Supplemental Table 1: Case Reports of Intravenous or Intra-arterial Thrombolysis for Pregnant Women with Acute Ischemic Stroke

| **Author, year** | **Age**  **(years)** | **Gestational Age**  **(weeks)** | **Thrombo-lytic RX** | **Signs/**  **Symptoms** | **Associated**  **Comorbidities** | **Imaging** | **Additional Anti-coagulants** | **Potential Complications** | **Mode of Delivery** | **Maternal Outcome** | **Fetal Outcome** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dapprich,**  **2002 1** | 31 | 12 weeks | **IV rt-PA** | Right-sided hemiplegia and global  aphasia |  | CCT scan showed early hypodensity of the left  basal ganglia  Transcranial color duplex sonography (TCD) showed occlusion of the main stem of the left MCA | Secondary prophylaxis with low dose  aspirin & LMWH | MRI scan showed  Hemorrhagic transformation ischemic infarction of the left basal ganglia | VD | Near complete recovery | Healthy term |
| **Elford,**  **2002 2** | 28 | 1 week | **IA t-PA** | Left hemiplegia, dysarthria, left facial paralysis, drowsiness,  NIHSS=11  BP: 100-115/50-65 | Severe ovarian hyperstimulation syndrome, no evidence of thrombophilia | CT showed subtle ischemic changes in right cerebral artery distribution + posterior aspect of right basal ganglia  Angiography 4 hours after stroke onset: complete occlusion of right M1 segment of MCA | Discharged on low dose dalteparin then  stopped 2 months before delivery | Right basal ganglia hematoma | VD | At 3 months: Mild left inferior quadrantanopia, slight left leg sensory change, slight difficulty ambulating | Healthy term |
| **Weatherby, 2003 3** | 29 | 9 weeks | **Direct thrombolysis with tPA x2** | Bilateral papilloedema  and a left sided hemiparesis  Glasow Coma Score: 8 |  | Initial urgent CT  showed increased attenuation of  the superior sagittal sinus, with  some cerebral oedema. MRI/MRV showed absence of flow | Discharged on Fragmin (low dose) | None | VD | Full recovery | Healthy term |
| **Johnson,**  **2005 4** | 39 | 37 weeks | **IA rt-PA** | Left sided hemiplegia, left homonomous hemianopsia with left-sided  neglect, dysarthria, and left facial droop.  NIHSS=20  BP: 200/100 | Hx of chronic hypertension, untreated | Angiography: occlusion of middle M1 segment of the MCA | Discharged on LMWH | None | Forceps VD under epidural analgesia | At 2 months:  Neuro-logically normal | Healthy term |
| **Leonhardt,**  **2006 5** | 26 | 23 weeks | **IV rt-PA** | Dense right hemiparesis | Elevated IgG  and IgM anti-cardiolipin antibodies | Diffusion weighted MRI showed  hyperintensity of left basal ganglia and occlusion  of the MCA M1 segment | SQ LMWH | None | VD | Transferred to rehabilitation facility with extremity weakness | Healthy premature |
| **Wiese,**  **2006 6** | 33 | 13 weeks | **IV rt-PA** | Right sided hemipareis, expressive aphasia, normal vital signs  NIHSS=13 | Prosthetic mitral valve thrombosis, recent delivery 6 months prior with gestational diabetes | Noncontrast head CT: hypodensities in left caudate, putamen, anterior limb of internal capsule, left frontal horn effacement | Therapuetic enoxaparin | None | Repeat CD | Transferred to rehabilitation facility and improved to NIHSS=4 | Healthy term |
| **Murugappan,**  **2006 7** | 37 | 12 weeks | **IV rt-PA** | NIHSS=19 | MVR embolism | Right MCA occlusion | N/A | Intrauterine  Hematoma | N/A | Healthy | Medical termination of pregnancy |
