



THE PRACTITIONER

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Country cardiograms case 26: Answer

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ECG INTERPRETATION

The striking feature of this cardiogram (shown on page 252) is the presence of Q waves in leads 1, 2, 3, AVR, AVF, and V3–V6. One also notes left-axis deviation, borderline 1st-degree A–V block and some arguable ST–T wave abnormalities, but the presence and distribution of the Q waves are alarming and puzzling. In this setting, the most likely explanation is IHSS (idiopathic hypertrophic sub-aortic stenosis).

DISCUSSION

Q waves are a normal part of the electrical activity of the heart. They represent the normal depolarization of the septum in the usual sequence, where the electrical activity starts at the S–A node in the right atrium, progresses through the A–V node and then on to the ventricles. Along the way, the septum also sparks off, producing a small Q wave. Since the septum usually has little muscle mass, Q waves are small, and masked in normal cardiograms by the far larger left and right ventricular muscle depolarizations. Because the inferior wall of the heart is thinner than the anterior wall, one can sometimes see normal septal Q waves popping through the inferior leads of 2, 3 and AVF. These should be small (<1mm) and vary with respiration.

There are 2 situations where abnormal Q waves appear in cardiograms. The first occurs when an infarction

causes an electrically dead “window” in a ventricular wall, through which the normal septal depolarizations can now be seen. These are the Q waves of infarction — the Q waves appearing a few days after the acute injury in the affected area of the heart. Of course, these are not seen in septal infarctions.

The second situation where large Q waves are seen is when the septum itself is so muscular and hypertrophied that its normal depolarization can be seen through a normal, uninjured ventricular wall, first through the thinner inferior wall, then, as the septal muscle gains mass, through the anterior wall. Such is the case in IHSS or with some athletes.

IHSS is a relatively rare condition, often presenting with syncope on effort as the hypertrophied septum obstructs left ventricular outflow during exercise. Most rural doctors will be hard pressed to see one case in their entire career. The practical point is that if you do come across one, be sure to get an echocardiogram and place the patient on beta-blockers before you send him or her to a cardiologist. Presenting a properly diagnosed and treated rare case to a cardiologist is a good way to make the specialist more pliant with your every day, garden variety problems — phone calls not only get returned, but are sometimes even answered immediately!

For the Question, see page 252.