8/18/23 Morning Report with @CPSolvers

"One life, so many dreams" Case Presenter: Dr. Sanjay Patel (@buckeye_sanjay) Case Discussants: Rabih (@rabihmgeha) and Reza (@DxRxEdu)

CC: 43yM p/w to ED with chest pain

HPI: started 2d ago, sudden onset, while standing at work. Radiated to L arm, improved with ibuprofen. No palpit, n/v/SOB, diaphoresis, wt loss, ab/back pain, weakness, numbness, bowel/bladder changes.
Pain returned next day, took ibuprofen but didn't go away. Intensity waxed/waned with some nausea and felt winded.

PMH: None

Meds: ibuprofen as needed

Fam Hx: None

Soc Hx: no tobacco/illicit drug use. Alcohol 2-3x/mo. Married with 1 daughter, works at convenient store

Health-Related Behaviors: No drugs, alcohol, or tobacco.

Allergies: Denied

Vitals: BP 100/72 **HR** 71 **TMax** 97.7 **O2 Sat** 100% (RA) **RR** 14 **BMI** 22

Exam:
Gen: comfortable, NAD
HEENT: unremark
CV: no JVD, no thyromegaly. nl s1/2, no murmur
Pulm: clear
Abd: soft, non tender, no hepatosplenomegaly
Neuro: unremark
Extremities/skin: no edema, clubbing, or rashes

Notable Labs & Imaging:
Hematology:
WBC: 3.7 (L 8%, N 63%, M 21%, Eo 4%) Hgb: 7.2 (baseline 13.3, 4 years ago) MCV 101 RDW 19 Plt: 12k (bl 270k)
EKG HR 70s NSR. CXR nl. Trop high sensitivity: 152 > 149.
PT, PTT, INR: normal

Chemistry:
Na: 136 K: 5.3 Cl:107 CO2: 20 BUN: 35 Cr: 1.34 (bl 0.9 4y prior) glucose: 107 Ca: 8.3
TP: 7.3 alb 3.2 TB 1.7 direct 0.3 ALP 53 AST 49 ALT 7 LDH 1200
p smear: numerous schistocytes
CT angio no AD/PE. No splenomegaly or bleeding.
Coombs -ve B12 <150 (vegetarian, had no been on B12 supp recently). folate nl. ADAMTS 13 undetectable, no inhibitor. Repeat ADAMTS13 increased
HIV + CD4 <50
Improved with plex , started rituximab and OP ART.

Final Dx: TTP + HIV

Problem Representation: 43 yo male presents with sudden onset chest pain and is discovered to has pancytopenia with labs suggestive of non-immune hemolysis and low B12, concerning for MAHA + B12 deficiency

Teaching Points (David):
- **Chest pain** -> never miss **4+2+2** (ACS, pericardial tamponade, aortic dissection, Takotsubo; pneumothorax, PE; esophageal rupture/impaction)
++ In young adults, think of ACS (including due to vasospasm, SCAD…), PE and aortic dissection (2º to connective tissue dz)
*"Sudden onset often requires sudden diagnosis"
- **Sudden onset symptom DDx**: lumen obstruction (*clot*), vascular catastrophe (*dissection/acute aortic syndrome*), discharge (*arrhythmia*)
- Vast majority of patients w/ chest pain have normal exam -> not reassuring. This is because we want to diagnose the disease before organ dysfunction (heart failure in ACS, hypoperfusion in AAS…)
- **Thrombocytopenia + anemia DDx**:
+ **Low retics**: low B12/folate, hypersplenism, alcohol, BM disease
+ **High retics**: autoimmune hemolysis (Evans sd), non autoimmune hemolysis such as MAHA (TTP, HUS, DIC, DIC-like: APLS, SRC, malignancies, HELLP…) or other (infections: *C. perfringens, Babesia*…), bleeding,
>> Hemolytic anemia + thrombopenia: microangiopathic (more common) vs microangiopathic vs ineffective erythropoiesis
>> MAHA could explain chest pain through thrombosis
>> Subacute/chronic pancytopenia prioritizes a BM disease, hypersplenism, nutritional deficiencies
*B12 def poses risk of thrombosis via hyperhomocysteinemia

TTP dx: high LDH, cytopenias, fever (don't wait for AKI and CNS abnormalities). Give empiric treatment (PLEX, prednisone) before confirmation (don't wait for ADAMTS13 < 10%).
TTP causes: congenital (ADAMTS-13 def), anti-ADAMTS Ab or complement -mediated destruction of ADAMTS13 (suspect if levels rise after Rx)