Case 3: progressive conduction block

Simon Sporton, Diana Holdright

CASE 3

A 78-year-old man was followed in the medical outpatient clinic for angina pectoris and hypertension. He was treated with aspirin, sotalol and nifedipine. He attended casualty with a history of worsening angina with episodes of pain at rest. An electrocardiogram (ECG) was recorded (*Figure 1*). What abnormalities were present on the ECG?

DISCUSSION

The ECG showed sinus rhythm with right bundle–branch block. The PR interval was 140 ms and the QRS axis was +60° (both normal). In addition,

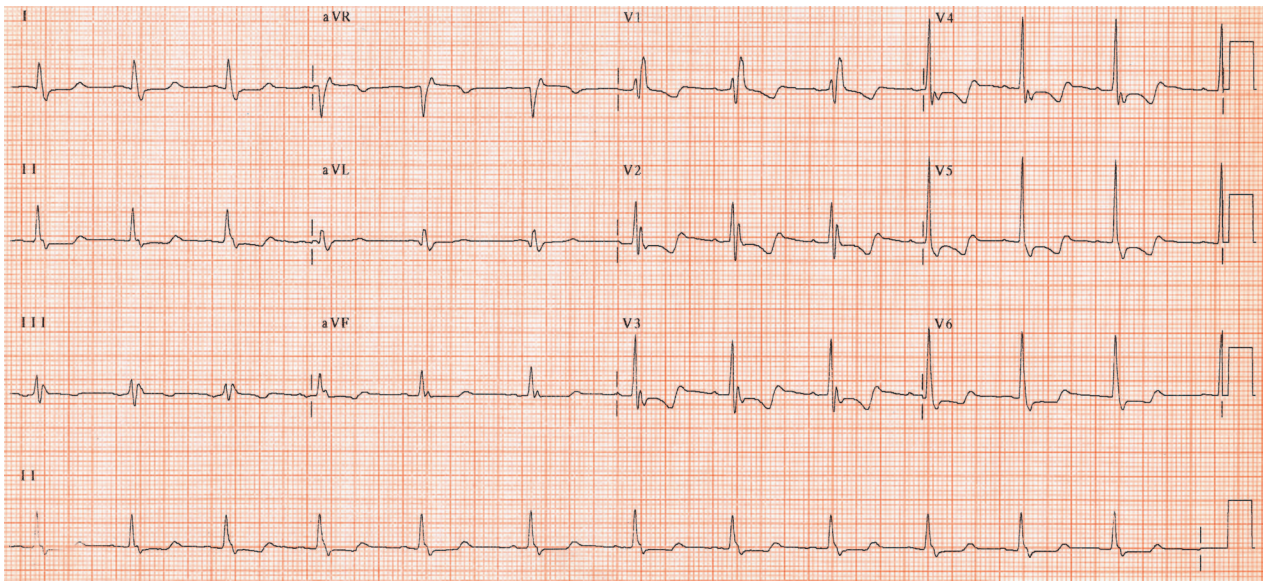

Figure 1. The electrocardiogram recorded in casualty with angina pectoris.

