

Mechanical Thrombectomy Following Stroke in Second Stage of Labour

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Acknowledgements

With thanks to the patient for their consent to publish this report
Obstetric and midwifery team, RJMH
Interventional radiology team, RVH

13:00

Second
stage labour

13:45

Patient
becomes
“vague”

14:00

Stroke lysis
team
activated

14:07

Live infant
delivered by
forceps

15:04

Arrival at CT
(via
ambulance)

15:30

Thromb-
ectomy
commenced

15:42

Recanali-
sation
achieved

17:00

Newborn
brought to
patient on
stroke ward

Case Summary

31 year old female, para 0, 38+4 gestation with spontaneous rupture of membranes. Past medical history of congenital atrioventricular block, managed with transvenous pacemaker. Uneventful antenatal course. Pre-pregnancy transthoracic echocardiogram - low normal left ventricular systolic function with no significant valve abnormalities. Pacemaker check at approximately 26 weeks gestation: atrial tachycardia with 2:1 AV block.

As first stage of labour progressed, analgesia was provided via epidural with T6 bilateral sensory block. “Vagueness” reported 45 minutes into second stage. The patient was aphasic, with no motor function in right arm, not following commands. Observations were stable with the exception of tachycardia. Epidural pump stopped immediately, cardiology and neurology advice sought and emergency stroke team activated at 14:00. Live infant delivered by forceps. Blood loss 1480ml due to atonic uterus and trauma.

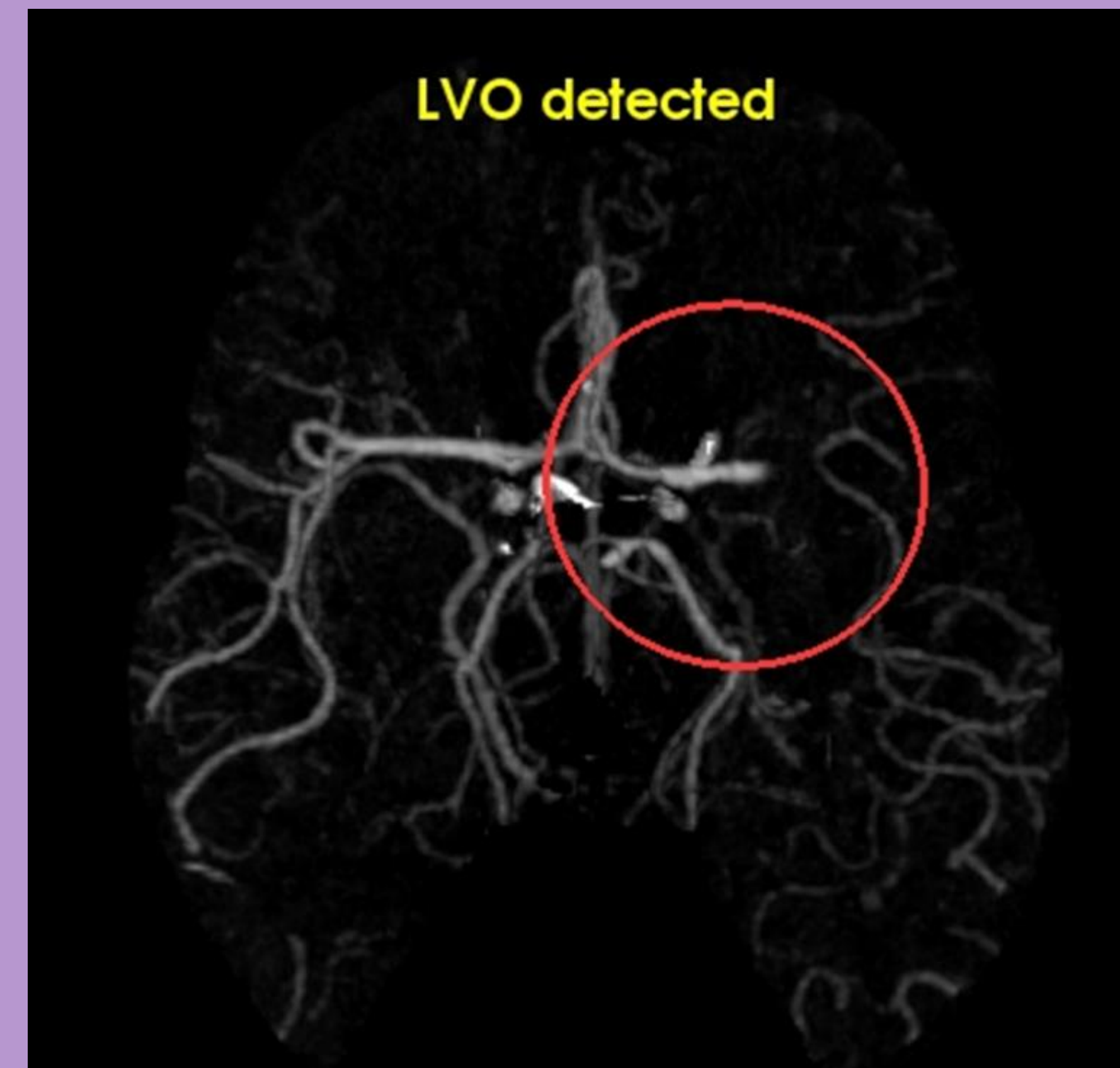
Stroke team assessed patient - GCS 11/15, partial gaze palsy, minor facial palsy, aphasic, no motor function right arm - NIHSS score 34 (severe stroke).

