

MRI-Guided Thrombolysis of a Wake-Up Stroke



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Patient history

An 82 year-old man with a history of hypercholesterolemia, experienced Broca's aphasia and right hemineglect with hemihypoesthesia when waking up at 5:30 am. Upon arrival at the hospital, his BP was 200 - 100 mmHg with an NIHSS score of 7. The ECG showed a QS complex from V1 to V5 with no chest pain. MRI was performed 4.3 hours after waking up. FLAIR and T2* images were normal. CBV was increased inside the area of decreased CBF (autoregulation).

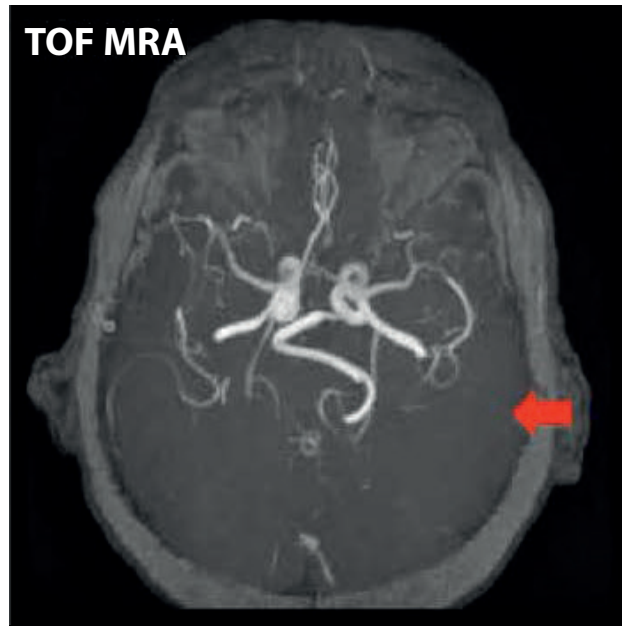
Automatic lesional cartography on ADC or DWI map showed a lesional volume of 3.14 cc. Hypoperfused areas at higher risk of necrosis were determined using a Tmax threshold of 6s, showing a significantly hypoperfused volume of 33.2 cc.

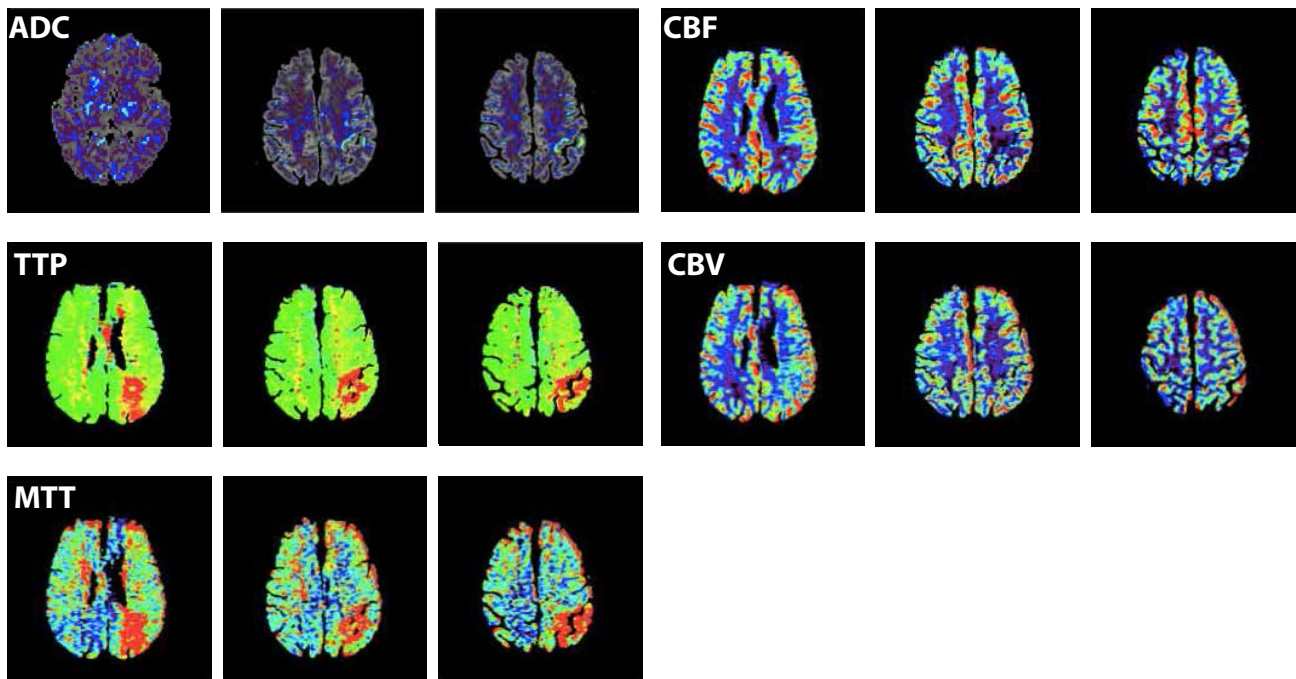
IV thrombolysis (IVT) was performed just after MRI, after spontaneous decrease of BP to adequate values, 4h40 after waking up. The patient had a full neurological recovery less than 1 hour after. CT angioscan performed 24 hours later showed complete middle cerebral artery (MCA) recanalization.

Since atrial fibrillation was detected during ECG monitoring, IV unfractionated heparin was administered 24 hours after IVT then relayed by oral anticoagulation few days after.

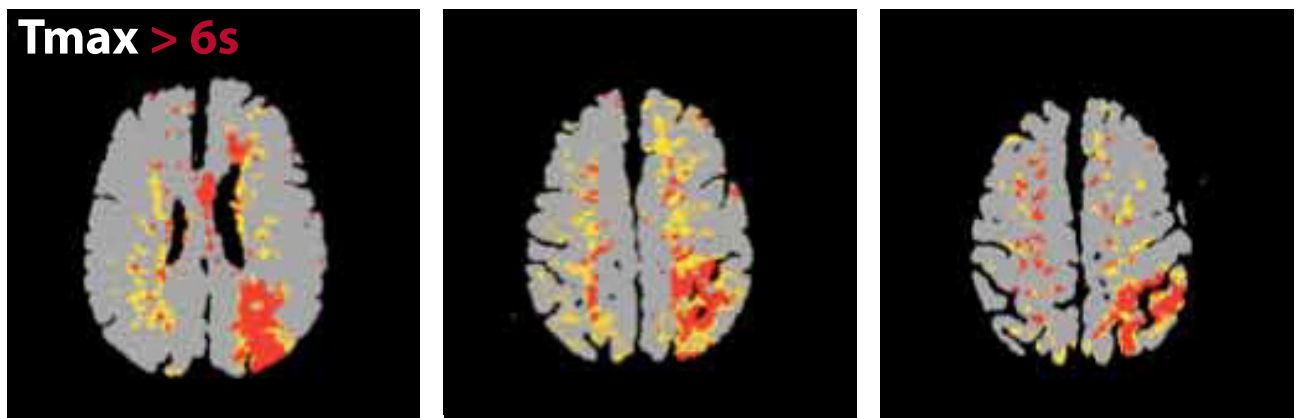
No complication was observed.

TOF MRA





Automatic lesional cartography on ADC or DWI map
- Lesional volume = 3.14 cc



Determination of hypoperfused areas at higher risk of necrosis using a Tmax threshold of 6s.
-Hypoperfused volume = 33,2 cc

NOTE THE INCREASED CBV INSIDE THE AREA OF DECREASED CBF

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