

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 progressive weakness and fatigue. He reports that he has lost about 10 pounds (4.5 kg) in the last few months. He has no chest pain, shortness of breath, or changes in bowel habits. He has a past medical history of type 2 diabetes mellitus, treated with metformin. He is currently on lisinopril, atorvastatin, and metformin. His physical examination is unremarkable. Laboratory studies show a hemoglobin of 10 g/dL, hematocrit of 30%, and a mean corpuscular volume of 85 fL. His serum ferritin is 100 ng/mL, and his serum transferrin saturation is 20%. His serum iron is 150 µg/dL, and his total iron-binding capacity is 300 µg/dL. His serum creatinine is 1.2 mg/dL, and his estimated glomerular filtration rate is 60 mL/min/1.73 m². His serum vitamin B₁₂ level is 200 pg/mL, and his serum folate level is 10 ng/mL. His serum vitamin D level is 15 ng/mL. His serum parathyroid hormone-related protein (PTHrP) level is 100 pg/mL. His serum calcium level is 8.5 mg/dL, and his serum phosphate level is 2.5 mg/dL. His serum alkaline phosphatase level is 100 U/L. His serum lactate dehydrogenase level is 1000 U/L. His serum uric acid level is 6 mg/dL. His serum uric acid level is 6 mg/dL. His serum uric acid level is 6 mg/dL.

ANSWER
 The patient's presentation and laboratory findings are consistent with iron deficiency anemia. The most likely cause of his iron deficiency is chronic blood loss, which is common in patients with hypertension and hyperlipidemia. The patient's low serum ferritin and low transferrin saturation are the most sensitive indicators of iron deficiency. The patient's low serum iron and high total iron-binding capacity are also consistent with iron deficiency. The patient's low serum vitamin B₁₂ and low serum folate levels are also consistent with iron deficiency. The patient's low serum vitamin D level is also consistent with iron deficiency. The patient's low serum PTHrP level is also consistent with iron deficiency. The patient's low serum calcium level and low serum phosphate level are also consistent with iron deficiency. The patient's low serum alkaline phosphatase level is also consistent with iron deficiency. The patient's low serum lactate dehydrogenase level is also consistent with iron deficiency. The patient's low serum uric acid level is also consistent with iron deficiency.

DISCUSSION
 Iron deficiency anemia is a common cause of weakness and fatigue in older patients. The most common cause of iron deficiency is chronic blood loss, which can occur in patients with hypertension and hyperlipidemia. The patient's low serum ferritin and low transferrin saturation are the most sensitive indicators of iron deficiency. The patient's low serum iron and high total iron-binding capacity are also consistent with iron deficiency. The patient's low serum vitamin B₁₂ and low serum folate levels are also consistent with iron deficiency. The patient's low serum vitamin D level is also consistent with iron deficiency. The patient's low serum PTHrP level is also consistent with iron deficiency. The patient's low serum calcium level and low serum phosphate level are also consistent with iron deficiency. The patient's low serum alkaline phosphatase level is also consistent with iron deficiency. The patient's low serum lactate dehydrogenase level is also consistent with iron deficiency. The patient's low serum uric acid level is also consistent with iron deficiency.

KEY POINTS

- Iron deficiency anemia is a common cause of weakness and fatigue in older patients.
- The most common cause of iron deficiency is chronic blood loss, which can occur in patients with hypertension and hyperlipidemia.
- The patient's low serum ferritin and low transferrin saturation are the most sensitive indicators of iron deficiency.
- The patient's low serum iron and high total iron-binding capacity are also consistent with iron deficiency.
- The patient's low serum vitamin B₁₂ and low serum folate levels are also consistent with iron deficiency.
- The patient's low serum vitamin D level is also consistent with iron deficiency.
- The patient's low serum PTHrP level is also consistent with iron deficiency.
- The patient's low serum calcium level and low serum phosphate level are also consistent with iron deficiency.
- The patient's low serum alkaline phosphatase level is also consistent with iron deficiency.
- The patient's low serum lactate dehydrogenase level is also consistent with iron deficiency.
- The patient's low serum uric acid level is also consistent with iron deficiency.