Management and Outcome

The patient was transferred via blue light ambulance to the main hospital for imaging. CT brain - no haemorrhage, no established infarct. CT angiography - large vessel occlusion affecting middle cerebral artery. Mechanical thrombectomy achieved using a retrievable stent, large bore catheter aspiration and flow reversal via carotid balloon. The patient was admitted to the acute stroke unit for post thrombectomy care, where she was joined that evening by her newborn infant with skin to skin and breast-feeding support.

The lumbar epidural catheter was removed at 08:00 the following morning, decision to delay removal given small volumes of heparin in flushes used during thrombectomy procedure.

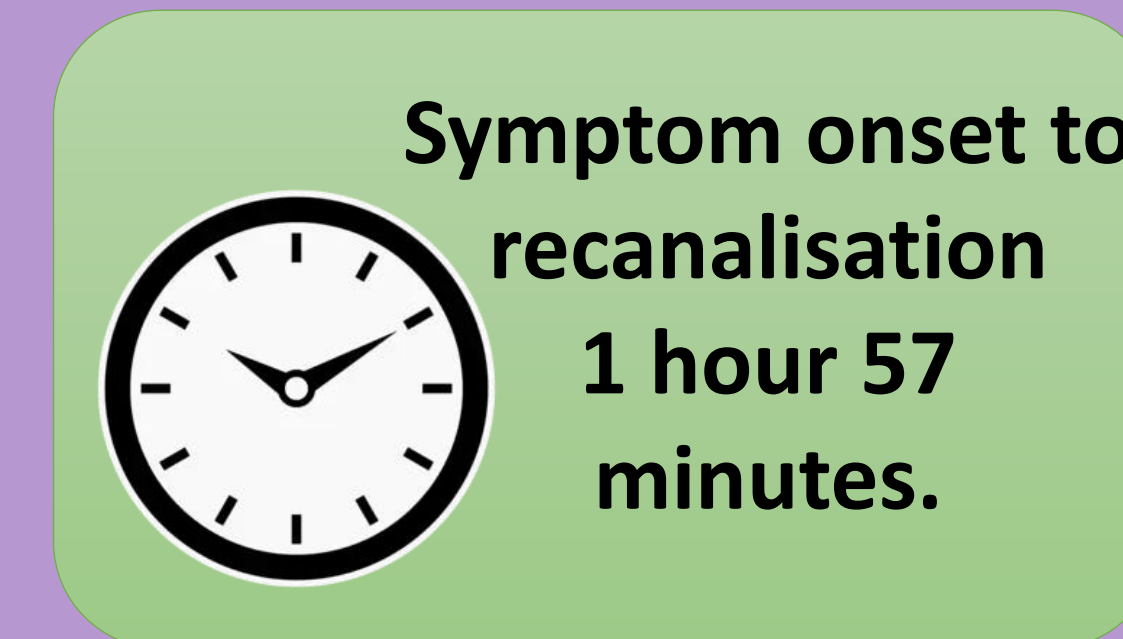
24 hours post thrombectomy, the patient’s NIHSS score was 0. A repeat CT scan revealed a small infarct in left basal ganglia, with “subtle higher level language difficulties” identified as the only remaining neurological deficit. Patient had an inpatient echocardiogram 2 days post procedure, with a positive bubble study indicating a patent foramen ovale. She was commenced on 300 mg aspirin and systemic anticoagulation (enoxaparin then apixaban) for 3 months. The patient was discharged home 3 days post delivery. Closure of PFO successfully completed within 6 months of thrombectomy.



