

Perioperative Management of Dural Venous Sinus Thrombosis During Twin Pregnancy: A Case Report

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CASE HISTORY

30 year old G2P1 presented to ED at 7 weeks' gestation

Sudden onset aphasia and R sided hemiparesis

Prodrome of 5 days nausea, vomiting, and headaches

MRI demonstrated extensive cerebral venous sinus thrombosis (CVST):

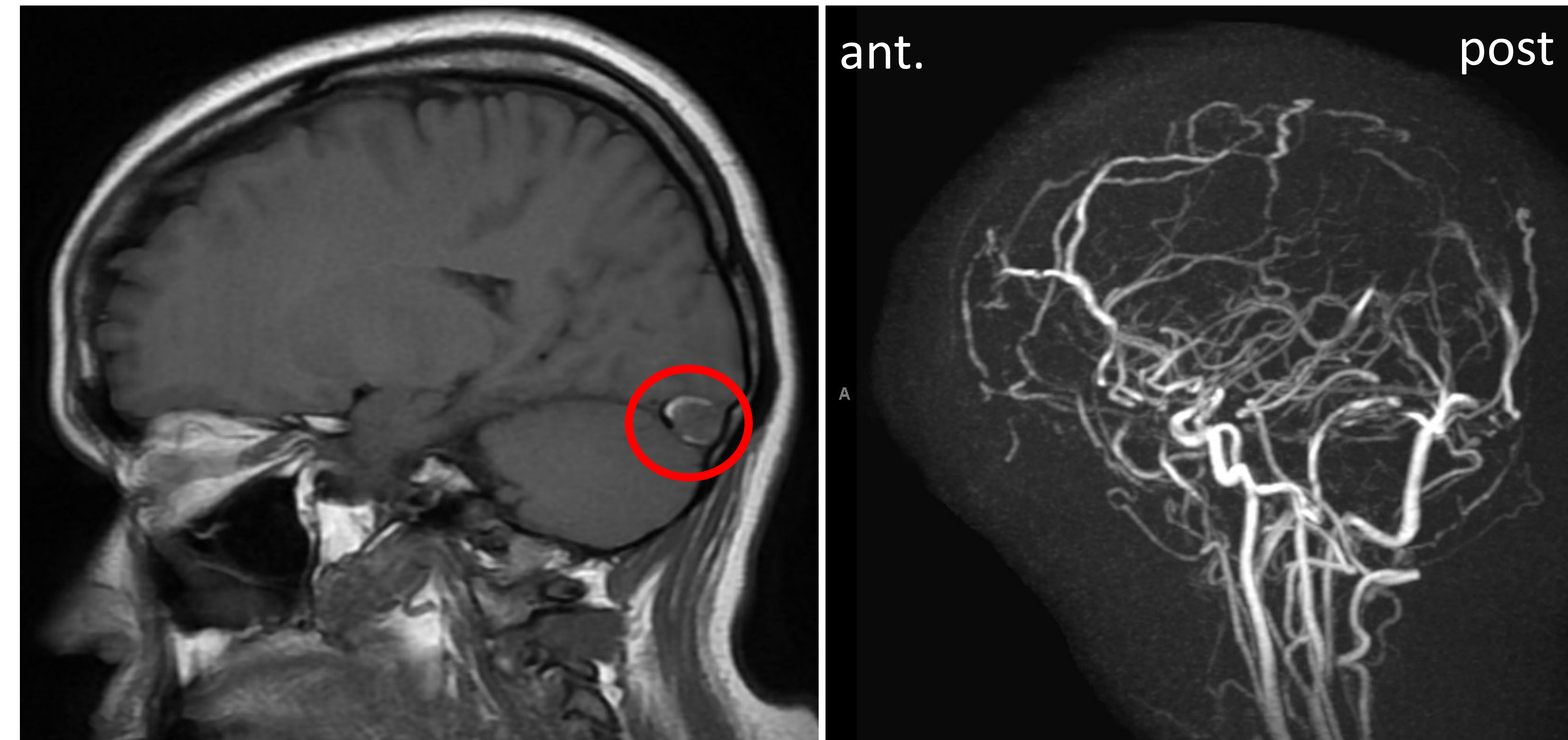
- R sigmoid sinus, both transverse sinuses, superior sagittal sinus, torcula herophili, vein of Galen, and straight sinus

Risk factors:

- Pregnancy
- Thrombophilia screen negative
- 3 doses of COVID vaccine >4 months prior

Treatment:

- Unfractionated heparin 24 hours → LMWH (dalteparin)
- Fluctuating neurology with asymmetric EEG → keppra
- Asymptomatic 5 days later



MR venogram taken at presentation to ED

Image on the left demonstrates thrombus within the R transverse sinus (circled)

Image on the right demonstrates underfilling of transverse sinuses and superior sagittal sinus

DECISION TO CONTINUE PREGNANCY

Maternal and Fetal Medicine review at 8 weeks' gestation

- Couple were grateful to have conceived
- Elevated risk of bleeding with medical or surgical termination

