Clinical vignette
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Severe pacemaker lead perforation detected by an automatic home-monitoring system

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A 56-year-old woman complained about episodes of pre-syncope. Following ECG diagnosis of 2:1 conducting AV-block II, she was referred to our cardiology department.

DDD pacemaker implantation was performed, and the patient was discharged free of symptoms. A routine chest X-ray confirmed the correct position of both atrial and ventricular leads. The implanted pacemaker (Biotronik Philos DR-T) was equipped with an automatic home-monitoring surveillance system. The system establishes telemetric contact with the pacemaker once in 24 h, and standard pacing parameters are transmitted. The treating physician is notified via fax if pathological measurements are encountered.

Four weeks after implantation, the patient’s home-monitoring system delivered a message suggestive of dysfunction of the atrial lead. Compared with the previous daily lead impedance measurements, the lead impedance had suddenly increased to the pathological range.

The patient who was completely asymptomatic was called to attend the outpatient pacemaker clinic as soon as possible. Upon interrogation, complete loss of capture was found at the atrial lead. A potential of only 0.4 mV and the increase in lead impedance were also documented. CT-scan showed lead perforation and a considerable protrusion (3.2 cm) of the atrial lead through the cardiac wall into the upper lobe of the right lung. In surgical standby, the lead was removed and repositioned to the right atrial auriculum. The procedure was uneventful without the feared complication of pericardial tamponade.

This case is an example of the fast and possibly life-saving diagnostic capabilities for lead complications in modern home-monitoring equipped pacemakers.