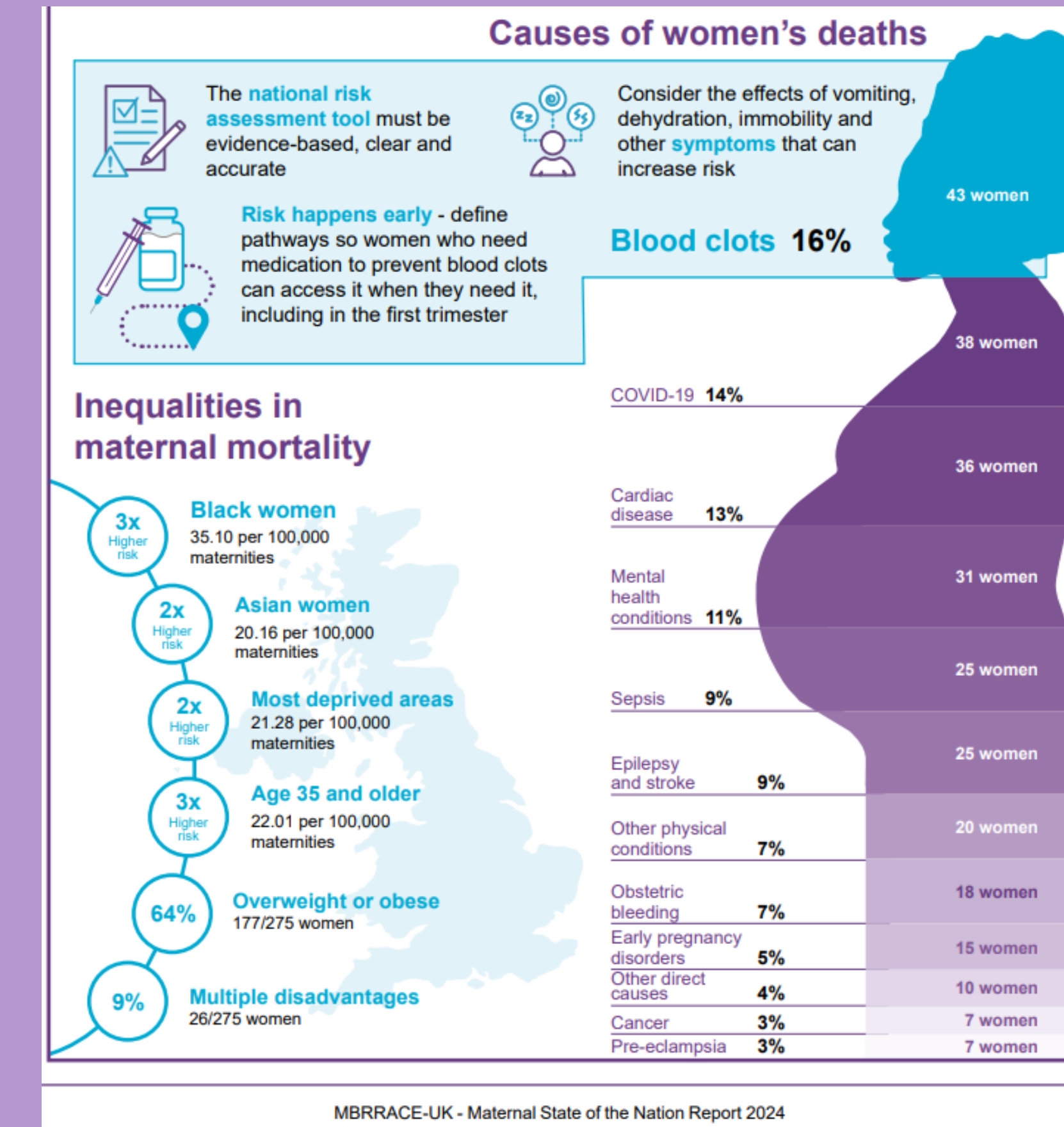
AI assessment of CT angiogram: large vessel occlusion (LVO) affecting the left middle cerebral artery



Final angiogram of thrombectomy procedure, recanalization achieved.



**Symptom onset to
recanalisation
1 hour 57
minutes.**



Key Learning Points

In the most recent MMBRACE report, cardiac disease and thrombus were amongst the leading cause of mortality. Stroke/epilepsy accounted for 9% of maternal deaths [1]. The number of patients with congenital cardiac disease surviving to childbearing age is increasing. The European society of cardiology’s classification of pregnancy risk with cardiac disease is used to guide pre conception counselling [2]. Patent foramen ovale is present in approximately 20-30% of healthy adults [3]. In diagnosed PFO, each patient should have multidisciplinary input during their antenatal care. This may include consideration of systemic anticoagulation. The incidence of stroke in pregnancy is 30 in 100,000. The management includes early CT brain, with a CT angiogram performed for all potential candidates for mechanical thrombectomy [4]. Thrombolysis may be performed if within 4.5 hours of symptom onset. Pregnancy and major surgery in previous 2 weeks are relative contraindications. Mechanical thrombectomy may be performed if large vessel occlusion, this must be within 6 hours of onset of symptoms, or if within 24 hours in select cases [5]. This case reinforced the importance of rapid clinical assessment, imaging and management of a patient with new onset neurological deficit. The short time between symptom onset and recanalisation reflected strong multidisciplinary team work and communication, alongside the earlier decision for the patient to be cared for in a facility with access to specialised teams, imaging and interventional radiology.

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