| **Murugappan,**  **2006 7** | 31 | 4 weeks | **IV rt-PA** | N/A | Decreased  protein S  activity | Left MCA occlusion | N/A | None | N/A | Healthy | Medical termination of pregnancy |
| **Murugappan,**  **2006 7** | 29 | 6 weeks | **IV rt-PA** | NIHSS=13 | Aortic Valve Replacement embolism | Right MCA occlusion | N/A | N/A | N/A | Death from dissection during angioplasty | Death (potentially unrelated) |
| **Murugappan,**  **2006 7** | 43 | 37 weeks | **IA rt-PA** | NIHSS=25 | Anti-thrombin III, protein C and S  deficiencies | Left MCA occlusion | N/A | None | N/A | Healthy | Healthy |
| **Murugappan,**  **2006 7** | 28 | 6 weeks | **IA urokinase** | N/A | Protein C  and S  deficiencies,  patent foramen ovale | Basilar occlusion | N/A | Buttock hematoma managed conservatively | N/A | Healthy | Healthy |
| **Murugappan, 2006 7** | 40 | 6 weeks | **Local urokinase** | N/A | Polycythemia rubra vera, essential thrombolysis | Superior sagittal sinus thrombosis | N/A | Partial recanalization | N/A | Healthy | Fetal demise, chromosomal abnormality |
| **Murugappan, 2006 7** | 21 | 8 weeks | **Local urokinase** | N/A | + dilute Russel viper venom test | Cerebral venous thrombosis | N/A | Enlargement of IVC-related hemorrhage | N/A | Healthy | Medical termination of pregnancy |
| **Murugappan, 2006 7** | 25 | First trimester | **Local urokinase** | N/A | Bacterial endocarditis | Left MCA occlusion | N/A | Asymptomatic | N/A | Healthy | Spontaneous abortion |
| **Yamaguchi, 2010 8** | 36 | 18 weeks | **IV rt-PA** | Aphasia and right sided hemiparesis and decreased sensation  Right lip droop  NIHSS=6 | Hashimoto disease  (Embolic stroke) | MRI: Occlusion of left MCA high intensity areas | Treated with aspirin x 4 months and heparin until delivery | None | VD at 39 weeks | Recovery within a few hours | Healthy term |
| **Li,**  **2012 9** | 24 | #1. 11 weeks  #2. 13 weeks | **IA rt-PA** | Dysarthria, hemiparesis,  hemisensory loss  NIHSS=13  BP: 120/75  1 week later: facial numbness with normal neurologic exam | PFO large right to left shunt  Pulmonary arteriovenous malformation | #1. Ischemic stroke in left MCA  #2. 1 week later: Ischemic infartion vertebral basilar territory | Enoxaparin and aspirin |  | VD | Resolution of deficits, mild drift in right arm  Discharged with mild facial droop  Persistent right to left shunt | Healthy term |
| **Tassi,**  **2013 10** | 28 | 16 weeks | **IV rt-PA** | Motor aphasia, hemiparesis, and right sided hypoesthesia  NIHSS=20 | PFO large right to left shunt  Factor V Leiden MTHFR C667T gene | MRI/MRA showed signs of ischemia in the left cerebral hemisphere from ipsilateral MCA subocclusion | Aspirin | None | VD | At 24 hours: NIHSS =1, with slight motory aphasia | Healthy term |
| **Hori,**  **2012 11** | 35 | 13w3d | IV rt-PA | Left homonymous hemianopsia  Left hemiparesis  NIHSS=5 | Suspected embolic sources | MRI: Right posterior cerebral artery occlusion | Started on IV heparin then  warfarin at 15 weeks | None | CD under General Anesthesia at 38weeks | Left homonymous inferior quadrantanopia 4 days after rt-PA  Diagnosed with protein S deficiency, needs lifelong anticoagulation | Healthy |
| **Ritter,**  **2014 12** | 32 | 36 weeks | **IV rt-PA** | Dysphasia, dysarthria, right-sided hemianopia, neglect, dense right-sided hemiplegia,hemisensory loss.  NIHSS=22  Glasgow coma scale: 14 | Migraine with aura | CTA Head: occlusion of the left lower M2 segment with infarction of the left posterior insula and inferior temporal  lobe | Aspirin was started and continued until delivery and changed to Clopidogrel | None | CD | Mild residual right sided hemiplegia but fully independenet in all activities of daily living | Healthy term |
