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

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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 (Kołodzińska 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.

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Conflict of interest: none declared

Funding sources: Internal funds of the Medical University of Warsaw