

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) and has noticed some swelling in his lower legs. He has no chest pain, shortness of breath, or changes in bowel habits. His medical history is significant for hypertension, hyperlipidemia, and a recent diagnosis of type 2 diabetes. He is currently taking lisinopril, atorvastatin, and metformin. He has no known drug allergies. His physical examination is notable for a heart rate of 98 beats per minute, a regular rhythm, and a blood pressure of 145/90 mmHg. There is no jugular venous distention, and his lungs are clear to auscultation. He has 2+ pitting edema in both lower extremities. His laboratory studies are as follows:

Test	Result	Reference Range
Complete Blood Count (CBC)		
Hemoglobin (Hb)	12.5 g/dL	13.8-15.7 g/dL
Hematocrit (Hct)	38%	44-50%
White Blood Cell Count (WBC)	10,500 cells/mm ³	4,800-10,800 cells/mm ³
Platelet Count	150,000 cells/mm ³	150,000-450,000 cells/mm ³
Basic Metabolic Panel (BMP)		
Serum Sodium (Na ⁺)	132 mEq/L	136-145 mEq/L
Serum Potassium (K ⁺)	3.8 mEq/L	3.5-5.0 mEq/L
Serum Calcium (Ca ²⁺)	9.0 mg/dL	8.8-10.0 mg/dL
Serum Creatinine	1.8 mg/dL	0.7-1.3 mg/dL
BUN	22 mg/dL	7-20 mg/dL
Urea Nitrogen (UN)	18 mg/dL	6-16 mg/dL
Urea Nitrogen to Creatinine Ratio (UN:Cr)	10:1	10-15:1
Estimated Glomerular Filtration Rate (eGFR)	30 mL/min/1.73 m ²	>30 mL/min/1.73 m ²
Urinalysis		
Color	Colorless	Colorless
Specific Gravity	1.020	1.000-1.030
pH	6.5	5.0-8.0
Protein	2+	0-1+
Glucose	0	0
Bilirubin	0	0
Hemoglobin	0	0
Hematuria	0	0
Leukocytes	0	0
Triglycerides	180 mg/dL	<150 mg/dL
Total Cholesterol	240 mg/dL	<200 mg/dL
HDL Cholesterol	30 mg/dL	>40 mg/dL
LDL Cholesterol	180 mg/dL	<100 mg/dL
Fasting Blood Glucose	180 mg/dL	<100 mg/dL
Hemoglobin A1c	8.5%	<5.7%

ECG shows sinus bradycardia with a heart rate of 58 bpm. Chest X-ray shows mild cardiomegaly and bilateral lower lobe infiltrates. The patient is started on furosemide 40 mg daily. His symptoms improve, but he continues to have mild edema. Further workup is planned.

ANSWER



The patient's symptoms and physical findings are consistent with heart failure. The laboratory studies show a mild anemia (Hb 12.5 g/dL, Hct 38%), which is likely a result of chronic disease. The renal function is impaired, with a serum creatinine of 1.8 mg/dL and an eGFR of 30 mL/min/1.73 m². The urinalysis shows proteinuria (2+), which is also consistent with chronic kidney disease. The lipid profile is abnormal, with a total cholesterol of 240 mg/dL, an LDL cholesterol of 180 mg/dL, and an HDL cholesterol of 30 mg/dL. The fasting blood glucose is 180 mg/dL, and the hemoglobin A1c is 8.5%, indicating poorly controlled type 2 diabetes. The ECG shows sinus bradycardia, which is a common finding in heart failure. The chest X-ray shows mild cardiomegaly and bilateral lower lobe infiltrates, which are also consistent with heart failure. The patient is started on furosemide, which is a loop diuretic used to treat heart failure. His symptoms improve, but he continues to have mild edema, suggesting that the heart failure is not fully controlled. Further workup is planned to determine the underlying cause of the heart failure and to optimize the treatment.

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