Clinician Reviews®

A New Valve—and a Change of Heart?

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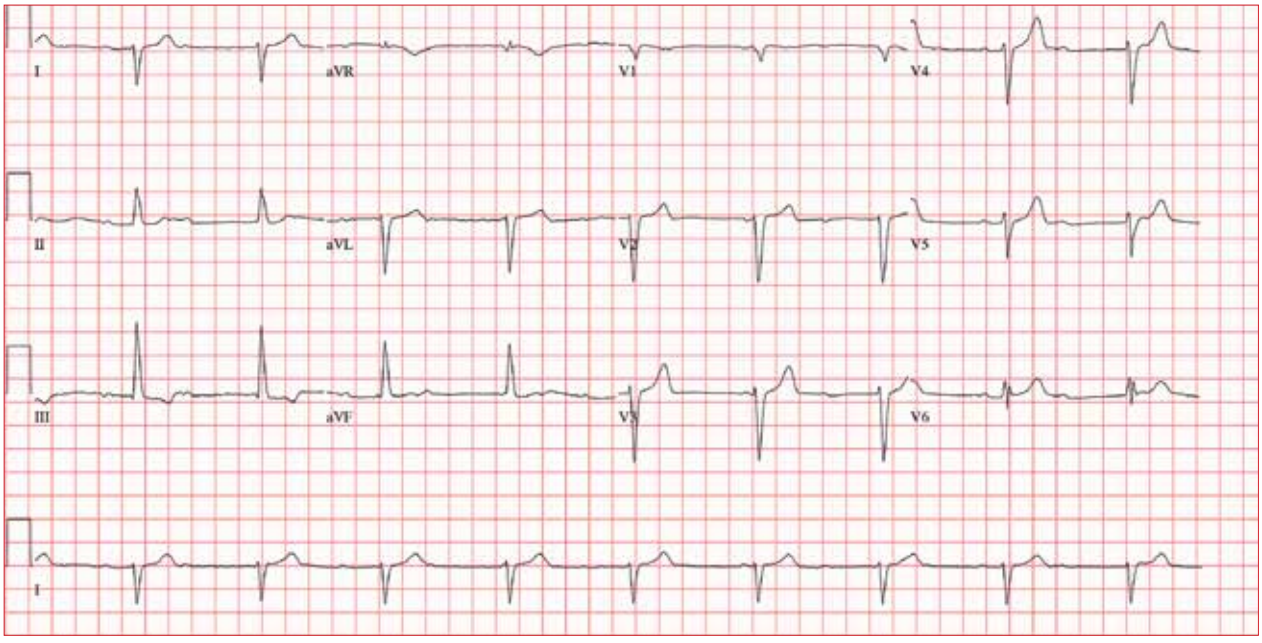

Three days ago, a 64-year-old man underwent a tricuspid valve replacement for severe tricuspid regurgitation of unknown etiology. The surgical procedure included implantation of a 29-mm porcine valve and 2 epicardial right ventricular epicardial pacing leads.

The patient's preoperative echocardiogram had shown severe tricuspid regurgitation with anterior leaflet prolapse and severe right atrial and ventricular enlargement. Preoperatively, the peak velocity of the tricuspid valve was 3.4 m/s, and the right ventricular systolic pressure was measured at 55 mm Hg. There was no mitral valvular disease or evidence of ischemia, and the overall left ventricular function was preserved, with a normal ejection fraction.

Preoperative history included 3-year progression of shortness of breath, dyspnea on exertion, and bilateral lower extremity edema. Over the past 2 months, he has had signs of hepatic congestion, including elevated serum transaminase, alkaline phosphatase, and direct bilirubin levels. A physical exam had revealed an enlarged liver that was tender to deep palpation. Social and family histories are noncontributory to the case as presented.

This morning, the patient is in no distress, sitting comfortably in a chair, and is alert and cooperative. Vital signs include a blood pressure of 118/64 mm Hg; pulse, 60 beats/min; respiratory rate, 16 breaths/min; and temperature, 96.4°F.

The surgical incision is clean, dry, and well approximated, and the patient is back to his preoperative weight. Pulmonary exam reveals clear breath sounds, with the exception of the left base, which demonstrates crackles that change with coughing. There are no wheezes. The cardiac exam reveals a regular rhythm at a rate of 60 beats/min, with a soft grade II/VI systolic murmur at the left lower sternal border. A late systolic friction rub is also evident. The abdomen is soft and nontender, with good bowel sounds and no

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organomegaly. Peripheral pulses are strong bilaterally, and there is trace pitting edema in both lower extremities. Neurologic exam is normal.

This morning's ECG reveals a ventricular rate of 56 beats/min; PR interval, unmeasurable; QRS duration, 106 ms; QT/QTc interval, 400/386 ms; P axis, 36°; R axis, 120°; and T axis, 7°. What is your interpretation of this ECG?

ANSWER

This ECG shows sinus rhythm with complete heart block and a junctional rhythm with a right-axis deviation. Additionally, ventricular depolarization in the precordial leads is suggestive of an anterior myocardial infarction.

Sinus rhythm is evidenced by the regular, steady progression of P waves with a P-P interval of about 90 beats/min. Complete atrioventricular dissociation indicates complete heart block.

A normal QRS duration of 106 ms at a rate of 56 beats/min supports the diagnosis of a junctional escape rhythm. Right-axis deviation is evidenced by an R axis of 120°.

Finally, poor R-wave progression with deep S waves in leads V_1 through V_5 is suggestive of an anterior myocardial infarction. However, in this case, there is no evidence of ischemia or history of infarction—so these are thought to be early postoperative findings. **CR**