



10/12/23 Morning Report with @CPSolvers



"One life, so many dreams" Case Presenter: Jas (@JasBajwa18) Case Discussants: Rabih (@rabihmgeha) and Alex (@AlexTSmithNY)

CC: A 56 yr old female presenting with 4 wk of lethargy, irritability, brain fog & neuropathy (numbness & tingling) in LE.

HPI: Patient developed anorexia 6 wk ago, progressive fatigue -> TSH low & thyroxine dose was increased. Patient reports severe headache, tinnitus, numbness & tingling in all extremity, worsening of clouding of thoughts, short term memory loss, anxiety, sense of paranoia, SOB, palpitation, unstable walking 2 wks before presenting.

PMH:
Hypothyroidism, Depression & anxiety.

PSH:
Splenectomy after RTA, Left hip arthroplasty (June 2023).

Meds:
Levothyroxine, Fluoxetine, Multivitamins

Fam Hx:
Soc Hx: smokes 5 cig/day, social alcohol drinker

Health-Related Behaviors:

Allergies:

Vitals: T: afebrile, HR: 119, BP: 120/68

Exam:

Gen, HEENT, CV, Pulm, Abd, Ext/skin: wnl

Neuro: Sensation reduced in UE (hands to mid forearm b/l & normal above), LE numbness & tingling from feet to mid shin b/l, sensory ataxia, strength ~ ½, other findings normal.

Notable Labs & Imaging:

Hematology:

WBC:12.7 (high neutrophils) Hgb:18.8, MCV: nl, HCT 67% Plt: nl

Chemistry:

Na: 134K: 2.4 Cl, BUN, Cr:nl, glucose: 377Ca: 10.6Mag: 0.9 Run of VT normalised after electrolytes replenishment Troponin: 202-> 216, Aspirin & statin were administered HbA1c: 7.9, TSH: improving, AST, ALT, Alk-P, & Albumin: nl Lyme & EBV serology: neg

Imaging:

EKG: Sinus tachycardia
Echocardiogram: 65% LVEF, normal valves
Serum toxicology: Cobalt 592 (normal <10), Chromium 62.4 (normal <0.2?).
Xray hip: normal, OR: eroded implant removed.

Tx: Iv thiamine & NAC, Implant changed->Symptoms improved

Dx: Cobalt & Chromium toxicity

Problem Representation: 56 yo F with hypothyroidism and hip arthroplasty presents with subacute neuropathy and neuropsychiatric symptoms, and is found to have polycythemia and electrolyte imbalances.

Teaching Points (David):

- **Neurologic symptoms** -> outside vs inside of the brain origin (age may prioritize outside in this case)

+ **Outside:** metabolic, toxic, infectious

+ **Inside:** structural, infectious

- **Psychiatric symptoms** have loose localizing value, but think of frontal lobe disease (apathy, changes in personality...) or basal ganglia (many Parkinson's have depression even before motor). Basal ganglia problems (alcohol, heavy metal, vitamin deficiency) also tends to cause neuropathy

- Sensory neuropathies: axonal (toxic-metabolic, nutritional def... tend to be length-dependent) vs demyelinating (AIDP/CIDP, hypothyroidism).

- Most **neuropathies** follow 3 "S": slowly progressive, symmetric, sensory predominant. These case is not slowly progressive -> think outside neuropathies or atypical neuropathies

> **Atypical neuropathies:** ABC + heavy metal

+ A: AIDP (GBS and cousins), AIP

+ B: B1, B3, B12 def // B6 def/excess

+ C: cauda equina and Clostridial toxins (botulism)

+ Heavy metal toxicity (cobalt, arsenic, lead, chromium...)

> **Cobalt toxicity** -> neuropathy, hypothyroidism, polycythemia; also years later: non-ischemic cardiomyopathy

- **Celiac disease** could cause peripheral neuropathy, cerebellar ataxia and neuropsychiatric symptoms and could explain low absorption of levothyroxine.

- Hypokalemia and hypomagnesemia can be associated with refeeding syndrome, which could also cause thiamine deficiency, which could explain neuropathy

- **Heavy metal toxicities** have all specific features, but they share 3 common denominator: basal ganglia symptoms/MRI findings, atypical neuropathies and tubulopathies (renal electrolyte problems)

*Cobalt toxicity -> cobalt leve, look at the hip.