

A narrow QRS gallop rhythm

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Answer

The QRS complexes 1, 2, 4, 5 and 7 are not preceded by atrial activation. The QRS morphology is slightly different from an A-V conducted beat (QRS 3, 6). Therefore an origin in the bundle branch system is presumed for beats 1, 2, 4, 5 and 7. An escape beat (QRS 2, 5) is retrogradely conducted to the atrium with atrial activation followed by AV conduction and ventricular capture (#3, 6). This phenomenon has been described previously as escape-echo bigeminy [1]. This echo beat could be the result of dual AV nodal pathway physiology where the retrograde conduction goes through the slow pathway. Escape beats 1, 4 and 7 are not conducted antegradely after retrograde atrial activation. VA conduction of this beat results in slightly earlier atrial activation, possibly through a fast retrograde AV nodal pathway. Normal sinus rhythm recovered and the patient was discharged. However, a week later, the patient returned to the emergency department with symptomatic bradycardia, sinus arrest and chronotropic incompetence and a pacemaker was implanted. Electrophysiological study performed with the pacemaker did not show evidence of dual AV nodal physiology.

Sinus node dysfunction during surgical pulmonary vein isolation can result from different mechanisms: ablation

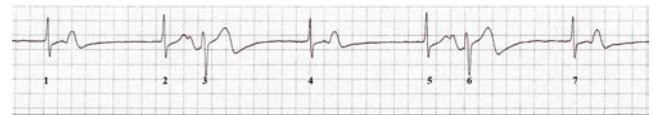


Fig. 1 ECG recording during surgical pulmonary vein isolation

near the vagal nerve can evoke a vagal response; ablation near the sinus node can inadvertently damage or electrically isolate the sinus node; ablation near the sinus node artery can result in sinus node ischaemia. In our patient a computed tomography angiogram revealed that the sinus node artery was a side branch of the circumflex coronary artery (Fig. 1).

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Reference

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