Kardiologia Polska 2015; 73, 2: 127; DOI: 10.5603/KP.2015.0016 ISSN 0022–9032

STUDIUM PRZYPADKU / *CLINICAL VIGNETTE*

Intracardiac lead abrasion and the risk of infective endocarditis in the young

Przetarcie elektrod endokawitarnych w odcinku wewnątrzsercowym a ryzyko infekcyjnego zapalenia wsierdzia u młodych chorych

Agnieszka Kołodzińska[1], Franciszek Majstrak[2], Piotr Scisło[1], Łukasz Koperski[3], Grzegorz Opolski[1]

[1]Department of Cardiology, Medical University of Warsaw, Warsaw, Poland
[2]Department of Cardiac Surgery, Medical University of Warsaw, Warsaw, Poland
[3]Department of Pathology, Medical University of Warsaw, Warsaw, Poland

A 26-year-old woman with an atrioventricular pacemaker (dwell time nine years, Fig. 1A) implanted due to malignant vasovagal cardiodepressive syncope type 2A of the Sutton classification, was hospitalised due to blood culture-negative lead dependent infective endocarditis. Four months prior to admission to the hospital, in the last month of pregnancy, renal colic complicated by hydronephrosis was diagnosed and a nephrostomy was installed. It was removed after delivery and was followed by urinary tract infection. In the Cardiology Department, the patient was qualified to undergo a cardiosurgical procedure due to a large vegetation (measuring 4 cm in transoesophageal echocardiography: Fig. 2A, B in histopathological analysis 4 × 8 cm: Fig. 1C) and a persistent foramen ovale with concomitant epicardial pacemaker system implantation. Upon stereomicroscopic examination of the removed lead, an abrasion with silicone insulation perforation and metal conductor exposure was noticed in the intracardiac region of the leads (Fig. 1B). Tissue fragments encapsulating endocardial lead body except the vegetation were mainly connective tissue with partial hyalinisation, with features of vasculogenesis (Fig. 3A, B). Fragments of encapsulating lead tissue neighbouring vegetation presented immunological cells infiltrations indicating acute inflammation (Fig. 3C). Klug et al. (Europace 2012; 14: 776–777) demonstrated the potential role of a proper balance between the human host, pathogens and lead damage. Previously we presented the crucial role of abrasions in the development of device-related infective endocarditis (Kolodzinska et al., Europace 2012; 14: 903–910). In a case in which the competing influences become unbalanced, i.e. because of the physiological decrease in immunological response during pregnancy and the presence of a urinary tract infection as a source of pathogens, exacerbated by the formation of severe abrasion with conductor exposure in the intracardiac part of the lead resulting in the creation of a safe location for biofilm growth, a vegetation may form. In the reported case, infective endocarditis was the first presentation of lead damage.

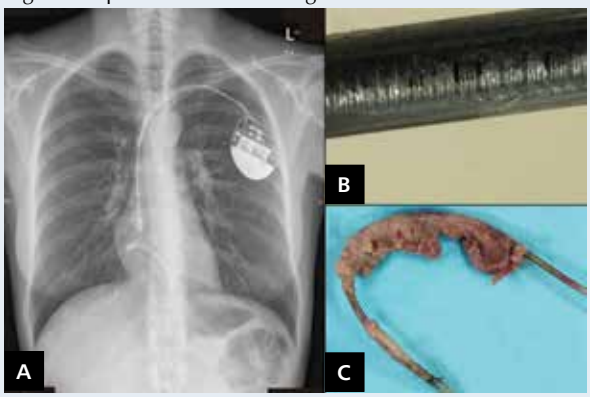

Figure 1. **A**. X-ray of the chest, leads with a loop of ventricular lead at the level of tricuspid valve; **B**. Abrasion with silicone insulation perforation and metal conductor exposure in the intracardiac part of ventricular lead; **C**. Vegetation attached to ventricular lead

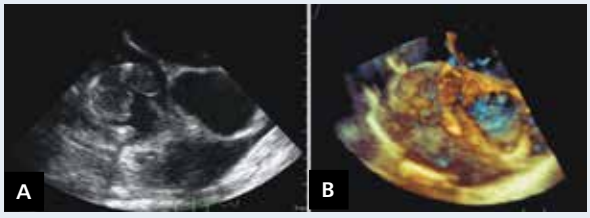

Figure 2. **A**. Vegetation attached to the leads in the right atrium in transoesophageal echocardiography, two-dimensional view; **B**. Vegetation in the right atrium enclosing ventricular lead, three-dimensional view

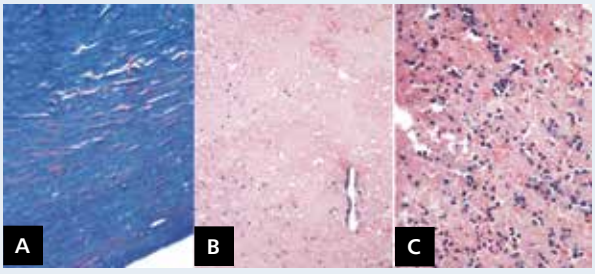

Figure 3. **A**. Encapsulating lead body connective tissue; AZAN Trichrome Stain; **B**. Encapsulating lead tissue with partial hyalinisation and features of vasculogenesis; haematoxylin and eosin (H&E) stain; **C**. Immunological cells infiltrations in encapsulating lead tissue neighbouring vegetation; acute inflammation; H&E stain

Address for correspondence:
Agnieszka Kołodzińska, MD, PhD, Department of Cardiology, Medical University of Warsaw, ul. Banacha 1a, 02–097 Warszawa, Poland, tel: +48 22 599 29 58, fax: +48 22 599 19 57, e-mail: aa.kolodzinska@wp.pl

Conflict of interest: *none declared*
Funding sources: *Internal funds of the Medical University of Warsaw*