



Case Report

Early experience with Mechanical Thrombectomy in Kauvery hospital Tirunelveli

Ganesan^{1*}, Aravind², Kalpana³, Meenakshi Paramasivan⁴, Amalan⁵, Lakshman⁶, Kauvudevi⁷

¹Senior Consultant Neurologist, Kauvery hospital, Tirunelveli, Tamil Nadu

²Consultant Neurologist, Stroke Interventional Neurology Specialist, Kauvery hospital, Tirunelveli, Tamil Nadu

³Consultant Neurologist, Kauvery hospital, Tirunelveli, Tamil Nadu

⁴HOD - Department of Radiology, Kauvery hospital, Tirunelveli, Tamil Nadu

⁵Consultant Interventional Radiologist, Kauvery hospital, Tirunelveli, Tamil Nadu

⁶Senior Consultant Anesthesiology, Kauvery hospital, Tirunelveli, Tamil Nadu

⁷Consultant Neuroanesthesia and Neurocritical Care, Kauvery hospital, Tirunelveli, Tamil Nadu

*Correspondence

Abstract

Background: Acute ischemic stroke due to large vessel occlusion carries high morbidity and mortality, and mechanical thrombectomy (MT) significantly improves outcomes when performed within the appropriate time window. We report the first MT performed at our center in a 61-year-old hypertensive chronic smoker who presented with sudden-onset slurring of speech and left hemiplegia. After receiving intravenous thrombolysis elsewhere and subsequently deteriorating neurologically, he was referred to our centre with an NIHSS score of 16. Imaging revealed a right M1 middle cerebral artery occlusion with an ASPECTS score of 9, good collateral circulation and a large salvageable penumbra. MT was technically challenging due to tortuous iliac arteries, a Type III aortic arch, severe proximal right internal carotid artery stenosis (~90%), and the use of an older-generation angiography system. The first pass with a stent retriever was unsuccessful; a second pass using the Solubra technique achieved successful TIC1 2b reperfusion within 90 minutes. No immediate complications occurred. By post-procedure day 7, the NIHSS improved to 3, and at 30 days the patient demonstrated near-complete functional recovery. This case report highlights technical challenges and clinical outcome.

Key words: Mechanical thrombectomy (MT); Acute ischemic stroke; Hypertensive

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1. Introduction

Acute ischemic stroke secondary to large vessel occlusion is associated with significant morbidity and mortality¹. Mechanical thrombectomy has demonstrated superior outcomes compared to medical therapy alone when performed within the appropriate time window ^[2]. However, anatomical challenges and infrastructure limitations can complicate procedural success, particularly in newly established stroke centers ^[3]. We report

our first mechanical thrombectomy case, emphasizing technical challenges and clinical outcome.

2. Case presentation

A 61-year-old gentleman, a chronic smoker and known hypertensive, presented at 9:00 AM with sudden onset slurring of speech and left hemiplegia. Initial non-contrast CT brain performed at an outside hospital showed no intracranial hemorrhage, and intravenous thrombolysis was administered. The patient experienced neurological deterioration and was referred to our center. The patient arrived at Tirunelveli Kaveri Hospital at 3:00 PM with significant worsening of neurological status. On examination, the NIHSS score was 16. Clinic imaging mismatch (Aspects 9 and NIHSS 16) was there at that time as shown in figure 1. Repeat CT brain and CT angiography demonstrated as shown in fig1: Right middle cerebral artery (M1 segment) occlusion, ASPECTS score of 9, large salvageable penumbra and good collateral circulation. After detailed counselling, including video-based explanation of the procedure and risks, mechanical thrombectomy was planned.

The procedure was performed under GA by Neuroanesthesia team monitoring and right common femoral arterial access. The technical challenges encountered were Two sharp curves in the common iliac artery, Type III aortic arch, Severe proximal right internal carotid artery stenosis (~90%) and small FD 20 primitive angiography system.

Careful navigation was performed across the tortuous iliac vessels and the Type III aortic arch. The severe proximal right internal carotid artery (ICA) stenosis was successfully negotiated initially using a 0.027-inch microcatheter system. The first pass was performed using a stent retriever alone. As complete recanalization was not achieved, a second pass was carried out using the Solumbra technique with 071 system exchanged over 021 system. Following two passes, satisfactory reperfusion was obtained with distal TIC1 2b flow, resulting in complete reopening of the right M1 segment and its perforators. No immediate procedural complications were observed. In our case the door to needle time was 40 minutes and needle to recanalization time was 90 minutes.

