

# 8/29/22 Morning Report with @CPSolvers

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**CC:** 29 y/o male p/w acute chest pain after exercise for 30 minutes in the gym  
The pain persisted for about 20 minutes. He denies any previous similar episodes.

**HPI:**

- He reports a crushing substernal pressure, lightheadedness, N/V and diaphoresis
- Denies anabolic steroid use
- ROS: negative for fever, chills, weight loss, cough, SOB, leg pain/ swelling

**PMH:**  
N/A

**Meds:**  
None

**Fam Hx:**

Cousin: DVT during pregnancy  
Paternal aunt: DVT at 32 y/o and Paternal aunt 2: VTE on splanchnic veins at 29 y/o

**Soc Hx:**

Police officer  
Exercises every day without difficulty

**Health-Related Behaviors:**

No supplements or OCMs

**Allergies:**

None

**Vitals:** T: 97.6 F HR: 49 BP: 128/93 RR: SpO<sub>2</sub>: 98% RA

**Exam:**

**Gen:** moderate distress

**HEENT:** normal

**CV:** bradycardic, no murmur or gallop

**Pulm:** Normal **Abd:** Normal

**Extremities/Skin:** warm, no rash, no edema, no bruising

**Notable Labs & Imaging:**

**Hematology:**

WBC: 11.8 Hgb: nl Plt: nl

**Chemistry:**

Cr:1.3 Troponin 12.36 LDL 113 HDL 61 U-tox neg. BNP nl  
Homocysteine: wnl Cardiolipin: wnl Beta 2 glycoprotein: wnl  
MTHFR deficiency: wnl Prothrombin mutation: wnl  
Factor V Leiden: homozygous positive for the mutation

**Imaging:**

EKG: Sinus bradycardia with ST elevation in I, V1-V5

CXR: Normal

CTPE: Negative for PE

Catheterization revealed a thrombus originating in distal L main and extending to proximal LAD leading to 90% stenosis

3 months later: Protein C/S, Lupus anticoagulant, AT deficiency wnl

**Final dx:** ACS, started on aspirin and ticagrelor

His ACS was thought to be due to his homozygous factor V Leiden mutation that led to an acute thrombus in his coronaries, in the absence of other atherosclerotic factors or plaque noted on catheterization.

**Problem Representation:** A 29 yM w/ acute substernal chest pain after exercise in gym. He denies use of anabolics and has a positive family hx for thrombophilia. EKG notable for sinus bradycardia and ST-elevations in anterior leads.

**Teaching Points (Mukund):**

**Evaluation of a young patient with chest pain:** why are they coming into the hospital?

Can't miss for acute chest pain: 4 chest + 4 lung + 2 esophagus

Notably: PE less likely in younger patients. Consider instead: autoimmunity; malignancy - given age/sex, prioritize testicular cancer; inherited & acquired causes of thrombosis.

Thoracic outlet syndrome (TOS): compression of vasculature or nerves by the clavicle/first rib. If venous compression, can lead to thrombosis.

Paradoxically low HR may indicate inferior MI - RCA supplies SA and AV nodes.

**Evaluation for thrombophilia** (with an emphasis on venous thrombosis): consider if patients have thromboses in rare locations (portal vein, cerebral); use of OCPs; family history.

Protein C/S & antithrombin III labs may read as inappropriately low in the setting of acute thrombosis.

VITT: vaccine-induced (J&J, AstraZeneca). Presents like HIT.

**Ddx for inherited thrombophilias:** Factor V Leiden, Prothrombin 20210A, protein C/S deficiency, familial antithrombin deficiency.

Factor V Leiden mutation is common in USA - up to 5% of patients.

JAK2 mutations (myeloproliferative disorders, particularly polycythemia vera) and PNH are strongly associated with splanchnic vein thrombosis.

**Ddx for arterial thrombosis:** most likely atherosclerosis or anatomic defect. Also consider antiphospholipid syndrome, DIC, malignancy, HIT, JAK2 mutations & PNH. Unclear if inherited thrombophilias are associated with arterial thrombosis, but must consider in a 29 y/o pt with MI.

Data do not support homocysteinemia & MTHFR mutation -> arterial thrombi.

**Factor V Leiden:** point mutation in Factor V, preventing its inactivation by Protein C.

Uninhibited Factor V continues to activate Factor II.

Homozygous mutation -> higher risk for thrombosis.

*Indefinite* anticoagulation is generally recommended for pts with unprovoked coagulation events *regardless* of thrombophilia panel findings. Consult your hematologist!