| **Ritchie,**  **2015 13** | 28 | 39 weeks | **IV rt-PA** | Left-sided hemiparesis and impaired sensation, left-sided facial weakness and  tongue deviation  NIHSS=11  BP: 132/61 | None | CT: No intracranial bleed  Post-thrombolysis MRI: lacunar-type stroke (LACS) of right MCA | Aspirin until delivery, and clopidogrel and prophylactic tinzaparin postpartum | None | Induced forceps VD | 8 months: full recovery | Healthy term |
| **Tversky,**  **2016 14** | 31 | 5 weeks | **IV rt-PA** | Slurred  speech, mild right hemiparesis, hemisensory loss  NIHSS=5 | Hx of ischemic stroke with prior pregnancy  Documented protein C and S deficiencies  Discontinued recommended LMWH  PFO right to left shunt  Documented DVT | CT: unremarkable (clinical diagnosis of stroke)  Post-thrombolysis MRI: left thalamic and internal capsular  infarct | Discharged on daily LMWH | None | N/A | At hospital day 2: neurologic symptoms resolved | N/A |
| **Festa,**  **2017 15** | 37 | 5 weeks | **IV rt-PA** | Left sided  Hemiplegia  NIHSS=8 | Hypertension, obesity  (BMI = 38), hx of rheumatic fever,  spontaneous abortion in her 20th week of pregnancy  5 months earlier  Presumed embolic etiology from aortic valve | MRI showed restricted diffusion in the right MCA territory without signal alteration in the T2 sequences or mismatch in the perfusion study | Aspirin, then LMWH | None | Scheduled CD | 3 months: modified Rankin Scale Score was 1  Mild sensory deficit | Healthy term |
| **Khan,**  **2017 16** | 33 | 9 weeks | **IV rtPA** | Right-sided hemiparesis, hemisensory loss,  dysarthria, homonymous hemianopia | Hx of 11 miscarriages  Substance use disorder  Smoker | Non-contrast CT-brain: no intracerebral haemorrhage or space occupying lesion  Repeat CT-brain post-thrombolysis demonstrated a  posterior cerebral infarct | Aspirin then long term clopidogrel | Trans-vaginal Ultrasound revealed a 9 week fetal pole with hemorrhage; no heart beat | Dilation and curettage | At discharge:  mild fine motor discoordination,  mild dysarthria and right homonymous hemianopia | First trimester loss |
| **Jiang,**  **2018 17** | 26 | 31 weeks | **IV rt-PA** | Right-sided hemiparesis  and mild slurred speech  NIHSS=6 | Hx of rheumatic fever  Systolic mitral murmur  Mitral regurgatation and prolapse on echocardiogram | CT: unremarkable clinical diagnosis of clinical stroke  Post- thrombolysis CT: multifocal small intracerebral  hemorrhages in left cerebellar hemisphere and right temporal cortex  MRI: multiple bilateral acute infarcts in the right caput nuclei caudati, left basal ganglia, and left corona radiata  corresponding to multiple cardioembolism. | LMWH then long-term warfarin therapy | None | VD | Fully independent, with no deficits | Healthy term |
| **Landais,**  **2018 18** | 32 | 13 weeks | **IV rt-PA** | Aphasia without motor deficit  NIHSS=3  BP: 132/85 | Hx of frequent palpitations  Assumed cardioembolic origin of stroke | MRI diffusion weighted  sequences: increased signal in the superficial territory of the left MCA  Prior stroke in the right MCA | Aspirin later switched to LMWH before delivery; then Coumadin postpartum | None | VD | Full recovery with only slight aphasia | Healthy term |