On post-procedure day 2, the patient continued to have persistent hypotension requiring inotropic support to maintain adequate cerebral perfusion and collateral circulation. A detailed evaluation for the cause of hypotension was undertaken. Serum cortisol levels were within normal limits, and other potential causes of hypotension were systematically ruled out. A repeat CT brain demonstrated mild hemorrhagic changes in the insular cortex. In view of the insular involvement, autonomic dysfunction was suspected as the probable cause of persistent hypotension. The patient was initiated on oral midodrine, following which blood pressure gradually improved, allowing tapering and eventual discontinuation of inotropic support. The patient was subsequently initiated on single antiplatelet therapy. Follow-up CT imaging demonstrated no evidence of bleed or new infarcts.

The patient demonstrated significant neurological improvement. By post-operative day 7, the NIHSS score improved from 16 to 3. The patient was able to ambulate with support, reflecting excellent functional recovery following successful reperfusion. During post-procedure day 30, during active physiotherapy and rehabilitation, the patient was ambulant with support, speaking fluently, and had improved left upper limb power to 4+/5.

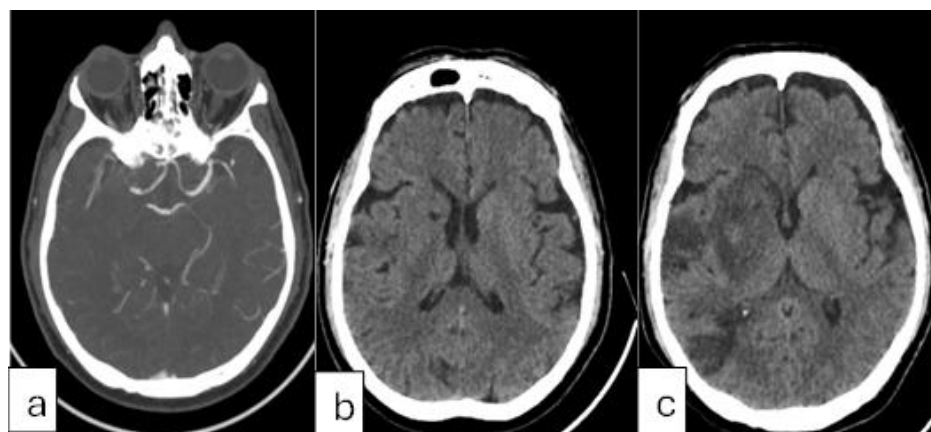


Fig (1): (A) CT angiography showing right M1 segment cutoff. (B) ASPECTS score of 9 and NIHSS of 16, indicating severe clinico-imaging mismatch. (C) Post procedure day 7, ASPECTS score of 5 and showing hypodensities in the right insular region, caudate nucleus and putamen.

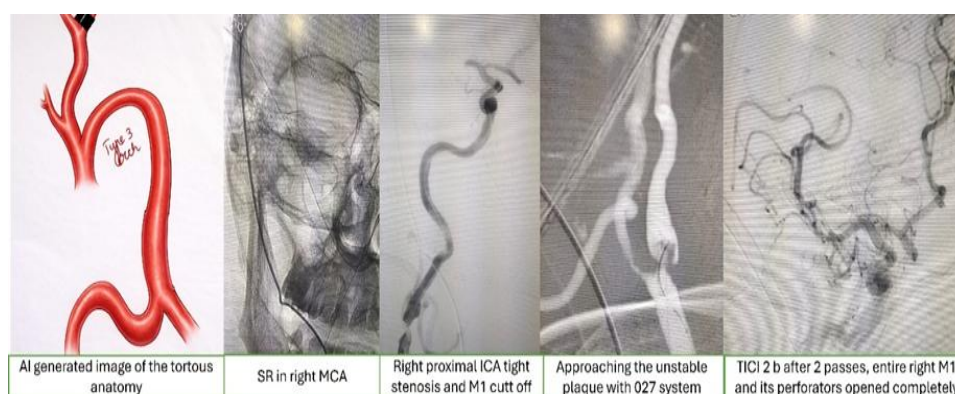


Fig (2): Explaining the technical aspects of the case.

3. Discussion

Mechanical thrombectomy (MT) in anatomically complex settings demands meticulous pre-procedural planning, sound anatomical understanding and procedural adaptability. Challenging arch anatomy has been consistently associated with prolonged access time, increased fluoroscopy exposure, and lower rates of first-pass effect due to difficult catheter stability and distal navigation [\[4\]](#).

Similarly, severe proximal internal carotid artery (ICA) stenosis poses an additional barrier, often necessitating careful microcatheter-wire negotiation to safely cross the lesion without dissection or embolic shower. In our patient 1st pass was done with 027 system and 2nd pass was exchanged with 071 system over 021 system. Tandem lesions and proximal cervical stenosis are well known predictors of longer procedure times and technical complexity [\[5,6\]](#).

