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Abnormal ECG following insertion of a temporary pacing wire

A 90-year-old man was referred for insertion of a permanent pace-maker system. He had been admitted to a local hospital with an episode of sinus arrest with escape ventricular tachycardia and ventricular fibrillation. An earlier ECG had shown sinus rhythm with pronounced first degree atrioventricular block (panel A). He was successfully resuscitated and a transvenous temporary pacing wire was inserted via the right internal jugular vein. It was commented on at the time that "position of the wire not perfect, but pacing!"

His ECG showed a paced rhythm of 70 beats/min with complete left bundle branch block morphology, atrial pacing spikes with prolonged atrioventricular delay, and left axis deviation (panel B). He was cardiovascularly stable with no further documented rhythm disturbances and a blood pressure of 180/90 mm Hg. The threshold of the temporary pacing wire was high at 3 volts.

On fluoroscopy the temporary pacing wire was found to be positioned on the outer border of the cardiac silhouette, arcing round the posterior surface of the heart which was pacing the high lateral region of the left atrium (panel C, arrow). A dual chamber pacing system was inserted. Removal of the temporary wire, with immediate echocardiographic assessment for pericardial accumulation, was uneventful.

Malposition of pacing leads through the coronary sinus, patent foramen ovale or through the arterial system into the left ventricle are recognised complications of lead insertion. However, right ventricular perforation and subsequent atrial epicardial pacing has not been reported in haemodynamically stable patients.

Temporary pacing wires should be avoided unless essential. Complication rates remain high due to a combination of the stiffness of the catheters, and relatively junior inexperienced operators.

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