

IMAGES IN CARDIOLOGY

Vanishing Collaterals Immediately Post-Percutaneous Coronary Revascularization

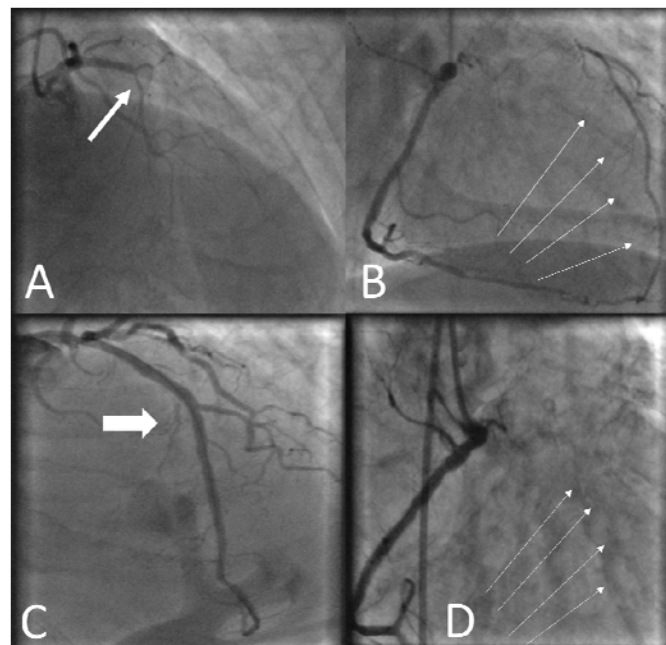
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A 74-year-old gentleman with history of diabetes mellitus, hypercholesterolemia, tobacco use and prior myocardial infarction, was admitted via the emergency room due to unstable angina. He had sustained a lateral non-ST elevation myocardial infarction 6 years earlier, when he was submitted to percutaneous coronary intervention (PCI) and stenting of the obtuse marginal branch of the left circumflex coronary artery, considered the culprit lesion and during the same session, stenting was also performed of a stenosis of borderline angiographic significance of the left anterior descending (LAD) coronary artery. During his current admission, urgent coronary angiography was performed, which revealed a total proximal occlusion of the LAD (panel A, arrow); full collateral supply of the LAD was noted from the right coronary artery (panel B, arrows). A significant proximal lesion of the right coronary artery was also detected (not shown). The patient consented to an attempt to revascularize the occluded vessel via PCI, which was successfully accomplished with implantation of 3 coronary stents (panel C, thick arrow). Successful direct stenting was also performed of the proximal lesion of the right coronary artery. Upon completion of the PCI procedure, contrast injection of the right coronary artery revealed the disappearance of the collateral vessels supplied to the LAD (panel D, dashed arrows). Echocardiographic examination showed a near-normal systolic function of the left ventricle (ejection fraction ~55%).

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There is a definite myocardial salvaging effect of collateral vessels¹ as shown in the present case, whereby the systolic cardiac function was maintained despite a total occlusion of the most important coronary vessel, the LAD, which was completely filled via collateral supply up to the level of the obstruction. Upon revascularization, an immediate disappearance of collateralization from the contralateral coronary artery was noted. More commonly, collateral vessel atonement or disappearance has been reported over 24 hours or even more gradually over several months.^{1,2} In the present case a very dynamic and



prompt vasomotion of collateral vessels was clearly demonstrated. Some investigators have suggested that this rapid loss of collaterals may leave the patient vulnerable to ischemic damage, should the revascularized vessel re-occlude;² however, re-opening of functional collaterals in such an adverse event cannot be excluded, in view of this dynamic vasomotion possessed by the collateral vascular tree. Finally, survival benefit has also been suggested in patients with well-developed collaterals, and this appears plausible in view of their myocardial salvaging effect that their presence confers.^{1,3}

REFERENCES

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