

## LETTERS TO THE EDITOR

To the Editor—Left bundle branch pacing as cause for takotsubo cardiomyopathy?



Scuotto and colleagues<sup>1</sup> recently published a case report on takotsubo cardiomyopathy (TCM) after left bundle branch pacing in a 93-year-old man. The insertion of a left bundle branch pacing lead took place after extraction of a failing pacing lead implanted 14 years prior. The authors describe this induction of TCM as a consequence of the insertion of the left bundle pacing lead. The authors do not describe the details of the extraction procedure or the type of lead removed.

We are surprised at the conclusion that the left bundle branch pacing lead was the culprit of this patient's TCM. TCM itself is a rare condition, with an incidence of 2% of hospitalizations with suspected acute coronary syndrome worldwide. While pacemaker leads have been described in the induction of TCM, these are even rarer occurrences. A review of the literature found 17 cases reported of TCM following insertion of permanent pacemakers. All of these cases were first-time insertion of permanent pacemakers with no other identifiable factors contributing to the development of TCM. In the case presented by the authors there is a clear significant stressor occurring in the extraction of a lead that has been in situ for 14 years. It has been well documented that significant tissue encapsulation and mineralization occurs at the lead tip and the lead body in both passive and active fixation leads.<sup>2</sup> Given the lead dwell time prior to the extraction procedure, it is likely to have been significantly adhered to the vasculature and myocardium. Given the relatively minimal invasive procedure of pacemaker insertion vs the rather large stressor of this lead extraction, it appears to us more likely that the lead extraction procedure would be the source of the TCM.

TCM is a rare complication of permanent pacemaker insertion. While its etiology is unknown, it is well correlated with significant stresses. We propose that in this case the extraction process itself and not the left bundle pacing lead was the more significant stressor leading to TCM.

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## References

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Author's Reply—Left bundle branch pacing as cause for takotsubo cardiomyopathy?



We thank Dr Ronan Walsh and his team for showing interest in our paper, as well as allowing us the opportunity to further discuss it.

Several factors have been reported to trigger takotsubo cardiomyopathy (TCM). In the setting of surgical procedures, the very anesthetic act has been described as a trigger for TCM.<sup>1,2</sup> A recognizable number of other triggers are thought to be implicated in TCM onset in this scenario.<sup>1,2</sup> However, lead extractions as possible triggers for TCM are not yet published.

We recognize that aggressive lead extractions rather than simple lead placement might be a trigger for TCM; however, we hypothesized that this was not the case in our procedure, based on 3 elements. (1) The first approach of the surgical team was not to extract the ventricular lead. The team noticed that it was untied from its venous path and also from the right ventricular apex; hence, if left unextracted, it might still contribute to lead dysfunction and pacemaker malfunctioning. (2) There was no need for mechanical or laser extraction material to remove the electrode. (3) The patient experienced hypertension during the procedure at the time of the new lead placement in the deep septal position, possibly owing to pain at that point of time.

In conclusion, we recognized that TCM might have several triggers involving surgical procedures, including right ventricular lead extraction as one of them in our case. However, in light of the above-mentioned explanation, we strongly realized that the new lead placement was the trigger for TCM in this particular case.

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