

# Clinical significance of radial artery occlusion after coronary angiography

 Ivana Grgić<sup>1,2\*</sup>,  
 Katica Cvitkušić  
Lukenda<sup>1,2</sup>,  
 Marijana Knežević  
Praveček<sup>1,2</sup>,  
 Domagoj Mišković<sup>1,2</sup>,  
 Ema Didović<sup>1</sup>,  
 Krešimir Gabaldo<sup>1,2</sup>

<sup>1</sup>General Hospital "Dr. Josip Benčević", Slavonski Brod, Croatia  
<sup>2</sup>Josip Juraj Strossmayer University of Osijek, Faculty of Dental Medicine and Health Osijek, Osijek, Croatia

**KEYWORDS:** coronary angiography, radial artery, arterial occlusion, hemostasis.

**CITATION:** *Cardiol Croat.* 2024;19(3-4):103. | <https://doi.org/10.15836/ccar2024.103>

**\*ADDRESS FOR CORRESPONDENCE:** Ivana Grgić, Opća bolnica "Dr. Josip Benčević", Andrije Štampara 42, HR-35000 Slavonski Brod, Croatia. / Phone: +385-95-5250-313; Fax +385-35-201-700 / E-mail: [ig.ngg17@gmail.com](mailto:ig.ngg17@gmail.com)

**ORCID:** Ivana Grgić, <https://orcid.org/0000-0002-4301-8388> • Katica Cvitkušić Lukenda, <https://orcid.org/0000-0001-6188-0708> • Marijana Knežević Praveček, <https://orcid.org/0000-0002-8727-7357> • Domagoj Mišković, <https://orcid.org/0000-0003-4600-0498> • Ema Didović, <https://orcid.org/0009-0004-7720-7840> • Krešimir Gabaldo, <https://orcid.org/0000-0002-0116-5929>

**Introduction:** Transradial approach (TRA) is preferred vascular access site for coronary angiography resulting in lower 30-day mortality, major bleeding and access site complications when compared with transfemoral access. Radial artery occlusion (RAO) is the most common complication of TRA with an incidence of 0.8-10%<sup>1</sup>. In most cases RAO is asymptomatic, but some patients feel pain at the site of occlusion, have paresthesia, and very rarely signs of acute ischemia of the arm<sup>2</sup>.

**Methods and Results:** We analyzed 40 subjects who underwent diagnostic coronary angiography using TRA in a period of one month. All patients received 5000 IU of heparin and 200mcg of nitroglycerin after sheath insertion. After intervention hemostasis was performed with Terumo TR Band radial compression device according to standardized protocol. Three patients (8%) reported pain and paresthesia and we confirmed radial artery occlusion using doppler imaging. One patient was hospitalized because of severe pain but without signs of critical ischemia. The patient was treated with aspirin and enoxaparin by subcutaneous injection for 5 days, following with rivaroxaban 20mg for 3 weeks and completely recovered.

**Conclusion:** Radial artery occlusion is the most common complication of TRA, but with a low clinical significance. Patency of radial artery is important for future coronary artery procedures, coronary artery bypass grafting, arteriovenous fistula formation or intra-arterial pressure monitoring. Proper medication application together with patent hemostasis reduce the risk of RAO<sup>3</sup>.

RECEIVED:  
October 22, 2023

ACCEPTED:  
October 27, 2023



## LITERATURE

1. Di Santo P, Simard T, Wells GA, Jung RG, Ramirez FD, Boland P, et al. Transradial Versus Transfemoral Access for Percutaneous Coronary Intervention in ST-Segment-Elevation Myocardial Infarction: A Systematic Review and Meta-Analysis. *Circ Cardiovasc Interv.* 2021 Mar;14(3):e009994. <https://doi.org/10.1161/CIRCINTERVENTIONS.120.009994>
2. Rademakers LM, Laarman GJ. Critical hand ischaemia after transradial cardiac catheterisation: an uncommon complication of a common procedure. *Neth Heart J.* 2012 Sep;20(9):372-5. <https://doi.org/10.1007/s12471-012-0276-8>
3. Avdikos G, Karatasakis A, Tsoumeleas A, Lazaris E, Ziakas A, Koutouzis M. Radial artery occlusion after transradial coronary catheterization. *Cardiovasc Diagn Ther.* 2017 Jun;7(3):305-316. <https://doi.org/10.21037/cdt.2017.03.14>