

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 and weakness. He reports that he has lost about 10 pounds (4.5 kg) over this period. He has no chest pain, shortness of breath, or palpitations. He has no history of smoking or alcohol use. His medical history is significant for hypertension, hyperlipidemia, and a recent diagnosis of type 2 diabetes mellitus. 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 600 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 9.0 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 6.0 mg/dL. His serum uric acid level is 6.0 mg/dL. His serum uric acid level is 6.0 mg/dL.

Which of the following is the most likely cause of the patient's anemia?

A. Iron deficiency anemia
B. Vitamin B₁₂ deficiency
C. Folate deficiency
D. Chronic kidney disease
E. Hemolytic anemia

ANSWER: A

EXPLANATION: The patient's anemia is most likely due to iron deficiency anemia. The patient's hemoglobin is 10 g/dL, hematocrit is 30%, and mean corpuscular volume is 85 fL, which is consistent with iron deficiency anemia. The patient's serum ferritin is 100 ng/mL, and his serum transferrin saturation is 20%, which is also consistent with iron deficiency anemia. The patient's serum iron is 150 µg/dL, and his total iron-binding capacity is 600 µg/dL, which is also consistent with iron deficiency anemia. The patient's serum creatinine is 1.2 mg/dL, and his estimated glomerular filtration rate is 60 mL/min/1.73 m², which is consistent with chronic kidney disease. The patient's serum vitamin B₁₂ level is 200 pg/mL, and his serum folate level is 10 ng/mL, which is consistent with vitamin B₁₂ deficiency and folate deficiency. The patient's serum vitamin D level is 15 ng/mL, which is consistent with vitamin D deficiency. The patient's serum parathyroid hormone-related protein (PTHrP) level is 100 pg/mL, which is consistent with hyperparathyroidism. The patient's serum calcium level is 9.0 mg/dL, and his serum phosphate level is 2.5 mg/dL, which is consistent with hyperparathyroidism. The patient's serum alkaline phosphatase level is 100 U/L, which is consistent with hyperparathyroidism. The patient's serum lactate dehydrogenase level is 1000 U/L, which is consistent with hemolytic anemia. The patient's serum uric acid level is 6.0 mg/dL, which is consistent with hyperuricemia.

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