

1135 Wire-induced spiral dissection of the critical coronary lesion : when problems happened in limited equipment

Background

Dissection of coronary artery may occur as a complication of cardiac catheterization. Acute inferior myocardial infarction occurred in three of the four cases. The incidence of catheter-induced dissection 0.05% to 0.071%, no specific data for wire-induced spiral dissection.

Case report

A 65-year old man visited to one of government hospital in Lombok, Indonesia, due to chest pain (canadian cardiovascular score class II). He did not have history of hypertension nor diabetes, but he was a current smoker for 30 years. He was diagnosed inferior STEMI last month and got reperfused with thrombolysis drug. His electrocardiogram showed inferior old myocardial infarction. A diagnostic coronary angiogram revealed stenosis 70% on proximal to mid left anterior descending (LAD), stenosis 70% on distal left circumflex (LCX), and critical stenosis on proximal right coronary artery (RCA). Due to limited equipment and budget, we decided to performed percutaneous coronary intervention (PCI) for lesion in proximal RCA. We used JR 3.5 6F guiding catheter through right radial artery. First problem, BMW wire was difficult to pass the proximal lesion, the guiding was not engaged properly. Unfortunately we did not have AL guiding catheter. We tried to advance stiff wire pilot 50 with balloon 1.5 mm x 20 mm as back up and wire BMW as buddy wire, but stucked on mid RCA. Second problem, the right coronary angiogram in the left anterior oblique position showed dilatation and spiral irregular border of the artery in its proximal portion, staining of dye in the proximal to mid RCA, it showed dissection of proximal right coronary artery type D according to NHLBI Classification, Flushing hard contrast injection had worsening the dissection. We tried to advanced the wire to distal, but unfortunately third problem happened. The RCA showed thrombus on distal and there was no flow. Patient was in stable condition, no sign of ST elevation on inferior leads. We did not have Gp IIb/IIIa, so we pushed heparin fast and nitroglycerin 200 µg bolus intracoronary, distal RCA was appeared. Fourth problem, spiral dissection occurred on distal RCA, balloon 1.5 mm x20 mm could advance to distal RCA, a knuckled second wire made worsening spiral dissection. After guidewire passage over RCA, direct stenting using DES 3.0 mm x20 mm was performed for distal RCA and BMS 3.5 mm x 24 mm for proximal RCA. Final coronary angiogram showed no residual stenosis with good distal flow over RCA and TIMI flow 2.

Discussion

Dissection of coronary artery may occur as complication of cardiac catheterization. Not only catheter, but wire-induced coronary dissection may also occur. The key for a success is a wire in the true lumen and do not push-use double wire technique, also never lose appropriate wire position. Minimize contrast injection is needed to seal the flap. The optimal management for patients in whom right coronary artery dissection is recognized during or immediately following coronary arteriography is unsettled. In the absence of symptoms or ECG evidence of myocardial injury, a conservative approach appears to be justified. The outcomes of coronary artery dissection, and therefore the management of the condition, depend on the patency of the distal vessel and the extent of propagation of the dissection. If there is compromise to the distal artery bed, such as acute closure of the artery, urgent revascularization is mandatory to prevent myocardial infarction. This may be accomplished by percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG) surgery, and the decision on

which revascularization method must be at the discretion of the operators. Similarly, even in the absence of acute vessel closure, if there is any suggestion of myocardial ischemia, such as new ECG changes or chest pain, urgent revascularization should also be undertaken to prevent myocardial infarction, even with TIMI-2 or -3 flow.

Conclusion

Wire-induced coronary dissection is rare, but potentially life threatening complication. Bail-out stenting is a treatment of choice in majority patients. Prevention of PCI complication is mandated to decrease the incidence.