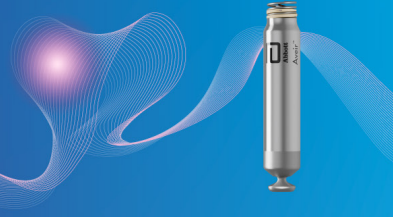




AVEIR™ AR ATRIAL LEADLESS PACEMAKER (LP)

CASE INSIGHT



LEADLESS-FIRST PACING STRATEGY IN SYMPTOMATIC SINUS NODE DYSFUNCTION: A PHYSICIAN'S PERSPECTIVE

AT-A-GLANCE

An active 62-year-old patient with symptomatic sinus node dysfunction was treated using a leadless atrial pacing system as a first line of therapy, driven by both clinical need and lifestyle considerations. This case highlights how a leadless-first pacing strategy can improve patient acceptance, preserve activity levels, and reduce long-term device management complexity in contemporary pacing practice.

PATIENT BACKGROUND

The patient is a 62-year-old female with a longstanding history of sinus bradycardia. She was initially evaluated in 2019 and was diagnosed with modest bradycardia and resting heart rates in the 50s. Over subsequent years, she developed progressive sinus node dysfunction with symptomatic bradycardia documented on external cardiac monitoring. In 2025, a routine in-office 12-lead ECG revealed marked sinus bradycardia with heart rates in the 30s, prompting further evaluation with a 30-day ambulatory monitor. This study revealed more pronounced bradycardia, with heart rates declining into the 30s during multiple recorded episodes.

CLINICAL DECISION-MAKING AND DEVICE SELECTION: WHY AVEIR LEADLESS PACEMAKERS?

An AVEIR Atrial Leadless Pacemaker was selected as the preferred pacing strategy based on the patient's clinical presentation and lifestyle. The patient had an active lifestyle, including a full professional schedule as a psychotherapist, engaging regularly in recreational sports such as pickleball, and spending time with her grandchildren. She initially expressed hesitation to permanent pacing due to concerns regarding activity limitations and lifestyle disruption commonly associated with traditional transvenous systems.

Following counseling on leadless atrial pacing technology, the patient reported a significant reduction in apprehension and elected to proceed with implantation. The availability of a leadless atrial pacing option was a decisive factor in her willingness to accept device therapy.

POST-IMPLANT OUTCOMES

In the post-implant follow-up visits, the patient consistently reported a significant improvement in her quality of life. She is no longer lethargic, eliminated the need for daytime naps, and restored confidence in daily and recreational activities. Device interrogation showed a 91% atrial pacing burden and a heart rate distribution consistent with a moderately active, working individual. Her PR interval was stable and within normal limits (160 ms).

	PREDISCHARGE	FOLLOW-UP
Threshold	0.5V@0.4ms	0.5V@0.25ms
Sensing	2.4 mV	4.6 mV
Impedance	360 Ω	310 Ω

PHYSICIAN PERSPECTIVE: LEADLESS-FIRST PACING APPROACH

“The adoption of a leadless-first pacing strategy has represented a paradigm shift in my practice. From a clinical operations standpoint, this approach has been associated with a marked reduction in complications traditionally encountered with transvenous systems, including pocket-related complications, lead-related failures, and infection-driven reinterventions. As a result, our clinical efforts can be more effectively directed towards individualized pacing strategies and longitudinal patient care rather than device-related troubleshooting.

From the patient perspective, leadless pacing has enabled same-day discharge, absence of arm-movement restrictions, preservation of body image with no visible scar, and rapid return to normal activities, including sports without any long-term limitations.

Historically, leadless pacing was often reserved as a last-line option for select patient populations who were largely inactive, lacked shoulder access, or were managing an active infection. With growing clinical experience and supportive outcomes data, my approach has evolved. Leadless pacing, particularly atrial leadless therapy, is now routinely offered as a first-line option for patients with pacing indications.

This strategy has been especially impactful for younger and more active patients, many of whom may have otherwise deferred or declined transvenous dual chamber systems. By offering a leadless solution upfront, these patients are able to maintain their pre-implant lifestyle, activity level, and quality of life while achieving durable symptom relief and long-term pacing support.”

— Erik Altman, MD

CONCLUSION

This case illustrates how a leadless-first pacing strategy can address symptomatic sinus node dysfunction while preserving patient lifestyle and simplifying long-term device management. In this practice, leadless pacing has become the preferred initial therapy, delivering tangible benefits to patients and measurable efficiencies.

Acknowledgement: We thank Erik Altman, MD, for providing the clinical data and his commentary for this case study, and for his valuable input throughout the preparation of this report.

