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LETTER TO THE EDITOR:

INFECTIOUS ENDOCARDITIS ASSOCIATED TO PERMANENT PACEMAKER: APPROACH FOR LEAD EXTRACTION WITH LARGE VEGETATION.

***Gabriel E. Pérez Baztarrica, Julissa Saltos Ardila, Oliverio Artunduaga Lozano, Hugo Barcia Medranda, Andrea Guevara Bermudez, Tomas Palacios Paredes, Carlos Barroso Piguave and Flavio Salvaggio**

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Short Title: pacemaker lead extraction with large vegetation.

Submitted August 2019; Accepted October 2019

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Dear Editors,

A 70-year-old female consulted for a high fever of 6 days duration that exhibited no focality. The only pathological history referred unicameral pacemaker implantation 6 years ago (unknown cause) and arterial hypertension. Our patient had no history of others disease. On admission she had a temperature of 38.5°C. She did not show any relevant data at physical examination. Laboratory results showed leukocytosis and increased erythrosedimentation. Hemocultures were positive for methycyline-sensible Staphylococcus aureus. Upon suspicion of infectious endocarditis (IE), a transesophageal echocardiogram was requested; where at the atrial level on the catheter was observed with a vegetation mobile image (Fig. 1A). After confirmed diagnosis of catheter-associated IE, the recommended therapy was implemented. Complete removal of the device was performed percutaneously (no pacemaker-dependent patient). For percutaneous removal of the system, locking stylets (Cook, Liberator) and polypropylene telescopic sheaths were used (Fig. 2). Eight hours later she presented dyspnea and tachypnea with normal oxygen saturation and stable blood pressure.

Computed tomography scan of the chest demonstrated images compatible with pulmonary infarction (Fig 1B) associated to isolated subsegmental pulmonary embolus.

She completed the course of antibiotic (cefalotine for 6 weeks) and the new device was reimplanted. The patient not presented cardiovascular or infectology complications after two-year follow-up, IE associated with permanent an implantable electronic device is an uncommon complication, but with high mortality levels if inadequately treated [1]. It

involves long-acting intravenous antibiotics and complete removal of the device either percutaneously (dilator sheaths, locking stylets, etc.) or, if this is not feasible, surgical removal is performed by thoracotomy and extracorporeal circulation but presented high mortality rate. Progress in techniques and materials for intravenous removal of catheters by experienced operators are the basis of the low rate of procedural complications.

The vegetation size is a controversial issue, as some authors believe that transvenous or percutaneous removal of catheters with vegetations of up to 20 mm poses the risk of pulmonary embolism [1, 2, 3]. Other publications have shown that tranvenous removal is safe in patients with infective endocarditis associated with permanent implantable electronic devices and vegetations of up to 20-mm [4]. At present, there are still discussions regarding patients with infective endocarditis associated with permanent implantable electronic devices and vegetations exceeding 20 mm.

We know that there is a high rate of pulmonary embolism (33%) transvenous removal in IE associated with permanent an implantable electronic device, it is asymptomatic or mildly symptomatic in most cases [5]. Several symptomatic cases (embolism with higher vascular involvement) are less common. The mortality directly related to the CIED extraction procedure ranged from 0.4% to 3.6% [5].

The decision is influenced not only by the vegetation characteristics, but also by the patient's prior cardiopulmonary condition, another concomitant heart surgical prescription, (atrial communication with the risk of paradoxical embolism and the possibility of complete removal of the device will be evaluated.

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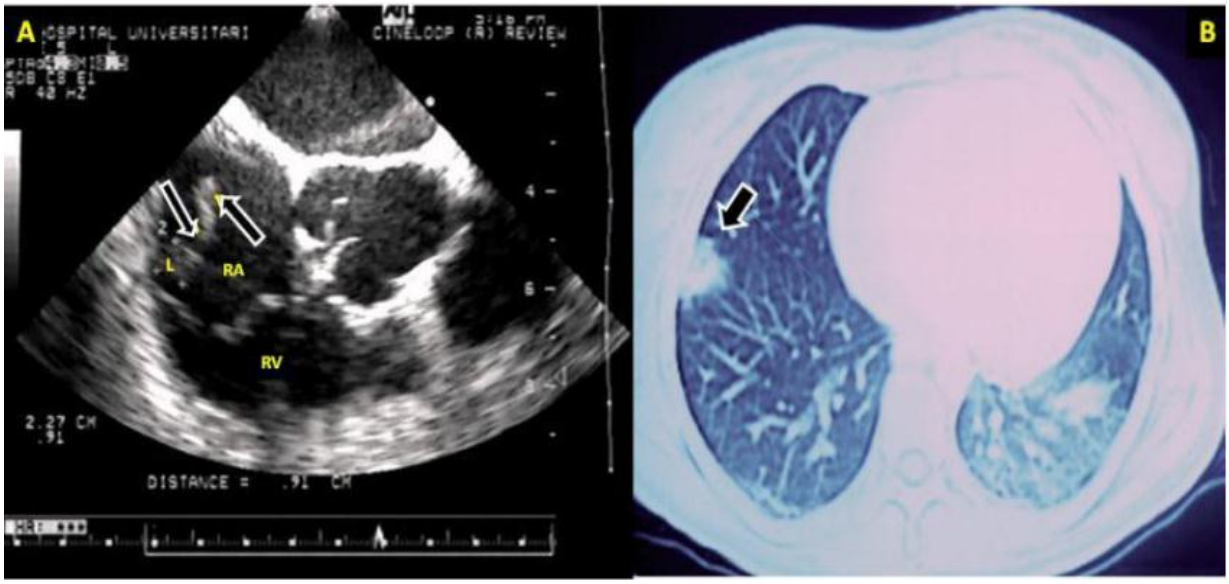

Figure 1: A) Large vegetation seen with transesophageal echocardiography at the atrial level on the catheter. The largest longitudinal diameter is 22 mm (arrow). RA: right atrial; L: lead. VR: ventricular right. **B)** Axial views of a computed tomographic on lung window (Post extraction). The infarct in this computed tomographic scan is represented by the wedge shaped density in the right lung with its base abutting the pleura (arrow).

Figure 2: Extraction procedure: (A) Placement of the locking stylets (Cook, Liberator). B) Insertion of the rigid. C) Withdrawal of the sheath and the catheter simultaneously. D) Ventricular catheter removed in the proceeding with vegetation attached.