

# Myelodysplastic Syndrome

# Case

- 75 yo female who reports feeling fatigued and short of breath for the past 2 months
- She denies any weight loss, night sweats, or cough, but has noticed that she bruises more easily than usual. She also reports that she had two skin infections in the past 2 months.
- PMHx is significant for breast cancer, treated with chemotherapy and radiation.
- Physical exam shows a pale woman with numerous bruises and petechiae scattered across her arms.

- CBC with diff shows low hemoglobin and RBC count, platelets, and neutrophils
- Elevated RDW (red cell distribution width) reflects the increased variability of RBC sizes.
- Next step? Peripheral blood smear and bone marrow aspirate!

Component	Result	Normal Ranges
WBC	4.1 k/cumm	3.6-10.6 k/cumm
→ RBC	<b>(L) 2.93 million/cumm</b>	3.71-5.17 million/cumm
→ Hgb	<b>(L) 9.7 GM/dL</b>	12.0-15.0 GM/dL
Hematocrit	<b>(L) 29.3 %</b>	35.0-49%
MCV	<b>(H) 100 fL</b>	81-99 fL
MCH	33.2 pg	27.0-34.0 pg
MCHC	33.3 GM/dL	32.0-36.0 GM/dL
→ RDW	<b>* (H) 31.1 %</b>	11.5-14.5%
→ Platelet count	<b>(L) 98 k/cumm</b>	150-450 k/cumm
→ Absolute neutrophils #	<b>(L) 1.4 k/cumm</b>	1.7-7.5 k/cumm
Lymphocyte #	1.9 k/cumm	1.0-3.2 k/cumm
Monocytes #	0.4 k/cumm	0.1-1.3 k/cumm
Eosinophils #	0.0 k/cumm	0-0.3 k/cumm
Basophils #	0.4 k/cumm	0-0.2 k/cumm
→ Neutrophil %	<b>(L) 34 %</b>	50-70%
Lymphocyte %	22 %	18-42%
Monocytes %	5 %	2-11%
Eosinophils %	0%	1-3%
Basophils %	4%	0-2%

# Differential for cytopenia

- Myelodysplastic syndrome
- Myelofibrosis
- Acute myeloid leukemia
- Fanconi anemia
- Medication-induced
- Idiopathic cytopenia of undetermined significant (ICUS)



humerus

## SHOULDER MRI

“There is diffusely abnormal hypercellular marrow in all of the included bones. There are areas of mixed fatty and cellular and fluid signal intensity within the humeral epiphysis.”

\*MDS is not diagnosed with imaging but it may be seen if patients obtain imaging for other reasons.

# About MDS

- Dysplastic non-lymphoid cells in the bone marrow lead to ineffective hematopoiesis and defects in cell maturation
- Commonly results in anemia, neutropenia, and thrombocytopenia
  - Anemia → pallor, SOB, fatigue
  - Neutropenia → increased infections
  - Thrombocytopenia → increased bleeding, bruising
- Increased risk with history of chemotherapy, radiation, heavy hydrocarbon exposure, benzene exposure
- May transform to AML