

System Tornus in chronic total occlusions

System Tornus w całkowitych przewlekłych okluzjach

Leszek Bryniarski¹, Piotr Kusak¹, Dariusz Dudek², Danuta Czarnecka¹

¹1st Department of Cardiology, Interventional Electrophysiology and Hypertension, University Hospital, Jagiellonian University Medical College, Krakow, Poland

²2nd Department of Cardiology and Cardiovascular Interventions, University Hospital, Jagiellonian University Medical College, Krakow, Poland

Chronic total occlusions (CTO) remains a challenge in invasive cardiology. It requires not only a very experienced operator, but also a variety of equipment (dedicated to CTO) to be available in the operating room. The most common causes of procedure failure are an inability to: cross the lesion by wire (89%), to cross the lesion by balloon (9%), and to implant the stent (2%). However, the development of the new procedure's techniques and equipment have increased the rate of successful interventions in reference centres up to 90%, although the mean success rate is only about 60% in non specialised centres. We report the case of a 44-year-old man with hyperlipidaemia, hypertension, coronary artery disease and CTO of circumflex coronary artery (Cx). In 2005, the patient underwent elective coronary angioplasty of right coronary artery (RCA) and left anterior descending artery (LAD) with the implantation of two bare-metal stents (BMS). In February 2012, a second coronary angioplasty of the RCA was performed with implantation of two BMS, and the Cx was already closed. Because of restenosis in a RCA stent, in May 2012 balloon angioplasty was performed. Due to persistent symptoms, the patient was referred to our centre which specialises in CTO angioplasty. The artery was closed in proximal segment (segment 11), and the peripheral part of the vessel was visualised from RCA to segment 13 and the marginal branch. The length of the occlusion was assessed to be about 30 mm (Fig. 1). Two femoral accesses were used, one (6 FR) for visualising the distal part of the Cx from the RCA, and the second one (7 FR) for the angioplasty. A 7 FR Launcher EBU4.0 was used to engage the left coronary artery. The Fielder XT wire (ASAHI) managed to cross the occlusion. However, after many attempts it was unable to cross the 1.5 × 15 mm OTW Apex Push balloon and 1.5 × 15 mm Maverick Monorail balloon. Using a special system Tornus 2.1 FR (ASAHI), we were able to create enough room in the occlusion that it was only possible to cross the lesion by small balloon (Fig. 2). First we used a 1.5 × 15 mm Maverick Monorail balloon, then a 2.5 × 15 mm Maverick Monorail. After successful opening of the artery, a drug-eluting stent (2.75 × 32 mm — 14 atm, Promus Element) was implanted, with optimal effect. Control contrast medium injection revealed very good effect of the procedure, with good filling of the peripheral part of the Cx and the marginal branch (Fig. 3). Angiographic images showed a reduction of the contrast flow to the Cx from the RCA. The total time of fluoroscopy was 43.4 min, the patient received 4.246 Gy of radiation, and the total amount of contrast medium was 400 mL. Today, 12 months after the procedure, the patient is asymptomatic.

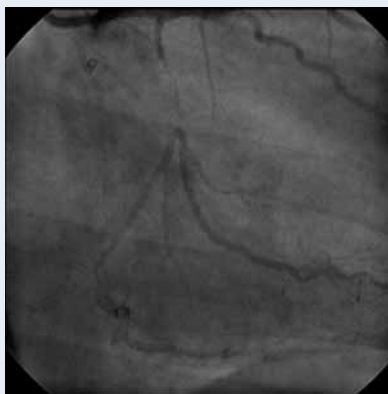


Figure 1. Occlusion of circumflex branch visualised from ante- and retro-grade contrast injection

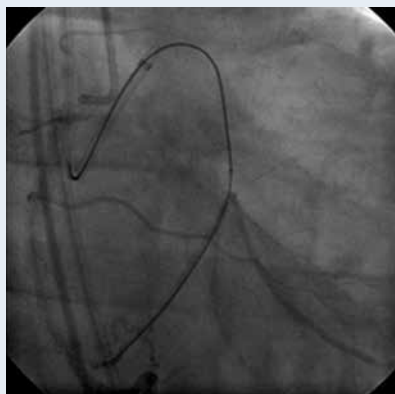


Figure 2. Tornus 2.1 FR (ASAHI INTECC) with radiopaque in the occlusion

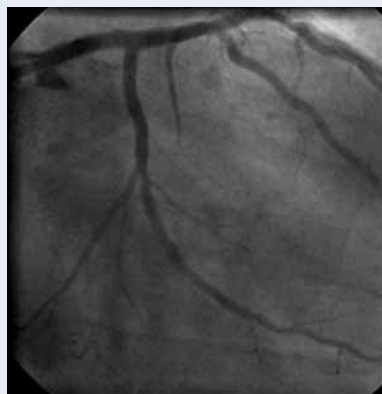


Figure 3. The effect of the stent implantation

Address for correspondence:

Leszek Bryniarski, MD, PhD, Prof., ¹1st Department of Cardiology, Interventional Electrophysiology and Hypertension, University Hospital, Jagiellonian University Medical College, ul. Kopernika 17, 31-501 Kraków, Poland, tel: +48 12 424 73 00, fax: +48 12 424 73 20, e-mail: l_bryniarski@poczta.fm

Conflict of interest: none declared