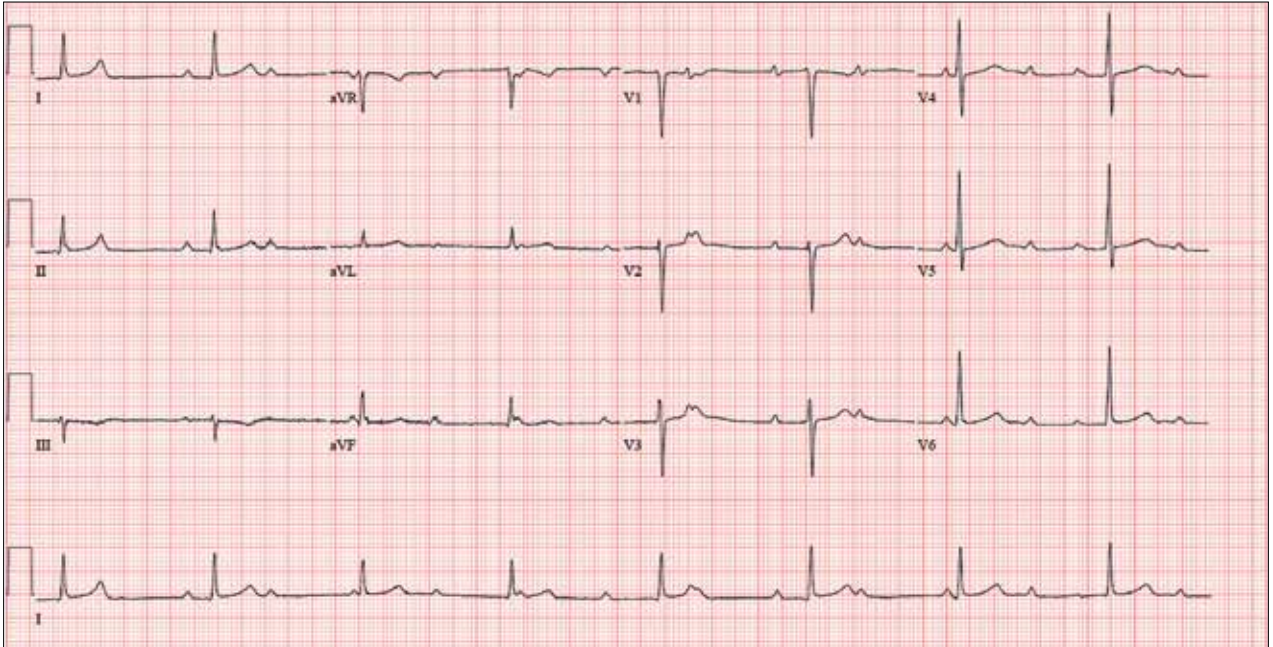


Total Eclipse of the Heart



For the past two months, a 72-year-old man has been experiencing dyspnea on exertion “off and on.” In the past three days, this shortness of breath has been more consistent.

When his son drops by to check on him, the father mentions the problem, noting that although he’s usually quite active, he hasn’t “had the stamina” to finish his current woodworking project. The son, a paramedic, checks his father’s pulse; it is regular, but the rate is below 40 beats/min. The son decides to bring him to the emergency department for evaluation.

His medical history is remarkable for hypertension, gout, and cholelithiasis. He underwent a right orchiectomy secondary to trauma in the remote past and had bilateral total knee replacements four years ago. Since the latter procedure, he has been extremely active; prior to his current complaint, he walked three miles each day.

The patient, a retired minister, lost his wife to cancer four years ago and now lives at home alone. He has four sons—one of whom visits twice a week—and two daughters, all of whom are in good health. He has

never smoked and only drinks a glass of wine on holidays.

His current medications include metoprolol XL (25 mg/d) for hypertension and acetaminophen as needed for arthritic joint pain. He denies missing or doubling his medication doses. He is allergic to sulfa, which causes an anaphylactic reaction with significant airway narrowing.

The patient wears corrective lenses and hearing aids. He denies recent changes in bowel or bladder function, extreme temperature changes, productive cough, or constitutional symptoms suggestive of indolent infection.

Vital signs include a regular pulse of 50 beats/min; blood pressure, 104/66 mm Hg; respiratory rate, 14 breaths/min⁻¹; and temperature, 98.4°F. His height is 70 in and his weight, 172 lb.

On physical exam, you notice that the patient tires walking 20 feet from the waiting room to the exam room. Otherwise, he is in no apparent distress. He denies chest pain with exertion or dyspnea at rest. His fundoscopic exam is normal, his oropharynx is normal, and he is not missing teeth.



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There are no carotid bruits. The lungs are clear in all fields without evidence of rales, rhonchi, or crackles.

Cardiac exam reveals a grade II/VI early systolic murmur at the left upper sternal border, which does not radiate to the carotid arteries or the back. The abdomen is scaphoid and soft with no palpable masses. Peripheral pulses are strong bilaterally in all extremities. He has evidence of osteoarthritis in his hands and feet, as well as surgical scars consistent with knee replacements. His neurologic exam is intact.

An ECG reveals a ventricular rate of 47 beats/min; no discernable PR interval; QRS duration, 82 ms; QT/QTc interval, 450/398

ms; P axis, 48°; R axis, 14°; and T axis, 26°. What is your interpretation?

ANSWER

The correct interpretation includes sinus rhythm with complete heart block and a junctional rhythm. Normal sinus rhythm is evidenced by normal-appearing P waves at a rate of about 66 beats/min, although there is some respiratory variation. There is no correlation of the P waves to the QRS complex. A junctional rhythm is diagnosed based on narrow QRS complexes of normal duration (82 ms). The patient underwent implantation of a dual-chamber pacemaker and had a complete recovery. **CR**