





Iatrogenic aortocoronary dissection during percutaneous coronary intervention on the right coronary artery

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Introduction. Iatrogenic aortocoronary dissection (IACD) is a rare but potentially fatal complication of percutaneous coronary intervention (PCI) that requires a multidisciplinary approach for management. It occurs as a result of interventional procedures on coronary arteries, where damage to the artery's intima layer takes place. In 85% of cases, IACD occurs during PCI of the right coronary artery (RCA). The causes of IACD can be triggered by mechanical trauma (catheter manipulation, guidewire, balloon, or stent), a sudden and excessive injection of contrast agent, and anatomical variations.¹⁻³

Case report. Coronary angiography was performed in a patient with unstable angina pectoris, revealing a significantly calcified stenosis in the middle segment of the RCA at the site of a previously implanted drug-eluting balloon (DEB). During the same procedure, PCI was performed with the implantation of two stents. The procedure was complicated by the inability to remove the guidewire, which became trapped at the distal edge of the implanted stent. After several attempts, the tip of the wire was successfully freed from the distal edge of the stent using a smaller balloon catheter. The next day, due to chest pain, a repeat coronary angiography and intravascular imaging with optical coherence tomography (OCT) of the implanted stents were performed. The guiding catheter used was the Amplatz (AL) 0.75. Significant malposition of the stents was verified, and optimization was carried out. The procedure was further complicated by dissection of the proximal segment of the artery, which extended into the aortic valve cusps. A stent was implanted at the origin of the RCA to close the entry point of the dissection. The stent was optimized with a non-compliant balloon (NC balloon), and optimal control angiography was achieved, showing no further contrast extravasation. Control MSCT aortography was performed day after, which showed no signs of dissection, rupture, or intramural hematoma.

Conclusion. Iatrogenic aortocoronary dissection is a rare complication of PCI which is especially often during PCI of the right coronary artery. It is obvious from our case that proper manipulation of more „aggressive“ types of guiding catheters such as Amplatz is mandatory and prompt actions should be taken to prevent potentially fatal outcomes.

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LITERATURE

1. Kassimis G, Raina T. A Practical Approach to the Percutaneous Treatment of Iatrogenic Aorto-coronary Dissection. *Open Cardiovasc Med J.* 2018 Apr 25;12:50-54. <https://doi.org/10.2174/1874192401812010050>
2. Sanchez-Jimenez E, Levi Y, Roguin A. Iatrogenic Aortocoronary Dissection During Right Coronary Artery Procedures: A Systematic Review of the Published Literature. *J Soc Cardiovasc Angiogr Interv.* 2022 Aug 27;1(6):100443. <https://doi.org/10.1016/j.jscv.2022.100443>
3. Dahdouh Z, Roule V, Lognoné T, Sabatier R, Bignon M, Malcor G, et al. Iatrogenic bidirectional dissection of the right coronary artery and the ascending aorta: the worst nightmare for an interventional cardiologist. *Korean Circ J.* 2012 Jul;42(7):504-6. <https://doi.org/10.4070/kcj.2012.42.7.504>