Reentrant Supraventricular Tachycardia Induction By The Programming Head Of A Pacemaker Programmer

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Introduction: Reentrant Supraventricular Tachycardia (SVT) is an arrhythmia that can often be initiated by ectopy. Here, we present an unusual case of SVT initiation by asynchronous pacing from a permanent pacemaker (PPM) programming (PG) head during attempted device interrogation.

Methods: To provide awareness of the potential for unintended SVT initiation by magnet mode function of a PPM PG head.

Result: A 22yo male with a dual chamber PPM was scheduled for redo sternotomy and required device reprogramming prior to surgery. At baseline, he was in sinus rhythm at 93bpm. An electromagnetic PG head (Medtronic Inc, MN, USA) was applied to the patient's PPM site to perform interrogation. During initialization, asynchronous 'DOO' pacing was initiated with evidence of both atrial and ventricular capture (Figure). Competition from intrinsic rhythm then resulted in functional loss of capture with pacing spikes seen. An isolated atrial capture initiated a narrow complex tachycardia at 180bpm. The PG head was removed promptly but the SVT sustained for a further 20 minutes to result in clinical deterioration of the patient requiring intravenous Metoprolol. Review of the patient's clinical records showed a prior admission with documented SVT resolved by Valsalva manœuvre.

Conclusion: PPM interrogation by a PG head allows non-invasive programming of implanted device function but asynchronous pacing during initialization can present a risk to patients. Our case study shows SVT initiation by this mode. Re-design of PPM PG head may avoid asynchronous pacing and inadvertent arrhythmia induction.