






Cardiac pacing during pregnancy: a case report

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KEYWORDS: pregnancy, cardiac pacing, fluoroless, implantation.

CITATION: *Cardiol Croat.* 2024;19(1-2):37. | <https://doi.org/10.15836/ccar2024.37>

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Introduction: Due to radiation exposure and other uncertain risks for both mother and fetus, the implantation of a permanent pacemaker during pregnancy is still a controversial topic.¹⁻³

Case report: We report a case of successful management of a 30-year-old pregnant woman, at 20th week of gestation, with intermittent total AV block and consequent 20 seconds of asystolic pause and syncope. The patient was transferred to the electrophysiology laboratory and a fluoroless implantation of the permanent single-chamber pacemaker was performed, guided by intracardiac echocardiography (ICE) (Vivid q[®], GE Healthcare, USA) and three-dimensional (3D) electroanatomical mapping system (CARTO[®]3, Biosense Webster (BW), USA). A femoral approach was made for ICE and a decapolar 3D mapping catheter (DecaNav[®], BW, USA), and a cephalic vein cut down was performed to insert pacemaker lead avoiding complications, mainly pneumothorax. The mapping catheter was used to create a 3D anatomical geometry of the right heart with the superior and inferior vena cava. Thanks to the special custom-made cable previously described by Kuhne and the FamDx[®] module (BW, USA), the permanent electrode was successfully visualized and positioned at the right ventricular apex. Localization, stability, and adequate slack were further confirmed using ICE. No complications occurred during the procedure and the patient was discharged with a programmed backup pacing at a lower rate of 40 ppm and the possibility to explant the pacing device after childbirth and possible restoration of AV conduction.

RECEIVED:
September 30, 2023

ACCEPTED:
October 7, 2023



LITERATURE

1. Gianni C, Della Rocca DG, Natale A, Horton RP. Fluoroless 3D mapping-guided pacemaker implant in a pregnant patient. *Pacing Clin Electro-physiol.* 2021 Sep;44(9):1641-1645. <https://doi.org/10.1111/pace.14283>
2. Kühne M, Schaer B, Reichlin T, Sticherling C, Osswald S. X-ray-free implantation of a permanent pacemaker during pregnancy using a 3D electroanatomic mapping system. *Eur Heart J.* 2015 Nov 1;36(41):2790. <https://doi.org/10.1093/eurheartj/ehv234>
3. Chua KCM, Lim ETS, Chong DTT, Tan BY, Ho KL, Ching CK. Implantation of a dual-chamber permanent pacemaker in a pregnant patient guided by intracardiac echocardiography and electroanatomic mapping. *HeartRhythm Case Rep.* 2017 Sep 29;3(11):542-545. <https://doi.org/10.1016/j.hrcr.2017.09.003>