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## Images in Cardiology

# Persistent Accelerated Infra-Hisian Escape Rhythm Masking Infra-Nodal Atrioventricular Block After Transcatheter Aortic Valve Implantation

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An 83-year-old woman underwent transcatheter aortic valve implantation (TAVI) using a SAPIEN 3 23-mm valve (Edwards Lifesciences, Irvine, CA) for severe aortic valve stenosis in our hospital. Her preprocedural surface electrocardiogram showed a right bundle branch block with a normal axis (Fig. 1A: heart rate = 74 beats per minute (bpm); PR = 198 ms; QRS = 140 ms). Shortly after the successful TAVI, she developed an escape rhythm (ER) with atrioventricular dissociation and right bundle branch block with left-axis deviation (Fig. 1B: ventricular rate = 65 bpm; atrial rate = 59 bpm, QRS = 142 ms). The ER persisted, even on the third postoperative day. We suspected that the ER was due to the conduction system injury, but the ER itself disturbed the evaluation of atrioventricular conduction on surface electrocardiogram. Therefore, an electrophysiology study (EPS) was performed. During the ER and atrial overdrive pacing, an infranodal atrioventricular block (intra-or infra-Hisian block) was unveiled (Fig. 1, C and D), and the ER was not suppressed by 40 mg of adenosine triphosphate. Therefore, she was diagnosed with accelerated infra-Hisian ER. Given that the prognosis of this rhythm was unclear, we performed dual-chamber (DDD) pacemaker implantation.

Few studies in the literature have reported on ER occurring after TAVI.[1] To the best of our knowledge, this report is the first of persistent accelerated infra-Hisian ER concomitant with infranodal atrioventricular block after TAVI, which was demonstrated by an invasive EPS. In this case, the ER with atrioventricular dissociation masked comorbid infranodal atrioventricular block and revealed an infra-Hisian origin rather than an atrioventricular nodal ER with the aberrant conduction, despite the QRS duration being similar to the baseline. In such a situation, an EPS for evaluating atrioventricular conduction should be considered to investigate the conduction system disturbance.

### Novel Teaching Points

- Accelerated infra-Hisian ER after TAVI can mask infranodal atrioventricular block.
- An invasive electrophysiology study is useful for delineating such a condition.

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### Data Availability

The data will not be shared.

### Ethics Statement

This article is a retrospective case report using deidentified data, and ethical approval was not required.

### Patient Consent

This article is a retrospective case report using deidentified data; therefore, the institutional review board did require consent from the patient.

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### Disclosures

The authors have no conflicts of interest to disclose.

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See page 717 for disclosure information.

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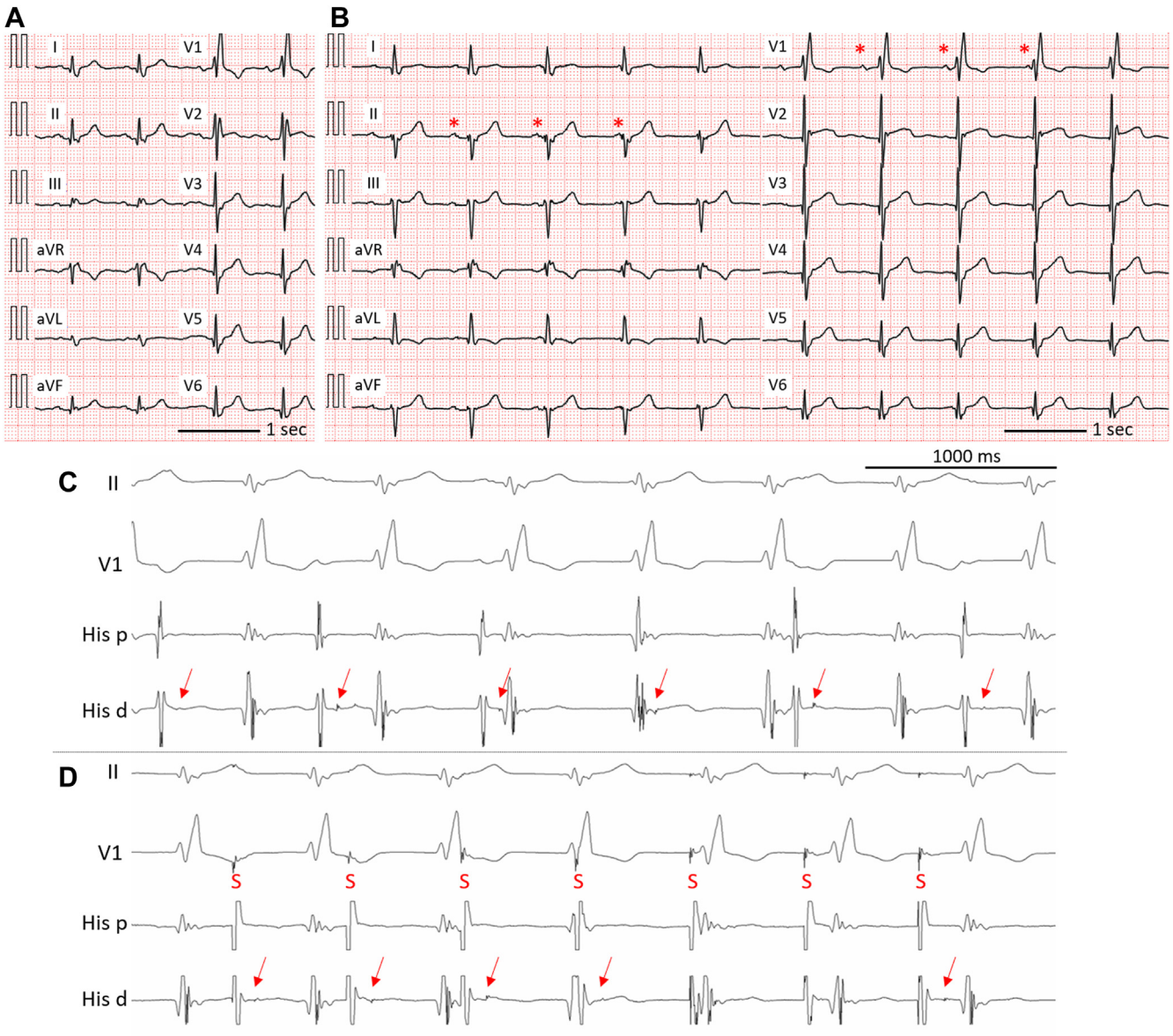


**Figure 1.** (**A, B**) Preprocedural and postprocedural 12-lead surface electrocardiograms. Asterisks indicate dissociated P waves. (**C, D**) Intracardiac electrocardiograms during the escape rhythm and atrial overdrive pacing from the right atrial septum at 100 PPM. **Arrows** indicate His electrocardiograms. d, distal; p, proximal; S, stimulation.

## References

1. Angsubhakorn N, Akdemir B, Bertog S, et al. Junctional rhythm following transcatheter aortic valve replacement. HeartRhythm Case Rep 2020;6:749-53.