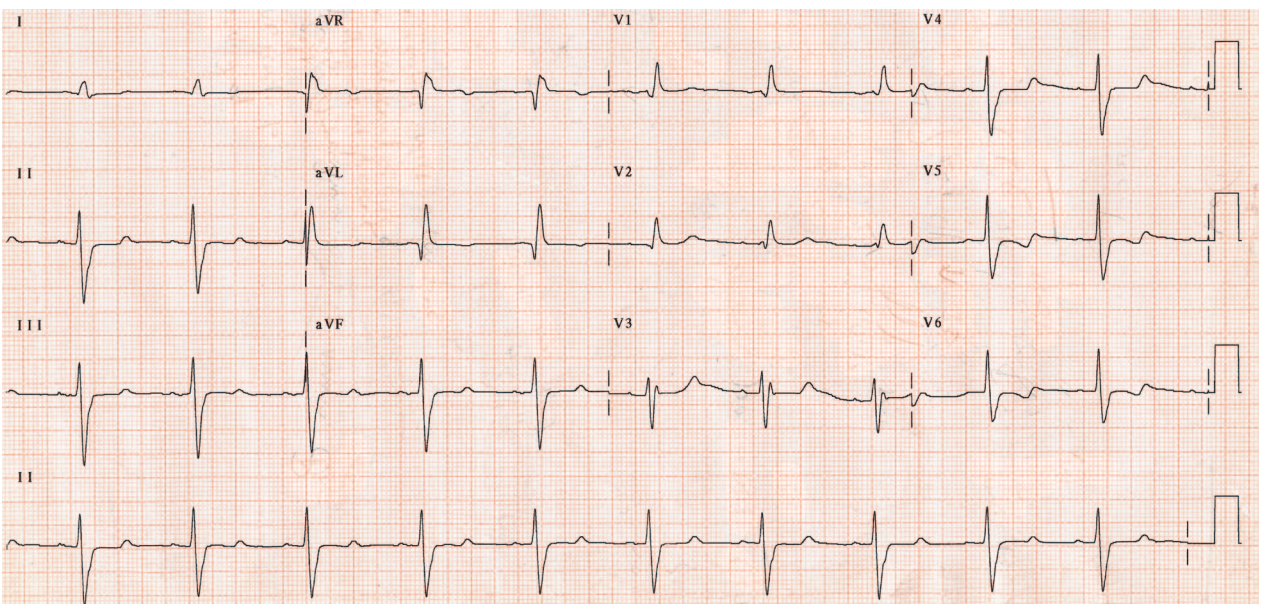

Figure 2. The electrocardiogram 2 years later.

there was ST segment depression across the praecordial leads. Two years later, the patient was seen again in the accident and emergency department with a urological problem. An ECG was recorded in view of his cardiac history (*Figure 2*). What additional abnormality had developed?

Left axis deviation had now developed, suggesting conduction block in the antero-superior fascicle of the left bundle branch. The PR interval was 160 ms, still within normal limits. The combination of left axis deviation and right bundle–branch block is one variety of bifascicular block. Atrioventricular conduction is then dependent on the postero-inferior fascicle of the left bundle branch.

The patient presented to the accident and emergency department a further 3 years later with a short history of extreme dizziness and breathlessness. An ECG was recorded (*Figure 3*). What abnormalities were now present?

Complete heart block was present. The ventricular rate was 18/minute. The uncorrected and corrected QT interval was greatly prolonged at 1080 ms and 590 respectively. The sotalol was stopped. Two days later, a further ECG was recorded (*Figure 4*).

The patient remained in complete heart block. The ventricular escape rhythm showed left axis deviation and right bundle–branch block with a rate of 43/minute. The uncorrected and corrected QT interval had reduced to 520 ms and 440 respectively. The patient was referred for permanent pacemaker implantation.

There have been no randomized trials of pacing *vs* no pacing in patients with chronic bifascicular block. Something is known of the natural history of the condition, however. The largest prospective study of patients with bifascicular block followed 554 asymptomatic patients for a mean of 42 months (McAnulty et al, 1982). The 5-year mortality from an event that may conceivably have been a bradyarrhythmia was just 6%. The 5-year incidence of complete heart block was also low at 5%. The available evidence would suggest that asymptomatic patients with bifascicular block should not be paced routinely (Gregoratos et al, 1998). **HM**

Dr Simon Sporton is Specialist Registrar in the Department of Cardiology, St Bartholomew's Hospital, London EC1A 7BE and **Dr Diana Holdright** is Consultant Cardiologist in the Department of Cardiology, UCL Hospitals, The Middlesex Hospital, London

Correspondence to: Dr S Sporton

Gregoratos G, Cheitlin MD, Conill A et al (1998) ACC/AHA Guidelines for implantation of cardiac pacemakers and antiarrhythmia devices. *J Am Coll Cardiol* **31:** 1175–209

