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Images in Cardiology

Coronary artery dissection after the use of the thrombus aspiration catheter in anterior ST-elevation myocardial infarction

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A 47-year-old female patient was admitted to our hospital with anterior ST-elevation myocardial infarction for primary percutaneous coronary intervention. The coronary angiogram revealed a subtotal occlusion of the left anterior descending artery (Fig. 1A).

The LAD was wired with a PT^{TM2} light support guidewire (Boston Scientific) distal to the lesion and an Export aspiration catheter (6F, Medtronic Cardiovascular, Santa Rosa, CA) was advanced to aspirate any remaining thrombus without any resistance. The injection of contrast subsequently revealed a spiral dissection from the proximal site of lesion to the distal one (Fig. 1B). The total length of the dissected segment was sealed with four zotarolimus-eluting stents (3.0 × 30 mm × 2, 3.5 × 16 mm × 1 and 2.75 × 16 mm × 1) without any delay because the patient was unstable. Final angiographic result showed no residual stenosis or dissection and a TIMI grade III flow (Fig. 1C).

Coronary artery dissection is a rare complication associated with the use of catheter aspiration devices. Other complications related with the use of catheter aspiration are embolization, thrombus disruption, and rarely perforation.

In our case, we believe that due to high suction pressure, the catheter aspiration device in contact with the dissected wall may have induced a stripping of the intima-media layer, which led in a coronary artery dissection.

Another possible cause for coronary artery dissection could be the rupture of minor plaques with or without spasm. Finally, spontaneous coronary artery dissection is a rare but increasingly recognized finding in females and younger individuals, and is independent of coronary risk factors. Prevention may not always be feasible, but it does seem likely that overdilating a stent within the coronary artery lumen may be a contributing factor.

This is a rare complication and it needs to be emphasized that Interventional cardiologists are required to be aware of the complications arising with the use of these thrombus aspirating devices.[1]

1. Study limitations

IVUS or OCT has been the best technology, so far, to demonstrate the anatomy of the artery wall. No use of IVUS or OCT is a major limitation in order to differentiate dissection

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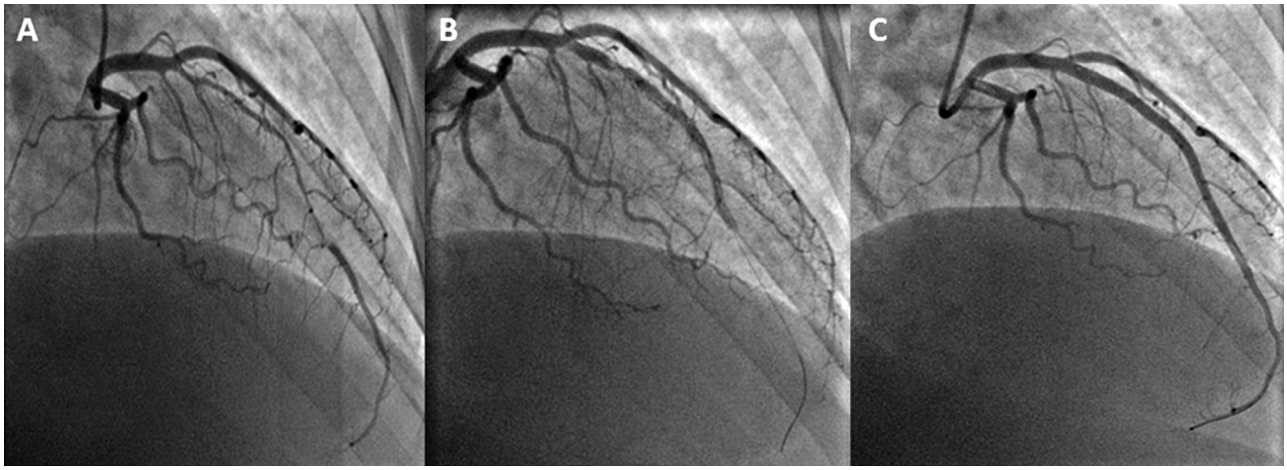

Fig. 1 – (A) Diagnostic coronary angiogram (right anterior oblique view 34, cranial view 28) depicts a subtotal occlusion of the left anterior descending artery originating from the 2nd diagonal branch to the end of the 2nd third of the vessel. (B) Coronary angiogram after the use of thrombus aspiration device depicts the typical image of spiral coronary dissection. (C) Final coronary angiogram after the stents implantation.

or thrombus. Unfortunately, such a diagnostic tool is not available in our lab due to financial restrictions; therefore, dissection related to device is postulated rather than evidence based. Furthermore, based on data of TASTE[2] and TOTAL studies, we do not routinely aspirate unless TIMI 0–I persists after balloon inflation.

Conflicts of interest

The authors have none to declare.

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