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Reply: Intracardiac Echocardiography Compared to Trans-Esophageal Echocardiography to Detect Thrombi During Lead Extraction

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To the Editor,

We appreciate the interest in our study of short-term outcomes of incidental lead thrombi during lead extraction¹ by Dr. Sadek and colleagues, and read with great interest their experience using intracardiac echocardiography (ICE) to guide transvenous lead extraction (TLE).² Similar to our study, their study systematically prospectively examined leads for presence of masses, but detected a higher prevalence (72%) of thrombi using ICE.

Although the size of their study population was smaller (50 vs 108 patients) and included patients with infectious vegetations, their findings further support our main conclusion that incidental mobile lead thrombi do not appear to be associated with any significant acute adverse outcomes. Importantly, despite the detection of smaller thrombi with ICE (the mean size of thrombi in their study was 7mm compared to 14mm in ours), the clinical significance of smaller thrombi would theoretically be smaller. Furthermore, in a larger study of 86 patients undergoing ablation at their same institution³, ICE detected incidental lead thrombi in only 30% of patients, and these larger thrombi (mean of 18mm) were not associated with any significant adverse short-term clinical outcomes, similar to our study.

There are advantages and disadvantages for both TEE and ICE guidance during lead extraction. Although ICE may have potentially advantages of closer proximity to the lead to detect binding sites, our lead extraction team (composed of cardiothoracic surgery, cardiac anesthesiologists and electrophysiologists) prefers the use of TEE in the hybrid operating room for multiple reasons: 1) a dedicated cardiac anesthesiologist to monitor hemodynamics and injury with TEE which allows the extractionist to focus entirely on performing lead extraction and allow continuous monitoring for the surgeon if sternotomy is needed, 2) ability to detect pleural effusions⁴ and hemothorax in case of SVC tear (see attached online

video from our institution of a hemothorax detected by TEE in a hypotensive patient when no pericardial effusion was seen, later found to be an extra-pericardial SVC tear), 3) inflation of the bridge balloon may disrupt the ICE catheter in the right atrium at an inconvenient critical time, and 4) avoidance of venous site access complications such as development of venous thrombosis or vascular bleeding.

Nevertheless, given the results of our study and currently published data, the additional smaller thrombi detected by ICE are unlikely to be associated with significant acute clinical outcomes during lead extraction. The choice of imaging modality to guide transvenous lead extraction should be determined on the basis of operator preference and patient factors rather than the detection of very small incidental thrombi.

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Disclosures

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