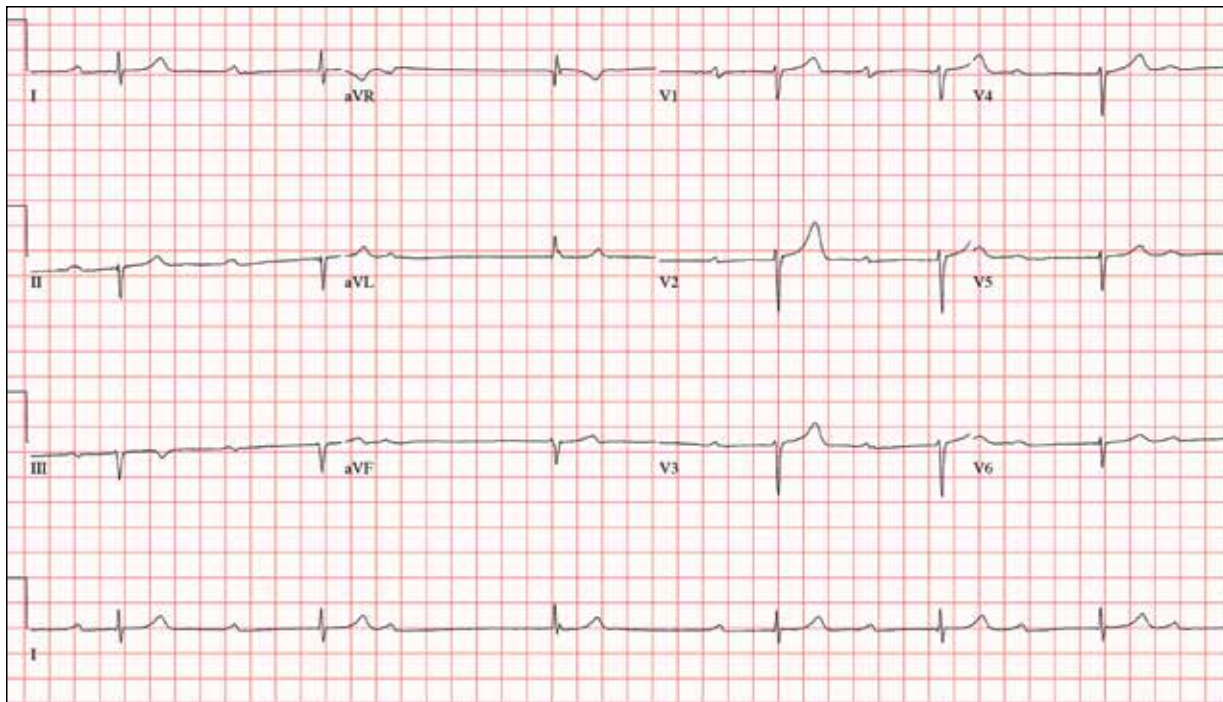


Holiday Trip Marred by Illness



While visiting family over the holidays, an 84-year-old man is (plaintively) informed by his wife that he appears unwell; she suspects he has the flu. The patient's son, whom they are visiting, learns through conversation that his father has been feeling very tired and lethargic and becomes dizzy if he stands too quickly. The son, concerned for his father's well-being, brings him to your clinic in the hope of obtaining a prescription for antibiotics.



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According to the patient, his symptoms, which have waxed and waned for several weeks, have become constant in the past week. He denies fever, cough, nausea, and vomiting, as well as chest pain, shortness of breath, palpitations, and lower extremity swelling. He reports that he has not recently changed his medication regimen and, aside from this current visit, has not traveled anywhere; he reiterates that his symptoms started prior to this trip.

Medical history is remarkable for hypertension, peripheral atherosclerosis, osteoarthritis, gout, and pneumonia. Surgical history is remarkable for appendectomy, cholecystectomy, and removal of multiple lipomas from the patient's upper extremities.

Via the family history, you learn that the man's father had a

myocardial infarction and died of complications from a stroke at age 92 and his mother died of complications of diabetes at age 87. The patient is married, with three sons and one daughter, all of whom are in good health. He is a retired owner of a hardware store. He has never smoked or used recreational drugs and says he rarely drinks alcohol.

The patient's medication list includes metoprolol, atorvastatin, furosemide, and a daily baby aspirin. He is allergic to sulfa, which causes shortness of breath and wheezing.

Review of systems reveals that he wears corrective lenses and hearing aids. He walks with a cane due to pain in both knees but is not dependent on it. He denies constitutional symptoms. A review of cardiovascular, respiratory, gastrointestinal, urologic,

neurologic, and integumentary systems is noncontributory.

Chest x-ray and laboratory testing, including complete blood count and chemistry panel, yield normal results. Vital signs include a blood pressure of 162/92 mm Hg; pulse, 40 beats/min; respiratory rate, 14 breaths/min; temperature, 99.2°F; and O₂ saturation, 97% on room air.

Pertinent physical findings include clear lung fields bilaterally, no evidence of jugular venous distention, and a heart rate of 40 beats/min that is regular and without evidence of a murmur or rub. There are well-healed scars on the abdomen and no evidence of organomegaly. Peripheral pulses are diminished but present bilaterally in both lower extremities. The neurologic exam is grossly intact, and the patient is alert,

cooperative, and cognizant.

Your concern about the patient's heart rate prompts you to order an ECG. It reveals a ventricular rate of 38 beats/min; no measurable PR interval; QRS duration, 78 ms; QT/QTc interval, 434/345 ms; P axis, 25°; R axis, -78°; and T axis, 13°. What is your interpretation of this ECG?

ANSWER

This ECG is representative of marked sinus bradycardia with second-degree atrioventricular block (Mobitz I) with an occasional junctional escape, left-axis deviation, and poor R-wave progression in the precordial leads.

Marked sinus bradycardia is evidenced by P waves that are regular except where expected, prior to the third QRS complex on the rhythm strip (lead I).

Second-degree Mobitz I (Wenckebach) block is indicated by a gradual prolonging of the PR interval until there is loss of conduction from the atria to the ventricle (following the third P wave). Careful inspection of the third QRS complex shows a slight difference in the normally conducted sinus beat, indicative of a junctional escape beat. Left-axis deviation entails an R-wave axis of -78°.

Finally, there is poor R-wave progression in the precordial leads, including the lateral leads.

Although Mobitz I block is not an indication for pacemaker placement, symptomatic bradycardia is. The patient underwent implantation of a dual-chamber permanent pacemaker, with complete resolution of symptoms. **CR**



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