McAnulty JH, Rahimtoola SH, Murphy E et al (1982) Natural history of 'high-risk' bundle-branch block. *N Engl J Med* **307:** 137–43

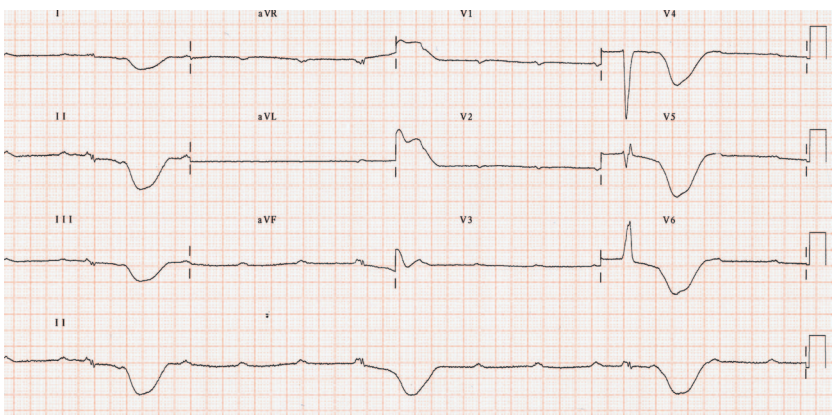

Figure 3. The electrocardiogram a further 3years later — patient taking sotalol.

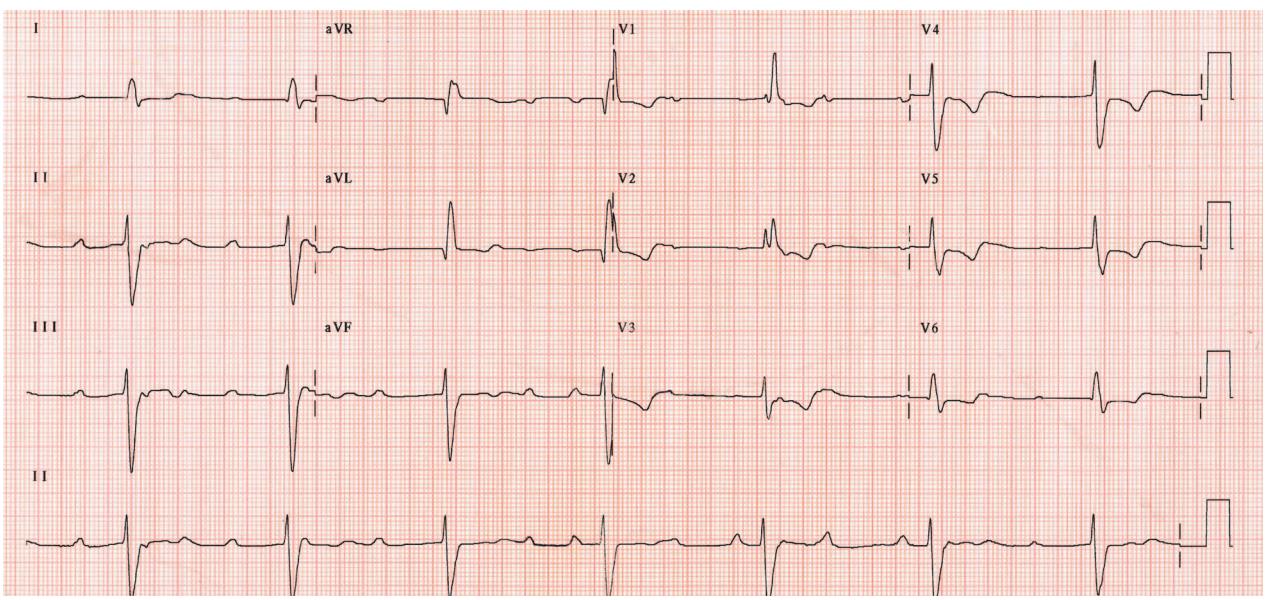

Figure 4. The electrocardiogram after 2 days off sotalol.