AVM= arteriovenous malformation; BMI= body mass index; BP=blood pressure; CD=cesarean delivery; CT/CTA= computed tomography/computed tomography angiography; DVT= deep vein thrombosis; Hx=history; IA= intra-arterial; IV rt-PA=intravenous recombinant tissue plasminogen activator; IV= intravenous; LMWH= low molecular weight heparin; MCA= middle cerebral artery; MRI/MRA= magnetic resonance imaging/magnetic resonance angiography; N/A= not available; NIHSS= National Institutes of Health Stroke Scale; PFO= Patent foramen ovale; SQ= subcutaneous; VD= vaginal delivery

Supplemental Table 2: Case Reports of Thrombectomy for Pregnant Women with Acute Ischemic Stroke

| **Author, Year** | **Age**  **(years)** | **Gestational**  **Age** | **Symptoms** | **Associated Comorbidities** | **Imaging** | **Anti-coagulation** | **Mode of Delivery** | **Maternal Outcome** | **Fetal Outcome** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Aaron, 2016 19** | 24 | Third trimester | Acute left hemiplegia, neglect, altered sensorium  NIHSS=20 | Prior Mitral Valve Replacement for rheumatic heart disease; on oral anticoagulant changed to LMWH | MRI: infarct involving the right lateral lenticulostriate territory  MRA: abrupt cut-off of the proximal Right MCA | Oral anticoagulation switched to LMWH before delivery and restarted on oral anticoagulation postpartum | VD | At discharge:  NIHSS=1  At 6 months: Rankin score =0 | Healthy term |
| **Aaron, 2016 19** | 28 | 37 weeks | Sudden dense left hemiplegia, drowsy  NIHSS=21 | Severe intrauterine growth retardation  Prior mitral stenosis, mitral valve replacement  Recent oral anticoagulant changed to LMWH | MRI: infarct involving the right putamen on the DWI and ADC. Cut off the right MCA in the proximal M1 segment | Oral anticoagulation switched to LMWH before delivery and restarted on oral anticoagulation postpartum | Emergency CD with spinal anesthesia | At discharge:  NIHSS=4  At 6 months:  slight disability; unable to carry out all previous activities, but mostly independent | Healthy term |
| **Bhogal, 2017 20** | 38 | 24 weeks | Global aphasia with deviated gaze to the left; complete right-sided hemiplegia; hemianaesthesia  NIHSS=15 | Previous substance use disorder  Patent foramen ovale | CT: hyperdensity along left MCA  MRI: restricted diffusion of left lentiform nucleus and insular cortex, no demarcation of cortical MCA territory | Before delivery:  Aspirin and clopidogrel Peripartum:  heparin  Postpartum aspirin clopidogrel | Emergent VD | At 8 years later: mild residual paresis of the right hand | Healthy term |
| **Bhogal, 2017 20** | 36 | 25 weeks | Unconscious | Hx operative reconstruction of ascending aorta after type A dissection | CT/CTA: distal occlusion of the basilar  artery but no definite infarction | Altepase  Aspirin and prasugrel | N/A | At discharge:  No residual neurological  symptoms apart from mild internuclear ophthalmoplegia | N/A |

ADC= Apparent Diffusion Coefficient; BP=blood pressure; CD=cesarean delivery; CT/CTA= computed tomography/computed tomography angiography; DWI= Diffusion Weight Imaging; Hx= history; LMWH= low molecular weight heparin; MCA= middle cerebral artery; MRI/MRA= magnetic resonance imaging/magnetic resonance angiography; N/A= not available; NIHSS= National Institutes of Health Stroke Scale; VD= vaginal delivery

REFERENCES

1. Dapprich M, Boessenecker W. Fibrinolysis with alteplase in a pregnant woman with stroke. *Cerebrovascular diseases (Basel, Switzerland).* 2002;13(4):290.

2. Elford K, Leader A, Wee R, Stys PK. Stroke in ovarian hyperstimulation syndrome in early pregnancy treated with intra-arterial rt-PA. *Neurology.* 2002;59(8):1270-1272.

3. Weatherby SJ, Edwards NC, West R, Heafield MT. Good outcome in early pregnancy following direct thrombolysis for cerebral venous sinus thrombosis. *J Neurol.* 2003;250(11):1372-1373.