MDT PRIORITY: LOCATION OF DELIVERY

BCWH: obstetric-only hospital

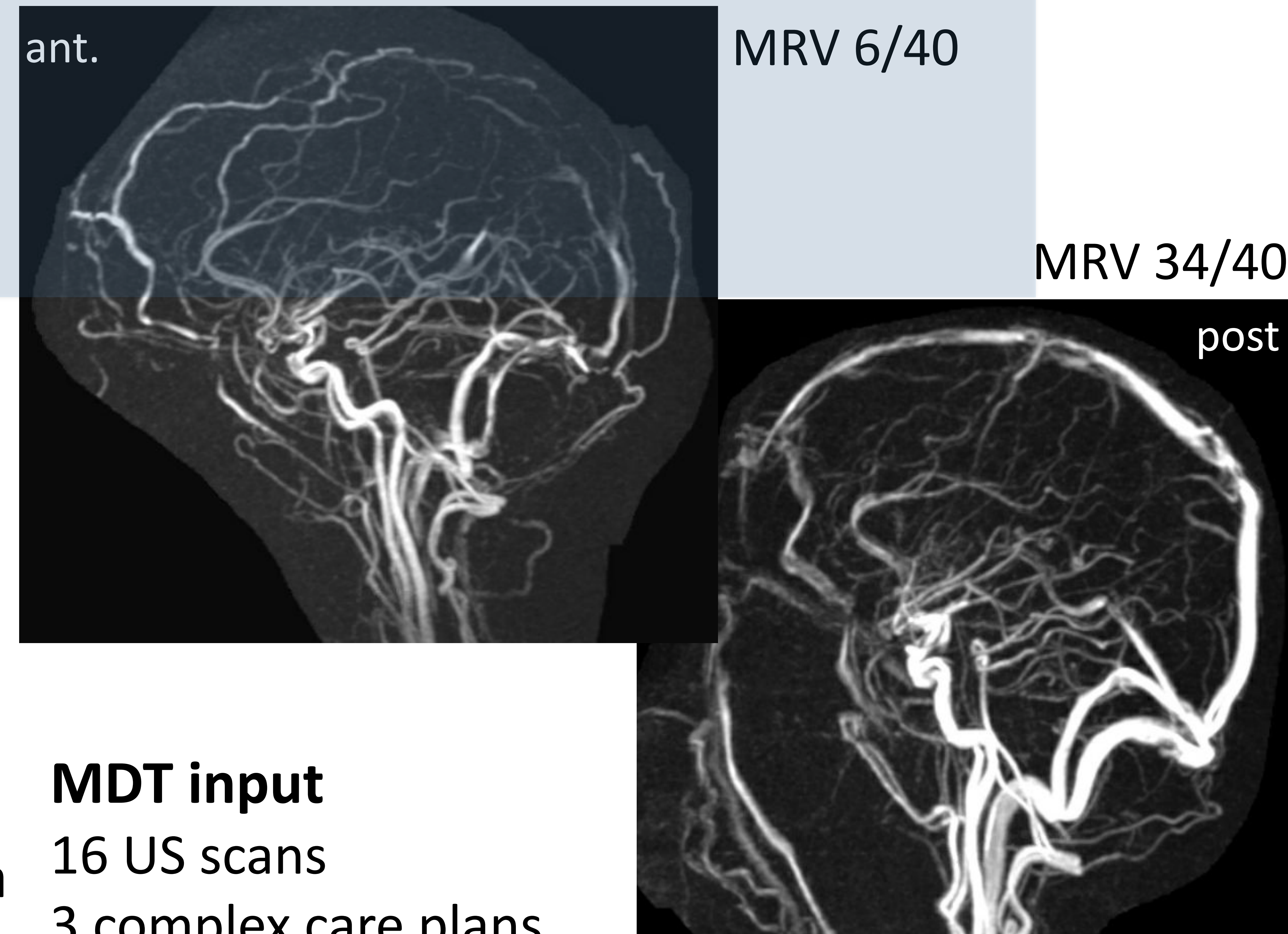
- ICU and speciality cover 20mins road transfer away
- Patient expressed strong preference at multiple appointments
- Location of all patient's antenatal scans and check-ups

Alternative site:

- Different care provider, still offers NICU, MFM and OB anesthesia
- Onsite interventional radiology and ICU

CESAREAN DELIVERY PLANNED FOR 35 WEEKS' GESTATION

- Previous Cesarean section
- Current twin pregnancy
- Need to minimize time off anticoagulation
- Risk of preterm labour or emergent delivery, without time for adequate reversal



MDT input

16 US scans
3 complex care plans
6 inpatient days
NST every 2 weeks from 25/40
11 OB/MFM reviews
7 Hematology reviews
3 neurology reviews
3 Anesthesia reviews
1 medical genetics
1 neonatal med rev

DISCUSSION

Many logistical concerns, with no local precedent or guidelines
Rare diagnosis – all-cause stroke affects 30 in 100 000 pregnancies¹
Highest stroke risk in peripartum period

Low risk of recurrence

- Decreasing clot burden
- No neurological symptoms

Close proximity of speciality assistance

- With an established history of cross-site cover

Emergency speciality interventions unhelpful in this case

- Thrombectomy is not 1st line management of CVST²
- No identifiable arterial thrombosis risk factors
- No identifiable intracranial hemorrhage risk factors

DELIVERY

C-section was completed under spinal anesthesia, EBL 400mL
Fetuses: Apgar scores (1 and 5 min) of 8 and 9, and 7 and 9
Dalteparin continues, with plan to review at 12 months postpartum

6+4/40	Diagnosis of CVST
7+2/40	Partial recanalization of sinuses, discharged from hospital
8/40	Maternal + Fetal Medicine Review Plan to continue pregnancy with eICS
18+5/40	Anesthesia clinic review Delivery location: BCWH (obstetrics only) vs multi-speciality hospital?
20+6/40	MRI: reduction in clot burden
30/40	amniocentesis with 72 hours off LMWH (48hrs before + 24hrs post)
33+6/40	MRI: nearly resolved clot burden 34+1/40 rpt anesthesia review
35+4/40	admitted for elective cesarean 35+5/40 cesarean section PP day 4 discharged from hospital

References: 1) Canadian Stroke Best Pracices Guidelines (updated Nov 2017)
2) Saposnik G et al, Diagnosis and Management of Cerebral Venous
Thrombosis, *Stroke* vol 42 no 4, Feb 2011