

QUESTION
 A 65-year-old male patient with a long history of hypertension and hyperlipidemia presents to the clinic with a 2-week history of increasing fatigue, weight loss, and intermittent fevers. He reports that he has been unable to complete his usual activities of daily living. He has no cough, hemoptysis, or chest pain. He has no recent travel history and no contact with anyone who has been ill. He is currently on lisinopril and atorvastatin. His medical history is significant for type 2 diabetes mellitus, chronic kidney disease, and a recent diagnosis of atrial fibrillation. He is a former smoker and does not drink alcohol. He is currently taking no other medications. His physical examination is unremarkable. His laboratory studies show a hemoglobin of 10 g/dL, a hematocrit of 30%, and a ferritin level of 100 ng/mL. His chest X-ray is normal. His echocardiogram shows a normal left ventricular size and function. His electrocardiogram shows a normal sinus rhythm. His complete blood count shows a white blood cell count of 12,000/mm³ with a neutrophilic leukocytosis. His serum ferritin level is 100 ng/mL. His serum iron level is 150 µg/dL. His total iron-binding capacity is 300 µg/dL. His transferrin saturation is 20%. His serum ferritin level is 100 ng/mL. His serum iron level is 150 µg/dL. His total iron-binding capacity is 300 µg/dL. His transferrin saturation is 20%.

| Test | Result | Reference Range |
|-----------------------------|------------------------|------------------------------|
| Hemoglobin | 10 g/dL | 13.5-15.5 g/dL |
| Hematocrit | 30% | 41-51% |
| White blood cell count | 12,000/mm ³ | 4,800-10,800/mm ³ |
| Neutrophils | 80% | 57-70% |
| Ferritin | 100 ng/mL | 50-200 ng/mL |
| Serum iron | 150 µg/dL | 50-150 µg/dL |
| Total iron-binding capacity | 300 µg/dL | 250-350 µg/dL |
| Transferrin saturation | 20% | 20-50% |

ANSWER KEY

The correct answer is **Iron deficiency anemia**. The patient's symptoms and laboratory findings are consistent with iron deficiency anemia. The patient has a low hemoglobin and hematocrit, a microcytic anemia, and a low ferritin level. The patient's chest X-ray is normal, and his echocardiogram shows a normal left ventricular size and function. His electrocardiogram shows a normal sinus rhythm. His complete blood count shows a white blood cell count of 12,000/mm³ with a neutrophilic leukocytosis. His serum ferritin level is 100 ng/mL. His serum iron level is 150 µg/dL. His total iron-binding capacity is 300 µg/dL. His transferrin saturation is 20%.

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EXPLANATION
 The patient's symptoms and laboratory findings are consistent with iron deficiency anemia. The patient has a low hemoglobin and hematocrit, a microcytic anemia, and a low ferritin level. The patient's chest X-ray is normal, and his echocardiogram shows a normal left ventricular size and function. His electrocardiogram shows a normal sinus rhythm. His complete blood count shows a white blood cell count of 12,000/mm³ with a neutrophilic leukocytosis. His serum ferritin level is 100 ng/mL. His serum iron level is 150 µg/dL. His total iron-binding capacity is 300 µg/dL. His transferrin saturation is 20%.