4. Johnson DM, Kramer DC, Cohen E, Rochon M, Rosner M, Weinberger J. Thrombolytic therapy for acute stroke in late pregnancy with intra-arterial recombinant tissue plasminogen activator. *Stroke.* 2005;36(6):e53-55.

5. Leonhardt G, Gaul C, Nietsch HH, Buerke M, Schleussner E. Thrombolytic therapy in pregnancy. *Journal of thrombosis and thrombolysis.* 2006;21(3):271-276.

6. Wiese KM, Talkad A, Mathews M, Wang D. Intravenous recombinant tissue plasminogen activator in a pregnant woman with cardioembolic stroke. *Stroke.* 2006;37(8):2168-2169.

7. Murugappan A, Coplin WM, Al-Sadat AN, et al. Thrombolytic therapy of acute ischemic stroke during pregnancy. *Neurology.* 2006;66(5):768-770.

8. Yamaguchi Y, Kondo T, Ihara M, Kawamata J, Fukuyama H, Takahashi R. [Intravenous recombinant tissue plasminogen activator in an 18-week pregnant woman with embolic stroke]. *Rinsho shinkeigaku = Clinical neurology.* 2010;50(5):315-319.

9. Li Y, Margraf J, Kluck B, Jenny D, Castaldo J. Thrombolytic Therapy for Ischemic Stroke Secondary to Paradoxical Embolism in Pregnancy: A Case Report and Literature Review. *The neurologist.* 2012;18(1):44-48.

10. Tassi R, Acampa M, Marotta G, et al. Systemic thrombolysis for stroke in pregnancy. *Am J Emerg Med.* 2013;31(2):448 e441-443.

11. Hori H, Yamamoto F, Ito Y, Hashimoto Y, Hirano T, Uchino M. [Intravenous recombinant tissue plasminogen activator therapy in a 14-week pregnant woman with embolic stroke due to protein S deficiency]. *Rinsho shinkeigaku = Clinical neurology.* 2013;53(3):212-216.

12. Mantoan Ritter L, Schuler A, Gangopadhyay R, et al. Successful thrombolysis of stroke with intravenous alteplase in the third trimester of pregnancy. *J Neurol.* 2014;261(3):632-634.

13. Ritchie J, Lokman M, Panikkar J. Thrombolysis for stroke in pregnancy at 39 weeks gestation with a subsequent normal delivery. *BMJ case reports.* 2015.

14. Tversky S, Libman RB, Reppucci ML, Tufano AM, Katz JM. Thrombolysis for Ischemic Stroke during Pregnancy: A Case Report and Review of the Literature. *Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association.* 2016;25(10):e167-170.

15. Reining-Festa A, Foldy D, Coulibaly-Wimmer M, Eischer L, Heger M, Fertl E. Intravenous thrombolysis of stroke in early pregnancy: a case report and review of the literature. *J Neurol.* 2017;264(2):397-400.

16. Khan A, Hosseini P, Nevajda B, Khan S. Lesson of the month 2: Use of thrombolysis for ischaemic stroke in pregnancy - a case report and review of literature. *Clinical medicine (London, England).* 2017;17(6):581-583.

17. Jiang Z, Hu Z. Remote Intracerebral Hemorrhage Following Intravenous Thrombolysis in Pregnancy at 31 Weeks Gestation: A Case Report and Review of the Literature. *The neurologist.* 2018;23(1):19-22.

18. Landais A, Chaumont H, Dellis R. Thrombolytic Therapy of Acute Ischemic Stroke during Early Pregnancy. *Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association.* 2018;27(2):e20-e23.

19. Aaron S, Shyamkumar NK, Alexander S, et al. Mechanical thrombectomy for acute ischemic stroke in pregnancy using the penumbra system. *Annals of Indian Academy of Neurology.* 2016;19(2):261-263.

20. Bhogal P, Aguilar M, AlMatter M, Karck U, Bäzner H, Henkes H. Mechanical Thrombectomy in Pregnancy: Report of 2 Cases and Review of the Literature. *Interventional Neurology.* 2017;6(1-2):49-56.