



There is no Escape after TAVR: A Case of High-Grade Atrioventricular Block without Ventricular Escape after TAVR

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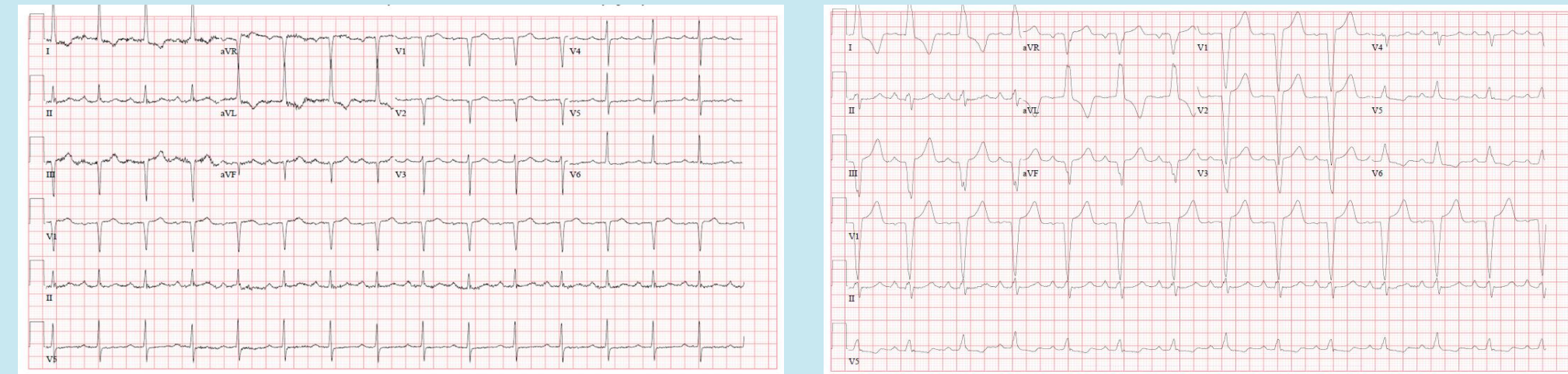
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Introduction

- After the introduction of TAVR, LBBB was recognized as a significant complication. Studies about post-TAVR outcomes consistently identify high rates of LBBB (34%).
- Atrioventricular conduction failure without ventricular escape, colloquially termed “paroxysmal ventricular standstill” is an uncommon but described phenomenon.

Case Presentation

- A 91-year-old female with no prior cardiac history who presented with multiple syncopal events and decreased exercise tolerance was found to have critical aortic stenosis (peak velocity across aortic valve of 5.7 m/s, mean gradient of 84 mmHg, and aortic valve area of 0.4 cm²) on transthoracic echocardiogram.
- She promptly underwent a successful TAVR and developed a LBBB post-procedure, which resolved within 24 hours. She was discharged on a 30-day mobile cardiac event monitor.
- Six days later, the monitor detected an episode of complete heart block without ventricular escape rhythm for 11 seconds with the patient complaining of chest discomfort.
- The patient subsequently received a MICRA leadless pacemaker for treatment. She tolerated the procedure well and was able to be discharged to home the next day.



Figures 1 (left) and 2 (right). EKGs both immediately pre- and post-TAVR. Evidence of new left bundle branch block is clearly demonstrated, with the QRS complex prolonged from roughly .07-.08 seconds prior to the procedure to .13-.14 seconds post-TAVR. This is a common finding after TAVR that indicates poor long-term outcomes.



Figure 3. Prior to discharge, the patient's EKG was repeated and demonstrated resolution of bundle branch block physiology roughly twenty-four hours after TAVR.

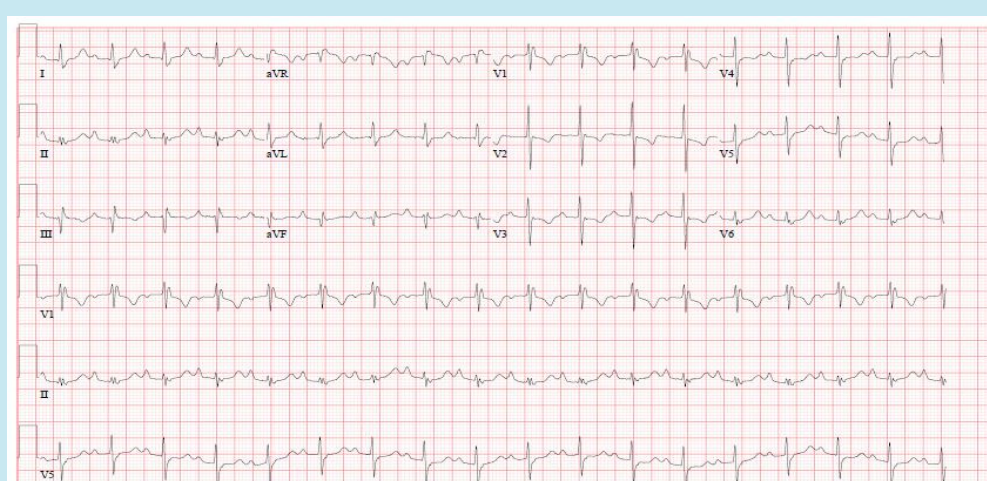


Figure 5. EKG after readmission and placement of a Micra leadless pacemaker. The patient tolerated the procedure well and was able to be discharged without any further recurrence of atrioventricular block. The patient was not pacer-dependant.



Figure 4. The patient was discharged on mobile cardiac event monitoring which later captured the above finding of an eleven-second pause. During this time, the patient reported chest pressure and a warm sensation, but did not syncope. P waves clearly continued at regular intervals and morphology, however there no ventricular conduction nor an escape rhythm.

Discussion

- Transient conduction abnormalities post-TAVR are an identified risk factor for long-term High-grade atrioventricular block (HAVB).
- LBBB post-TAVR has been previously shown to be independently identified with a poor prognosis.
- HAVB without escape rhythm is an uncommon finding associated with coronary ischemia and electrolyte abnormalities. It is associated with a wide range of symptoms ranging from an asymptomatic, incidental finding to syncope to cardiac arrest.

Conclusions

- There are limited reports of HAVB without ventricular escape. It is an interesting phenomenon that carries a poor prognosis, likely indicating advanced conduction disease.
- There remains no consensus on standardized cardiac monitoring post-TAVR. Given the high rates of LBBB and their association with poor outcomes, as this case highlights, this is a rich area for future study.
- Newer studies suggest a lack of cardiac remodeling post-TAVR with coexisting persistent conduction abnormalities which can lead to a more limited benefit. These adverse consequences may merit closer monitoring, especially in patients at high risk for conduction disease.

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