

Transvenous extraction of a broken atrial lead embolised into the pulmonary artery using a pigtail catheter

Przezskórne usunięcie złamanej elektrody przedsionkowej migrującej do krążenia płucnego za pomocą cewnika *pigtail*

Marcin Michalak¹, Andrzej Kutarski², Maria Zawadzka-Byśko¹, Grzegorz Opolski¹, Marcin Grabowski¹

¹1st Chair and Department of Cardiology, Medical University of Warsaw, Warsaw, Poland

²Department of Cardiology, Medical University of Lublin, Lublin, Poland

A 57-year-old man with an AAI pacemaker was referred to the hospital due to suspicion of an atrial lead failure. The pacemaker was implanted 9 years earlier because of sick sinus syndrome. The atrial lead was inserted by puncture of the right subclavian vein with the pocket located at the same site. Currently the patient presented with mild asymptomatic bradycardia of 50 bpm. For 3 months he had noticed pectoral muscle contractions that depended on body position. Pacemaker control revealed atrial lead impedance exceeding 2000 Ohms and lack of either proper sensing or stimulation. Chest X-ray showed a lead breakage at the level of the right clavicle and migration of the proximal fragment of the broken lead to the left pulmonary arteries (Fig. 1). There were no significant abnormalities in echocardiogram and the patient was referred for

elective transvenous lead extraction. The procedure of transvenous extraction of the broken atrial lead was conducted under general anaesthesia and consisted of the following steps. First, after percutaneous puncture of the left subclavian vein, a coronary sinus (CS) cannulation catheter (Medtronic Attain Command®, USA) was inserted to the level of the right ventricle. Then, the pigtail catheter (Abbot Laboratories, USA) was advanced and positioned in parallel to the atrial lead in the pulmonary trunk. The lead was caught with the pigtail catheter by rotating it (Fig. 2A) and pulling it down (Fig. 2B) to the vena cava superior. The lead was grabbed with the lasso wire (Fig. 2C) and pulled into the CS catheter. A Green inner (10.0/12.1-French) Byrd dilator sheath (Cook Medical, Germany) was glided down over the CS catheter (Fig. 2D), and the lead was extracted completely. The procedure, as well as the postprocedural period, was uncomplicated. The patient was discharged home in good condition on the third day after the procedure. The pulse generator and remaining proximal part of the atrial lead removal was planned as a next step procedure. Complete breakdown and migration of the lead is a rare complication of electrotherapy. The presence of a broken lead in the pulmonary arteries, although asymptomatic at the beginning, may end with perforation and, in the case of infective endocarditis when left in

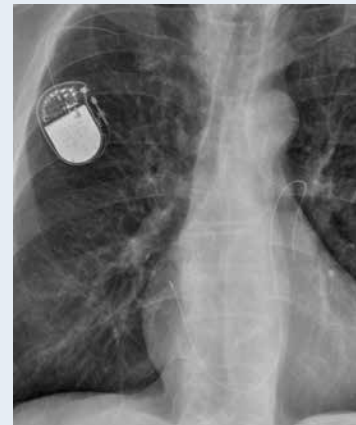


Figure 1. Chest X-ray showing broken atrial lead that migrated into the pulmonary bed

place, is a life-threatening and incurable condition. In situations like this, early transvenous lead extraction before any complications appear is the management of choice. Procedures with extraction of embolised leads are very difficult and should be performed in experienced centres with cardiac surgery backup. The situation is more complicated because there are no tools dedicated to that kind procedure. We present how typical instruments available in haemodynamic and electrophysiology laboratories, such as pigtail or CS catheters, may be used to achieve a successful and safe result in such a complex lead extraction.

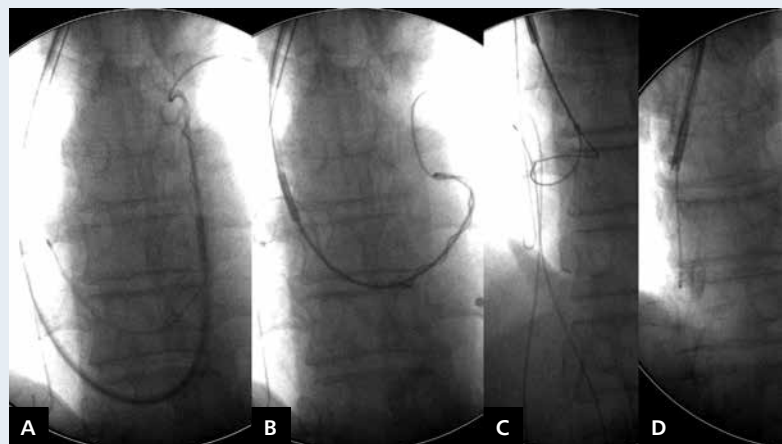


Figure 2. A–D. Following steps of percutaneous atrial lead extraction

Address for correspondence:

Marcin Grabowski, MD, PhD, 1st Department of Cardiology, Medical University of Warsaw, ul. Banacha 1a, 02-097 Warszawa, Poland, e-mail: grabm@tlen.pl

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