NEXT STEPS



To read the full clinical study, please scan the QR code,
or for more information, please contact your Abbott Sales Representative.

Rx Only

Brief Summary: Prior to using these devices, please review the Instructions for Use for a complete listing of indications, contraindications, warnings, precautions, potential adverse events and directions for use.

Indications for Use: The AVEIR™ Leadless Pacemaker system is indicated for management of one or more of the following chronic clinical presentations: syncope, pre-syncope, fatigue, disorientation, and one or more of the indications which follow. Rate-modulated pacing is indicated for patients with chronotropic incompetence, and for those who would benefit from increased stimulation rates concurrent with physical activity. Dual-chamber pacing is indicated for patients exhibiting one or more of the following conditions: sick sinus syndrome; chronic, symptomatic second- and third-degree AV block; recurrent Adams-Stokes syndrome; symptomatic bilateral bundle-branch block when tachyarrhythmia and other causes have been ruled out. Atrial pacing is indicated for patients with: sinus node dysfunction and normal AV and intraventricular conduction systems. Ventricular pacing is indicated for patients with significant bradycardia and: normal sinus rhythm with only rare episodes of AV block or sinus arrest, chronic atrial fibrillation. **MR Conditional:** The AVEIR Leadless Pacemaker is conditionally safe for use in the MRI environment and according to the instructions in the MRI-Ready Leadless System Manual.

Intended Use: The AVEIR™ Leadless Pacemaker (LP) is designed to provide bradycardia pacing as a pulse generator with built-in battery and electrodes for implantation in the right ventricle and the right atrium. The LP is intended to provide sensing of intrinsic cardiac signals and delivery of cardiac pacing therapy within the implanted chamber for the target treatment group. The LP is also intended to operate optionally with another co-implanted LP to provide dual-chamber pacing therapy.

The AVEIR™ Delivery Catheter is intended to be used in the peripheral vasculature and the cardiovascular system to deliver and manipulate an LP. Delivery and manipulation includes implanting an LP within the target chamber of the heart.

Contraindications: Use of the AVEIR™ Leadless Pacemaker is contraindicated in these cases:

Use of any pacemaker is contraindicated in patients with a co-implanted ICD because high-voltage shocks could damage the pacemaker and the pacemaker could reduce shock effectiveness.

Single-chamber ventricular demand pacing is relatively contraindicated in patients who have demonstrated pacemaker syndrome, have retrograde VA conduction, or suffer a drop in arterial blood pressure with the onset of ventricular pacing.

Programming of rate-responsive pacing is contraindicated in patients with intolerance of high sensor driven rates.

Use is contraindicated in patients with an implanted vena cava filter or mechanical tricuspid valve because of interference between these devices and the delivery system during implantation.

Persons with known history of allergies to any of the components of this device may suffer an allergic reaction to this device. Prior to use on the patient, the patient should be counseled on the materials (listed in the Product Materials section of the IFU) contained in the device and a thorough history of allergies must be discussed.

Adverse Events: Potential complications associated with the use of the AVEIR™ Leadless Pacemaker system are the same as with the use of single or dual chamber pacemakers with active fixation pacing leads including, but not limited to: cardiac perforation; cardiac tamponade; pericardial effusion; pericarditis; endocarditis; thrombus formation; thromboembolism; valve damage or regurgitation; heart failure; pneumothorax/hemothorax; cardiac arrhythmias; diaphragmatic/phrenic nerve stimulation / extra-cardiac stimulation; palpitations; hypotension; syncope; cerebrovascular accident; infection; hypersensitivity reaction to device materials, contrast media, medications, or direct toxic effect of contrast media on kidney function; pacemaker syndrome; inability to interrogate or program the LP due to programmer or LP malfunction; intermittent or complete loss of capture, pacing or sensing (non-battery related); oversensing; increased capture threshold, inappropriate sensor response; corrupted, intermittent, or loss of ICD communications; interruption of desired LP function due to electrical interference, either electromagnetic or electrostatic; battery malfunction/ premature battery depletion; device-related complications (premature deployment, device dislodgement/embolization of foreign material, inability to release/re-dock of the LP from catheter, helix distortion); additional surgery or intervention; death. As with any percutaneous catheterization procedure, potential complications include, but are not limited to: vascular access complications, such as perforation, dissection, puncture, groin pain, bleeding or hematoma; thrombus formation; thromboembolism; air embolism; local and systemic infection; peripheral nerve damage; general surgery risks and complications from comorbidities, such as dyspnea, respiratory failure, pneumonia, hypertension, cardiac failure; reaction to sedation, renal failure, anemia, and death.

Refer to the User's Manual for detailed indications, contraindications, warnings, precautions, and adverse events.

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