5**
Red blood cells	**6**	**/mm3**	**0-5**
Lymphocytes	**96**	**%**	
Glucose	52	mg/dL	45-75
Protein	**156**	**mg/dL**	**12-60**
Infectious CSF Panel	Negative		
Voltage-gated potassium channel antibody:	**0.05**	**nmol/L**	**<0.02**

Weakness localization algorithm

When life-threatening causes have been ruled out, a physician may systematically approach objective weakness[3,4]:



CNS: Central nervous system, PNS: Peripheral nervous system, LMN: Lower motor neuron, UMN: Upper motor neuron, LEMS: Lambert-Eaton myasthenic syndrome, ALS: Amyotrophic lateral sclerosis

Case Presentation

- Voltage-gated potassium antibody (VGKC) is associated with the rare paraneoplastic disorder, neuromyotonia[5], however a malignancy was not initially discovered.
- Symptoms persisted despite plasma exchange, high-dose steroids, and intravenous immunoglobulin.
- Two months later, the patient developed pulmonary embolus and bilateral lower extremity deep venous thrombosis.
- Colonoscopy prompted by positive carcinoembryonic antigen (CEA) and abnormal abdominal CT findings identified a sigmoid colon adenocarcinoma, supporting the preliminary diagnosis of paraneoplastic neuromyotonia.
- However, there was minimal symptomatic improvement following surgical tumor resection, prompting further testing.
- Outpatient serology revealed positive HTLV-1 antibody.
- This patient ultimately was diagnosed with HAM and started on tizanidine for muscle spasms.

Conclusion

- This case highlights diagnostic challenges in a patient with a rare disease and the importance of epidemiology in clinical reasoning.
- This patient immigrated from Haiti where HTLV-1 prevalence rates among the highest in North America.
- Initial findings, including positive anti-VGKC and presence of malignancy supported the preliminary diagnosis of paraneoplastic neuromyotonia.
- However, given the patient's demographics and positive HTLV-1 antibody, progressive weakness and hyperreflexia refractory to medical therapy and surgical tumor resection, and growing evidence against the predictive value of anti-VGKC[6], HAM was the more likely diagnosis.
- It is thus important for clinicians to be aware of global disease epidemiology, as well as pitfalls of biases including premature diagnostic closure.

References

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