

**MECHANICAL THROMBECTOMY WITH THROMBOLYSIS IN STROKE IN
EXTENDED PERIOD: A CASE REPORT**

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ABSTRACT

Mechanical thrombectomy for anterior circulation-acute ischemic stroke (AIS) with large vessel occlusion (LVO) can be performed in the extended time window (defined as 6-24 hours from time last known well (TLKW) for endovascular treatment (EVT)) by using advanced imaging, as per the most recent ESO mechanical thrombectomy guidelines. This indication mostly relies on inclusion criteria from the DAWN and DEFUSE-3 trials (clinical/radiological mismatch and perfusion mismatch, respectively). These studies were among the first to shift the time-based paradigm unto a tissue-clock based paradigm for patient selection in LVO-AIS treatment. We herewith present one case within extend period treated by thrombectomy and thrombolysis with good outcome.

KEYWORDS: Thombectomy, thrombolysis.

INTRODUCTION

Mechanical thrombectomy (MT) has become increasingly common in recent years, as studies have shown that it can be an effective treatment for acute ischemic stroke (AIS) caused by large vessel occlusion (LVO). However, the efficacy of MT in the extended time window (6 to 24 h) is still uncertain. Intravenous thrombolysis (IVT) has been a standard therapy for acute ischemic stroke for decades. While it was used initially up to three hours after symptom onset, the ECASS III trial extended the time window to 4.5 hours. After the ECASS III trial, researchers tried to extend the time window even further. It became evident that this could not be achieved in unselected patient cohorts, as patients did not benefit from treatment after more than 4.5 hours if selected by CT scan only. Therefore, several trials were started to select patients using penumbra imaging in CT or MRI perfusion. EPITHET treated patients up to 6 hours, while the ECASS-4 and the EXTEND trial included patients up to 9 hours. A recent meta-analysis pooled all 414 patients (213 treated with alteplase and 201 with placebo) who were included within 4.5 to 9 hours. Excellent outcome was achieved in 36% of the alteplase group and 29% in the placebo group showing a statistically significant difference. However, patients treated with mechanical thrombectomy (MT) were

excluded from these trials. MT has become a standard therapy in patients with ischemic stroke and large vessel occlusion (LVO). After the initial trials had shown a benefit up to 7.3 hours, trials using advanced imaging showed a beneficial effect for up to 24 hours after stroke onset. Based on criteria of these trials about 5% of all stroke patients are eligible for therapy. More liberal selection criteria allow to increase the therapy rate up to over 10%.^[10] In the DAWN trial, only 18 (9%) of the patients were treated with alteplase, 5 of them in the thrombectomy group. As patients with persistent LVO after IVT were allowed in the trial it is unclear how many of these 5 patients were treated outside the 4.5 hours time window. In the DEFUSE trial patients were excluded if they received thrombolysis after 4.5 hours from symptom onset / last seen well.

Consequently, considerable uncertainty exists about the optimal management of patients, who are both eligible for IVT and MT in a time window from 4.5 to 9 hours after symptom onset. Even though it seems reasonable to use both therapies, to our knowledge there is no data on whether this is safe. Damages to the brain in an extended time window might be more prone to intracranial hemorrhage caused as side effect to IVT. On the other side, the potential advantages of IVT as thrombus

softening, preventing infarction in previously unaffected territories (as complication of MT) or reperfusion of distal occlusion and the possibility to avert MT (in around 10% of cases) have to be taken into account. Hence studies aim at analyzing the safety of combined IVT and MT compared to direct MT in patients with ischemic stroke and LVO treated in the 4.5 to 9 h time window.

CASE REPORT

Our patient a 62 yr old male presented with dysphasia and UMN facial paresis in extended period of 6 hrs.

Patient on CT brain did not show any anomaly. CT perfusion revealed < 50 ml infarct with large penumbra. CTA revealed left MCA inferior division occlusion. GCS was 14/15. Family was counselled about all possible risks and benefits of thrombolysis and alteplase was given as thrombolysis. Intervention radiology team was contacted and patient underwent mechanical thrombectomy (MVT). Post procedure patient did well. Aspirin was started. Speech therapy was started and once stable patient was discharged home in good condition.

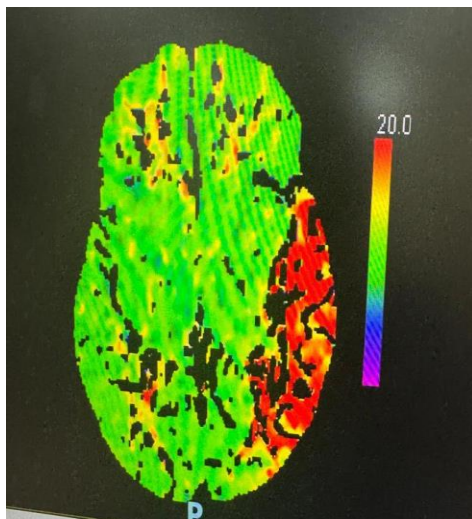


Fig. 1: CT perfusion showing left sided infarct in MCA territory.



Fig. 2: Mechanical thrombectomy image.



Fig 3 CT angiogram of the patient.

DISCUSSION

Maria Pereria et al in 2025 discussed the role of mechanical thrombectomy beyond 6 hrs for acute ischemic strokes.^[1] Stefanos Finitsis in 2020 also elaborated the role of mechanical thrombectomy in the extended window of stroke.^[2] S Salam again elaborated mechanical thrombectomy in the extended 24 hour time window for acute ischemic stroke patients with large vessel occlusion^[3] Megan J Rivera et al in 2025 described in detail mechanical thrombectomy for stroke.^[4] Manabu Inaoue in 2024 described Mechanical Thrombectomy Up to 24 Hours in Large Vessel Occlusions and Infarct Velocity Assessment.^[5]

CONCLUSION

It should be emphasised that not only deaths were substantially prevented by MT, but also a significant proportion of patients were able to achieve a favourable functional outcome without relevant disability despite the adverse initial situation. It is furthermore reassuring that these intriguing results were not contradicted by an increased rate of haemorrhages.

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