



Pathology 1st lecture's test bank, past papers .

- ***Polycythemia***
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A 35-year-old woman presents to the ER with weakness, dizziness, and dark-colored urine. She mentions not drinking water for the past 24 hours due to hiking in hot weather. Her lab results show elevated hemoglobin (16.5 g/dL) and hematocrit (50%).

Q1: What is the most likely cause of her polycythemia?

- A) Polycythemia Vera
- B) Secondary Polycythemia
- C) Dehydration
- D) Hemolytic anemia

Answer: C) Dehydration

• **Explanation:** Dehydration can cause relative polycythemia, where the concentration of RBCs appears higher due to reduced plasma volume. Rehydration should normalize these levels.

What is the appropriate treatment for this patient's condition?

- A) Phlebotomy
- B) Intravenous fluids
- C) Diuretics
- D) Oxygen therapy

Answer: B) Intravenous fluids

- The **treatment** for dehydration-induced polycythemia is rehydration with fluids to restore plasma volume.

A 65-year-old woman with a known history of Polycythemia Vera presents with sudden onset of pain and swelling in her left leg. What complication of polycythemia is this patient experiencing?

- A) Stroke
- B) Myocardial infarction
- C) Deep vein thrombosis (DVT)
- D) Aplastic anemia

Answer: C) Deep vein thrombosis (DVT)

- **Polycythemia**, especially in Polycythemia Vera, increases the risk of thrombotic events such as DVT due to increased blood viscosity and platelet dysfunction.

A 60-year-old man presents with headaches and pruritis. Physical examination reveals splenomegaly but no lymphadenopathy. A CBC demonstrates elevated hemoglobin of 19.5 g/dL, WBC of 12,800/ μ L, and platelets of 550,000/mL. The bone marrow displays hypercellularity of all lineages and depletion of marrow iron stores. Which of the following is the most likely diagnosis?

- A) Acute myelogenous leukemia
- B) Essential thrombocythemia
- C) Idiopathic myelofibrosis
- D) Occult infection
- E) Polycythemia vera

Answer: E) Polycythemia vera

The patient described in the previous Question is at increased risk of developing which of the following conditions?

- A) Cerebralaneurysm
- B) Cerebrovascularaccident
- C) Cholelithiasis
- D) Osteogenicsarcoma
- E) Raynaudphenomenon

Answer: B) Cerebrovascularaccident

• **Explanation** The patient has polycythemia vera (PV). Hyperviscosity associated with PV increases the risk for thrombotic stroke. The other choices are not associated with PV. Diagnosis: Polycythemia vera

A 45-year-old female athlete comes to the clinic with excessive fatigue. She lives at a high altitude and her hematocrit is elevated. Which of the following is the most likely cause of her elevated hematocrit?

- A) Polycythemia vera
- B) Dehydration
- C) Secondary polycythemia
- D) Iron deficiency anemia

Answer: C) Secondary polycythemia

A 70-year-old man with known polycythemia vera presents to the emergency room with sudden left-sided weakness. His hematocrit is 65%, and CT scan reveals a right-sided ischemic stroke. What is the most likely contributing factor to his stroke?

- A) Dehydration
- B) Elevated platelet count leading to thrombosis
- C) Increased white blood cell count
- D) JAK2 mutation causing leukocytosis

Answer: B) Elevated platelet count leading to thrombosis

A 50-year-old man presents with fatigue and high blood pressure. Lab results show hemoglobin of 19 g/dL and hematocrit of 56%. Ultrasound reveals a renal mass. What is the most likely cause of his polycythemia?

- A) JAK2 mutation
- B) Increased erythropoietin production from the renal mass
- C) Chronic hypoxia
- D) Hemoconcentration due to dehydration

Answer: B) Increased erythropoietin production from the renal mass

A 62-year-old man comes to his primary care physician for evaluation of daily headaches and blurry vision. These symptoms started two months ago. In addition, the patient reports feeling itchy over his body after bathing or visiting the sauna. Past medical history is notable for hypertension and asymptomatic gallstones were discovered on a recent ultrasound. The patient is a former smoker with a 20-pack-year smoking history. On the physical exam, the patient is observed to have facial plethora and a spleen palpated 2 cm below the left costal margin. Laboratory testing is ordered and the results are as follows:

- A- Erythropoietin-independent proliferation of erythrocytes
- B- Decreased blood plasma volume
- C- Increased erythrocyte production secondary to hypoxia
- D- Deposition of bile acids in the skin
- E- Autoimmune destruction of myelin in the central nervous system

Laboratory value	Result
Hemoglobin	18.1 g/dL
Hematocrit	54%
Erythrocytes	7.2 million/mm ³
Leukocytes	12,500/mm ³
Platelets	470,000/mm ³
Uric Acid	7.9 mg/dL

Answer: A- Erythropoietin, independent proliferation of erythrocytes

A 68-year-old male comes to his provider's office for evaluation of fatigue, weakness, and 8 kg (17.6 lb) unintentional weight loss over the past 2 months. Physical exam reveals oral mucosal pallor. Cardiac and pulmonary exams are non-contributory. Abdominal exam reveals hepatosplenomegaly. Laboratory testing results show the following. Biopsy of the bone marrow shows increased fibrosis and reduced cell count. Polymerase chain reaction testing reveals a mutation in ?

- A- thr gene
- B- tyrosine c7
- C- jak 1 gene
- D- jak 2 gene
- E- RAS gene

Answer: D- jak 2 gene

Laboratory value	Result
Hemoglobin	9.5 g/dL
Hematocrit	28.5%
Leukocytes	2,700/mm ³
Platelets	100,000/mm ³

Which of the following differentiates polycythemia vera from secondary polycythemia?

- A) Elevated erythropoietin levels
- B) Presence of JAK2 mutation
- C) Normal oxygen saturation levels
- D) Both B and A

Answer: B) Presence of JAK2 mutation

In Polycythemia Vera erythropoietin level is low, not elevated