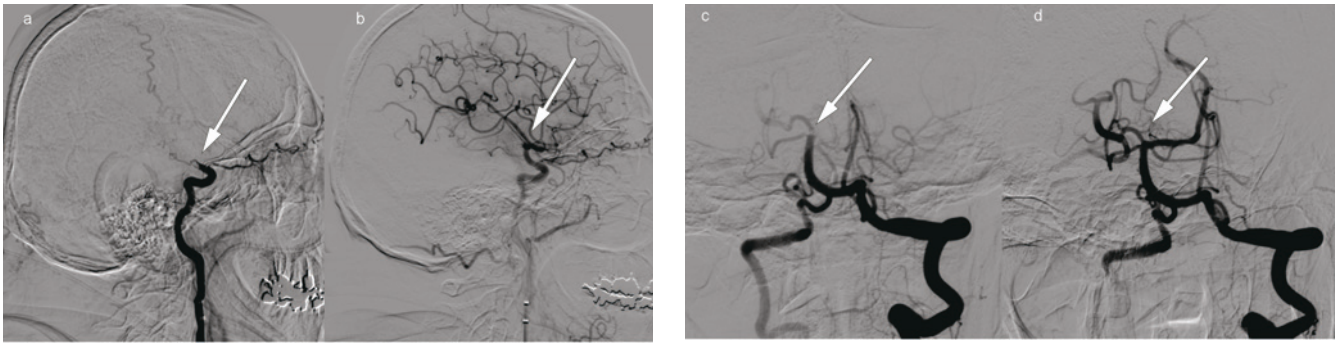
Mechanical embolectomy in cerebral infarction



Patient 1. A man in his 70s was admitted with acute right-sided paralysis. The neurological outcome was scored on the National Institutes of Health Stroke Scale (NIHSS) to 21 points (severe cerebral infarction), and intravenous thrombolytic therapy was administered. The image to the left shows cerebral angiography with contrast injection in the left internal carotid artery, a) before and b) after embolectomy of a so-called T-occlusion (arrows) in the left carotid siphon and middle cerebral artery. The thrombus was removed and blood flow to the left hemisphere was restored 195 minutes after symptom onset. Further workup revealed atrial fibrillation and an embolic cerebral infarction in the middle cerebral artery territory. The patient received anticoagulation therapy with rivaroxaban. The NIHSS score was 0 points at follow-up three months later.

Patient 2. A woman in her 70s experienced acute onset of right-sided paralysis, dizziness and dysarthria after heart surgery. Her NIHSS score was 23 points (severe cerebral infarction). Intravenous thrombolytic therapy was contraindicated. The image to the right shows cerebral angiography with contrast injection in the left vertebral artery, c) before and d) after embolectomy of a large thrombus (arrows) with occlusion of the superior cerebellar artery, posterior cerebral artery and the bifurcation of the basilar artery. Embolectomy was performed with recanalisation 220 minutes after symptom onset. The event presumably occurred after heart surgery. Further workup also revealed atrial fibrillation. The patient received anticoagulation therapy with warfarin, and at follow-up three months later, the NIHSS score was 0 points.

Mechanical embolectomy of large intracerebral arteries may be indicated both after intravenous thrombolytic therapy and in some cases when this therapy is contraindicated (1). Endovascular revascularisation in anterior (patient 1) and posterior (patient 2) circulation can result in rapid clinical improvement.

We lack good data that document the benefit of mechanical embolectomy versus medical management. Several studies report a higher recanalisation rate after mechanical embolectomy (2), while the effect on function level and mortality is under debate (3). Appropriate selection can be decisive for the clinical result. The procedure ought for the time being to be done within a registered trial or as part of a randomised, controlled study.

The patients have consented to the publication of this article.

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Received 11 June 2014, first revision submitted 28 May 2014, accepted 20 August 2014. Editor: Tor Rosness.