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IMAGING IN INTENSIVE CARE MEDICINE

Mechanical thrombectomy for a cerebral fat embolism

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A 56-year-old patient underwent a right knee replacement under spinal anesthesia. At the end of the procedure, he suddenly developed right hemiplegia and aphasia. Emergent brain computed tomography (CT) revealed a left middle cerebral artery occlusion by material of negative density (− 33 Hounsfield Unit), highly suggestive of fat embolus (Fig. 1a). Indeed, this image differs from the typical hyperdense artery sign, which shows thrombus. Mechanical thrombectomy was successfully achieved by thrombo-aspiration (Fig. 1b) and retrieved spumous fat fragments (Fig. 1c). In this context of acute setting during orthopedic surgery, an intra-cardiac right-left shunt was searched during diagnostic work-up. Transesophageal echocardiography revealed a patent foramen ovale with an atrial septal aneurysm, supporting a paradoxical embolism of fat material released during surgery. The patient recovered well.

Brain CT remains the standard for acute neurological disorders because of its almost universal availability, and speed of acquisition, especially in the context of stroke, where every minute counts. In some cases, brain CT may also provide a pathognomonic clue of embolus constitution and help tailor revascularization strategy, i.e., the use of direct aspiration instead of a stentriever for a deemed friable fat embolus in this case.

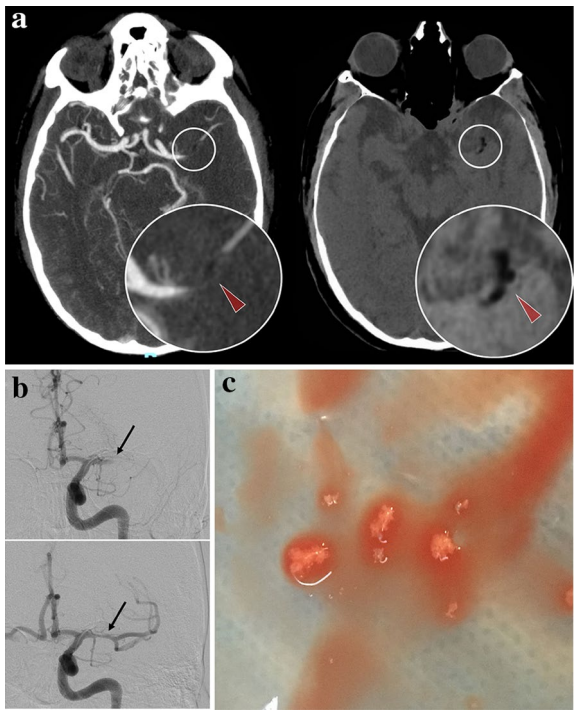

Fig. 1 **a** Injected cerebral computed tomography demonstrating left middle cerebral artery occlusion (left panel) due to a negative density embolus (− 33 Hounsfield Units, red arrowheads). **b** Pre- and post-aspiration angiographic runs showing arterial occlusion (top, black arrow) and complete revascularization of the left middle cerebral artery (bottom, black arrow). **c** Macroscopic aspect of the fat embolus after thrombectomy by direct intracranial aspiration

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