

Episode 300 Recap

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This week, the [CPSolvers](#) featured an episode from the [Schema Episode](#) of a case of a 75-year-old man who initially presented with unilateral leg swelling and was found to have DVT and thrombocytopenia of 60. He was discharged with anticoagulation with rivaroxaban with hematology follow up. He presented weeks later with severe fatigue and was found to have worsening thrombocytopenia to 16, as well as anemia and leukopenia. Bone marrow biopsy was performed and confirmed the diagnosis of myelodysplastic syndrome with excess blasts.

MYELODYSPLASTIC SYNDROME (MDS)

Definition & Pathogenesis: think of the word

MUTATION for uncontrolled growth OR bone marrow insult → **Myelo = Bone Marrow** + **Dysplasia = Abnormal Cell Growth** → MDS: a heterogeneous group of hematologic neoplasms characterized by clonal hematopoiesis, cytopenias, and dysplastic cellular morphology

Source: PathologyOutlines

Signs & Symptoms: think of the bone marrow

Low leukocyte problems: Frequent infections, Immunocompromise

Low erythrocyte problems: Anemia, Pallor, Fatigue, Shortness of breath

Low platelet problems: Easy bruising/bleeding, Petechiae

DDx - think of the buckets

Cytopenias

- Peripheral - increased destruction
 - Immune-mediated
 - Consumptive
- Central - decreased production
 - Bone marrow suppression (e.g. MDS!)
 - Not enough materials (e.g. MDS!)
 - Faulty building blocks (e.g. MDS!)

See CPSolvers website for cytopenias schemas!

@cpsolvers - Episode 300: Schema Episode - Cytopenias

Dx

Teaching points

Approach to thrombocytopenia

- Key questions: chronicity and concurrent cytopenia in other cell lines

- First, rule out pseudothrombocytopenia with a blood smear
- Then, rule out life threatening causes: TTP, HUS, DIC, HIT, APLS
- Etiology of thrombocytopenia by mechanisms:
 - Reduced production: stem cell dysplasia or suppression, nutritional deficiency, bone marrow infiltration.
 - Peripheral destruction: antibody-mediated destruction, consumptive process (DIC, TTP)
 - Splenic sequestration

Myelodysplastic syndrome diagnostic criteria:

- Persistent cytopenia in at least one lineage that cannot be explained by other other conditions like toxin, infection, or nutritional deficiency:
 - Hemoglobin < 10 g/dL,
 - ANC < 1.8 x 10⁹/L, or
 - Platelet < 100 x 10⁹/L
- Blast < 20% in the bone marrow or peripherally
- Dysplasia >10% in one lineage or containing any MDS-defining cytogenetics

Conditions that can cause [concurrent bleeding and thrombosis](#):

- DIC
- myeloproliferative diseases
- liver disease
- APLS (bleeding usually due to thrombocytopenia)

Train your brain

Test your recall by answering our weekly quiz question [here](#).

CPS Emails Team

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