Time to reperfusion remains the most critical modifiable factor in acute ischemic stroke management. The landmark randomized trials—such as MR CLEAN, ESCAPE, SWIFT PRIME, and REVASCAT—have established the superiority of mechanical thrombectomy over medical therapy alone in large vessel occlusions. These trials emphasized rapid and

successful reperfusion (TICI 2b/3) as a key determinant of favorable functional outcome. Subsequent pooled analyses (HERMES collaboration) demonstrated that earlier and complete recanalization correlates strongly with improved 90-day functional independence [\[6,7\]](#).

In addition to anatomical challenges, infrastructure limitations can significantly influence procedural execution. The use of older-generation angiographic systems with smaller detectors may restrict visualization of long vascular segments within a single fluoroscopic plane, complicating device manipulation and increasing procedural difficulty. Modern stroke centers often rely on advanced biplane imaging systems and large-bore aspiration catheters to optimize first-pass success rates. The absence of certain aspiration devices may limit the ability to achieve the first-pass effect which is associated with superior neurological outcomes [\[8\]](#).

Nevertheless, procedural success ultimately depends on operator expertise, technical strategy, and team coordination. The importance of tailored guidewire and catheter selection, familiarity with alternative thrombectomy techniques (stent retriever alone versus combined approaches such as Solumbra), and adaptability in resource-limited environments cannot be overstated. This case illustrates that even in the presence of complex anatomy and limited resources, effective recanalization (TICI 2b) can be achieved with structured planning, technical precision, and coordinated teamwork.

Importantly, expanding thrombectomy capability to tier-2 and semi-urban centers is essential in countries like India, where stroke burden is high and access to comprehensive stroke centers may be geographically limited. Timely intervention in regional hospitals can substantially reduce disability and mortality. Establishing and sustaining such programs requires training, institutional commitment, and systems-based stroke pathways [\[9\]](#).

4. Conclusion

Mechanical thrombectomy was successfully performed despite complex vascular anatomy achieving TICI 2b reperfusion within an acceptable time window. Careful peri-procedural management, including treatment of insular-related autonomic dysfunction and ensured hemodynamic stability. The patient demonstrated significant neurological recovery with near-complete functional improvement at 30 days. This case highlights that effective thrombectomy is feasible in tier-2 centers with structured planning, technical expertise, and coordinated teamwork

References

- [1] Karamchandani RR, Rhoten JB, Strong D, et al. Mortality after large artery occlusion acute ischemic stroke. *Sci Rep* 2021;11.
- [2] Prabhakaran S, Gonzalez NR, Zachrison KS, et al. 2026 Guideline for the Early Management of Patients with Acute Ischemic Stroke: A Guideline from the American Heart Association/American Stroke Association. *Stroke* <https://doi.org/10.1161/STR.0000000000000513>.
- [3] Dziadkiewicz A, Pawłowski K, Podlasek A, et al. Technical and Clinical Outcomes at a Thrombectomy-Capable Stroke Center in Poland in the Context of the Center's Growing Experience, Expanding Treatment Guidelines and the Rise in Acute Ischemic Stroke Patient Volume: A Comparative Analysis of Initial and Subsequent Endovascular Procedures. 2026; 16:304.
- [4] Knox JA, Alexander MD, McCoy DB, et al. Impact of aortic arch anatomy on technical performance and clinical outcomes in patients with acute ischemic stroke. *American Journal of Neuroradiology* 2020; 41:268–73.
- [5] Eker OF, Panni P, Dargazanli C, et al. Anterior circulation acute ischemic stroke associated with atherosclerotic lesions of the cervical ICA: A nosologic entity apart. *American Journal of Neuroradiology* 2017; 38:2138–45.
- [6] Collette SL, Rodgers MP, Van Walderveen MAA, et al. Management of extracranial carotid artery stenosis during endovascular treatment for acute ischaemic stroke: results from the MR CLEAN Registry. *Stroke Vasc Neurol* 2023; 8:229–37.
- [7] Goyal M, Menon BK, van Zwam WH, et al. Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials. *The Lancet* 2016; 387:1723–31.
- [8] Zaidat OO, Castonguay AC, Linfante I, et al. First pass effect: A new measure for stroke thrombectomy devices. *Stroke* 2018; 49:660–6.
- [9] Pandian JD, Kalkonde Y, Sebastian IA, et al. Stroke systems of care in low-income and middle-income countries: challenges and opportunities. *The Lancet* 2020; 396:1443–51.