Immediate mechanical thrombectomy with DynaCT evaluation after percutaneous coronary intervention complicated with acute ischemic stroke

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Immediate mechanical thrombectomy with DynaCT evaluation after percutaneous coronary intervention complicated with acute ischemic stroke

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The incidence of acute ischemic stroke secondary to percutaneous coronary intervention (PCI) ranges from 0.1% to 0.6% [1]. Furthermore, reversible occlusions of large artery is responsible for considerable number of strokes related to PCI [2]. Various predictors of acute ischemic stroke during PCI have been established, one of them being the radial access site [3, 4]. Mechanical thrombectomy is a rapid, safe and feasible treatment option for acute ischemic stroke and has become the standard of care [2, 5]. Neurological outcome depends on the time from the onset of symptoms to treatment and even a few minute delay can critically influence the outcome. Thus, to establish a diagnosis of acute stroke without the need to transfer the patient from catheterization laboratory to the computed tomography (CT) facility and later to the interventional radiology department for treatment might significantly shorten the time to reperfusion [1, 2, 5].
A 64-year-old Caucasian male with the history of prior ST-segment elevation myocardial infarction treated with PCI in the left anterior descending coronary artery (LAD), arterial hypertension, diabetes mellitus type 2 and hypercholesterolemia was admitted to our department with a non-ST-segment elevation myocardial infarction. Transthoracic echocardiography revealed decreased left ventricular ejection fraction (35%) with disturbed contractility in several segments. The patient was rushed to the catheterization laboratory where coronary angiography revealed a multivessel disease with critical stenosis in the right coronary artery (RCA) and in the diagonal branch (Dg) of the left coronary artery (Figure 1A). Radial access site was established and PCI of RCA with stent implantation was performed. No periprocedural complications were observed. The patient was planned for delayed coronary intervention in LAD and Dg, again via radial access. During stent implantation a neurological deterioration with focal deficits was observed (motoric weakness of the left upper limb and motoric aphasia). After consultation with the neurologist the patient underwent immediate DynaCT (Angiographic CT) (Siemens, Medical Solutions Erlangen, Germany) followed by an immediate direct cerebral digital subtraction angiogram (cDSA) via right femoral artery. Intracranial hemorrhage was ruled out (Supplementary material, Video S1). A thrombotic occlusion of the right vertebral and basilar arteries was confirmed (Figure 1B). Immediate aspiration thrombectomy and stent retriever technique were used to remove thrombus and restore blood flow. The control angiography confirmed the patency of previously occluded arteries (Figure 1C–E). A control CT one day later excluded further ischemic or hemorrhagic events. Neurological assessment confirmed good clinical outcome with no focal neurological deficits (2 points in National Institutes of Health Stroke Scale). Dual antiplatelet therapy was continued.

Our case suggests that immediate direct cDSA followed by immediate mechanical thrombectomy reduces the delay to treatment and might be safe and feasible treatment option for acute ischemic stroke secondary to PCI. Quick and safe access to this treatment option should be widely provided [2, 5].

REFERENCES


Figure 1. A. Coronary angiography and B–E. cerebral digital subtraction angiography. B. Thick arrow indicate right vertebral artery. Thin arrow point at thrombus occlusion of the right vertebral and basilar artery. C–E. The final angiography after mechanical thrombectomy