Left internal mammary spasm mimicking graft dissection in the course of percutaneous coronary intervention of anastomotic in-stent restenosis

Maciej T. Wybraniec1,2, Andrzej Kubicius2,3, Katarzyna Mizia-Stec1,2

1First Department of Cardiology, School of Medicine in Katowice, Medical University of Silesia, Upper Silesia Medical Center, Katowice, Poland
2Upper Silesia Medical Center, Katowice, Poland
3Department of Cardiology in Cieszyn, Upper Silesia Medical Center, Katowice, Poland

The percutaneous coronary intervention (PCI) of left internal mammary artery (LIMA) bypass to left anterior descending artery (LAD) confers high risk of intractable spasm and graft dissection. This case presents a 67-year-old male, following coronary artery bypass grafting and PCI of LIMA-LAD anastomosis with drug-eluting stent implantation 7 months prior to index hospitalization, who currently presented with inferior wall ST-segment elevation acute myocardial infarction. The coronary angiography performed via right femoral approach showed new significant 90% stenosis within the first diagonal branch and 99% in-stent restenosis in LIMA-LAD anastomosis (Fig. 1A). First, the lesion in LAD/diagonal branch was predilated with a 2.5 mm balloon and a 2.0 × 23 mm everolimus-eluting stent was implanted (Fig. 1B). Following stent deployment, a severe impairment of LIMA-LAD flow was documented (Fig. 1C, Suppl. Movie 1), which was accompanied by aggravation of retrosternal chest pain and reduction of blood pressure (90/60 mmHg). Although LIMA dissection was suspected, double intracoronary bolus of diluted 0.1 mg nitroglycerine led to gradual restoration of Thrombolysis in Myocardial Infarction 3 blood flow (Fig. 1D) and, paradoxically, improvement of hemodynamic status (130/80 mmHg). The patient was discharged home following an uneventful further in-hospital stay. Iatrogenic periprocedural LIMA constriction should always be suspected and vasodilative agents utilized in cases of impaired flow during LIMA PCI.

Conflict of interest: None declared

Address for correspondence: Maciej T. Wybraniec, MD, PhD, First Department of Cardiology, School of Medicine in Katowice, Medical University of Silesia, ul. Zioloowa 47, 40–635 Katowice, Poland, tel: +48 32 359 88 90, fax: +48 32 252 30 32, e-mail: maciejwybraniec@gmail.com
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Figure 1. Coronary angiography performed via right femoral approach. A. Anterior-posterior (AP) view, arrow — 99% in-stent restenosis in left internal mammary artery (LIMA) to left anterior descending artery anastomosis; B. AP view; arrow — implantation of evolimus-eluting stent within the anastomotic in-stent restenosis; C. AP view; arrow — dissection-like impairment of flow within the arterial graft due to severe spasm of LIMA; D. AP view; arrow — restoration of Thrombolysis in Myocardial Infarction grade 3 blood flow after intracoronary administration of nitroglycerine.