©Copyright by Croatian Cardiac Society. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/) which permits users to read, download, copy, distribute, print, search, or link to the full texts of these articles in any medium or format and to remix, transform and build upon the material, provided the original work is properly cited and any changes properly indicated.

Baby, you make my heart stop

Valentina Obadić[1]*, Ivica Premužić Meštrović[1], Matija Marković[1], Mario Stipinović[1], Maja Gršković[1], Borna Emić[2], Martina Petrinović[1], Vlado-Vlaho Ćubela[1], Josip Stjepanović[1], Andrijana Kološa[1], Tomislav Letilović[1]

[1]University Hospital "Merkur", Zagreb, Croatia
[2]General Hospital "Dr Anđelko Višić" Bjelovar, Bjelovar, Croatia

KEYWORDS: atrioventricular block, pregnancy, vagal reaction.

CITATION: Cardiol Croat. 2026;21(11-12):232. | https://doi.org/10.15836/ccar2026.232

***ADDRESS FOR CORRESPONDENCE:** Valentina Obadić, Klinička bolnica Merkur, Zajčeva 19, HR-10000 Zagreb, Croatia. / Phone: +385-98-645-218 / E-mail: valentina.obadic@gmail.com

ORCID: Valentina Obadić, https://orcid.org/0000-0001-9915-5122 • Ivica Premužić Meštrović, https://orcid.org/0000-0002-2592-8302
Matija Marković, https://orcid.org/0000-0002-2852-3730 • Mario Stipinović, https://orcid.org/0000-0002-1582-1552
Maja Gršković, https://orcid.org/0009-0000-2090-1306 • Borna Emić, https://orcid.org/0009-0002-0212-7091
Martina Petrinović, https://orcid.org/0000-0002-3456-0968 • Vlado-Vlaho Ćubela, https://orcid.org/0000-0002-5664-1873
Josip Stjepanović, https://orcid.org/0000-0002-3146-9704 • Andrijana Kološa, https://orcid.org/0000-0002-6628-5833
Tomislav Letilović, https://orcid.org/0000-0003-1229-7983

Introduction: Sinus bradycardia with sinus arrest and high-grade atrioventricular (AV) block in a young woman with repaired congenital heart disease raises concern for intrinsic conduction disease, as late postoperative heart block is a recognized complication of septal defect repair.[1] In contrast, vagally mediated AV block is benign, localized to the AV node, and accompanied by sinus bradycardia.[2,3] Nausea and vomiting affect approximately 70% of pregnancies[4] and can provide a potent vagal trigger.

Case report: 31-year-old woman at 14 weeks gestation, with Hashimoto hypothyroidism treated with levothyroxine and a complete septal defect repaired at 1 year of age, was referred after routine ambulatory monitoring. She was asymptomatic except for nausea and vomiting several times per week. Baseline ECG showed sinus rhythm, right bundle branch block, and left anterior fascicular block. Ambulatory monitoring recorded a 6.4-second pause without visible P waves and episodes initially reported as Mobitz II block with 2:1 to 5:1 conduction; these coincided with vomiting documented in the activity diary. Detailed review showed sinus deceleration before the block, progressive PR prolongation, and gradual recovery of sinus and AV nodal function over several beats. These episodes clustered around nausea. Echocardiography demonstrated preserved biventricular function, and moderate eccentric mitral regurgitation. Non-contrast cardiac magnetic resonance imaging revealed no additional pathology. An electrophysiological (EP) study using 3D electroanatomic mapping to minimize fetal radiation exposure showed an AH interval of 160 ms, an HV interval of 62 ms, and an AV nodal Wenckebach cycle length of 380 ms; supra-Hissian conduction normalized completely after atropine. During transesophageal echocardiography under propofol sedation, simultaneous sinus slowing and PR prolongation progressing to AV nodal block were reproduced, followed by spontaneous recovery. Telemetry captured two cardioinhibitory episodes, both during nausea. Pacemaker implantation was not indicated. The patient received counselling on how to respond to nausea, was advised to avoid high-risk activities, and was scheduled for serial follow-up. Cardioneuroablation may be considered postpartum.[5]

Conclusion: In patients with a structural substrate for conduction disease, high-grade AV block on ambulatory monitoring should not automatically lead to pacemaker implantation. Concomitant sinus deceleration, PR prolongation before the block, a clear vagal trigger, an HV interval below 70 ms, and responsiveness to atropine support a benign, vagally mediated mechanism.[2,6] A fluoroscopy-free EP study guided by 3D mapping is feasible during pregnancy and may prevent unnecessary device implantation. Nevertheless, lifelong conduction surveillance remains warranted after AV septal defect repair.[1]

LITERATURE

1. Liberman L, Pass RH, Hordof AJ, Spotnitz HM. Late onset of heart block after open heart surgery for congenital heart disease. Pediatr Cardiol. 2008;29(1):56-59. https://doi.org/10.1007/s00246-007-9034-x
2. Alboni P, Holz A, Brignole M. Vagally mediated atrioventricular block: pathophysiology and diagnosis. Heart. 2013;99(13):904-908. https://doi.org/10.1136/heartjnl-2012-303220
3. Lee S, Wellens HJ, Josephson ME. Paroxysmal atrioventricular block. Heart Rhythm. 2009 Aug;6(8):1229-34. https://doi.org/10.1016/j.hrthm.2009.04.001
4. Liu C, Zhao G, Qiao D, Wang L, He Y, Zhao M, et al. Emerging Progress in Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum: Challenges and Opportunities. Front Med (Lausanne). 2022 Jan 10;8:809270. https://doi.org/10.3389/fmed.2021.809270
5. Aksu T, Brignole M, Calo L, Debruyne P, Di Biase L, Deharo JC, et al. Cardioneuroablation for the treatment of reflex syncope and functional bradyarrhythmias: A Scientific Statement of the European Heart Rhythm Association (EHRA) of the ESC, the Heart Rhythm Society (HRS), the Asia Pacific Heart Rhythm Society (APHRS) and the Latin American Heart Rhythm Society (LAHRS). Europace. 2024 Aug 3;26(8):euae206. https://doi.org/10.1093/europace/euae206
6. Glikson M, Nielsen JC, Kronborg MB, Michowitz Y, Auricchio A, Barbash IM, et al; ESC Scientific Document Group. 2021 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy. Eur Heart J. 2021 Sep 14;42(35):3427-3520. https://doi.org/10.1093/eurheartj/ehab364

RECEIVED:
October 20, 2026
UPDATED:
November 4, 2026