

17 Year Old Female with Emesis

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HISTORY OF PRESENT ILLNESS

- 17 year old Caucasian female with trisomy 21, developmental delay and menorrhagia controlled with transdermal combined hormonal contraception presented with four days of non-projectile emesis associated with unsteady gait, pallor, irritability, weight loss and diffuse abdominal pain. Prior to admission, she was diagnosed with a urinary tract infection while in the emergency room and treated with 1 dose of ceftriaxone. Three days later, the patient was admitted for continued emesis thought to be secondary to failure of treatment for presumptive urinary tract infection or possible acute gastritis.

PHYSICAL EXAM

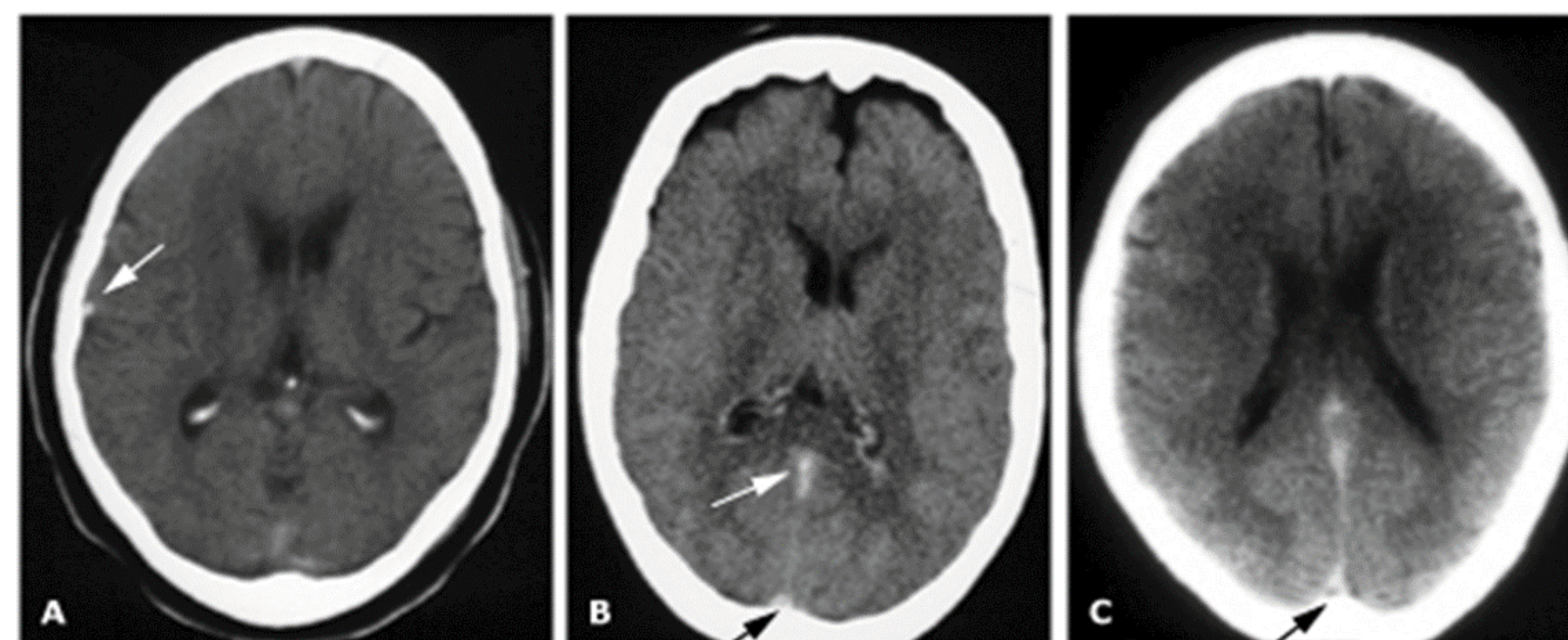
- Vitals: BP 102/76 | Pulse 68 | Temp 36.4 °C | Resp 20 | Wt 53.2 kg
- General: Anxious but no acute distress, non toxic appearing. Limited exam due to patient cooperation.
- HEENT:
 - Normocephalic, No lesions or lacerations.
 - PERRLA, EOMI, Conjunctivae clear. No injection, discharge, edema, ptosis.
 - Pale and dry lips.** Oral pharynx pink. Moist mucous membranes. No lesions or exudates. Tonsils symmetric, no injection, no exudates.
 - No significant cervical/axillary tenderness or adenopathy.
- Respiratory: Lungs clear to auscultation, normal respiratory effort.
- CVS: RRR. No murmurs/gallops/rubs. Normal S1, S2.
- Abdomen: **Hypoactive bowel sounds.** Soft, NT.
- Musculoskeletal: **Slow waddling gait.** Normal pulses. Femoral pulses normal. Pulses 2+ and equal (symmetric). Full range of motion in extremities. No clubbing, cyanosis or edema.
- Neuro: **Developmental delay-cognitive.** Follows simple commands. Can say a few words, no sentences. CN grossly intact.

HOSPITAL COURSE/OUTCOME

- The patient had seizures and headache the day following admission. Electroencephalogram showed diffuse encephalopathy and phosphoryntoin was started. Ophthalmology was unable to visualize her fundi due to patient non-compliance. The patient's mother recalled that she had a deep venous thrombosis while pregnant treated with continuous intravenous heparin. MRI and MRV revealed dural venous sinus and cortical vein thrombus. The patient was treated with enoxaparin sodium. Laboratory studies were sent to determine the cause and have been negative thus far. All symptoms resolved and she was discharged with hematology follow-up.

SIGNIFICANT LABS / IMAGING

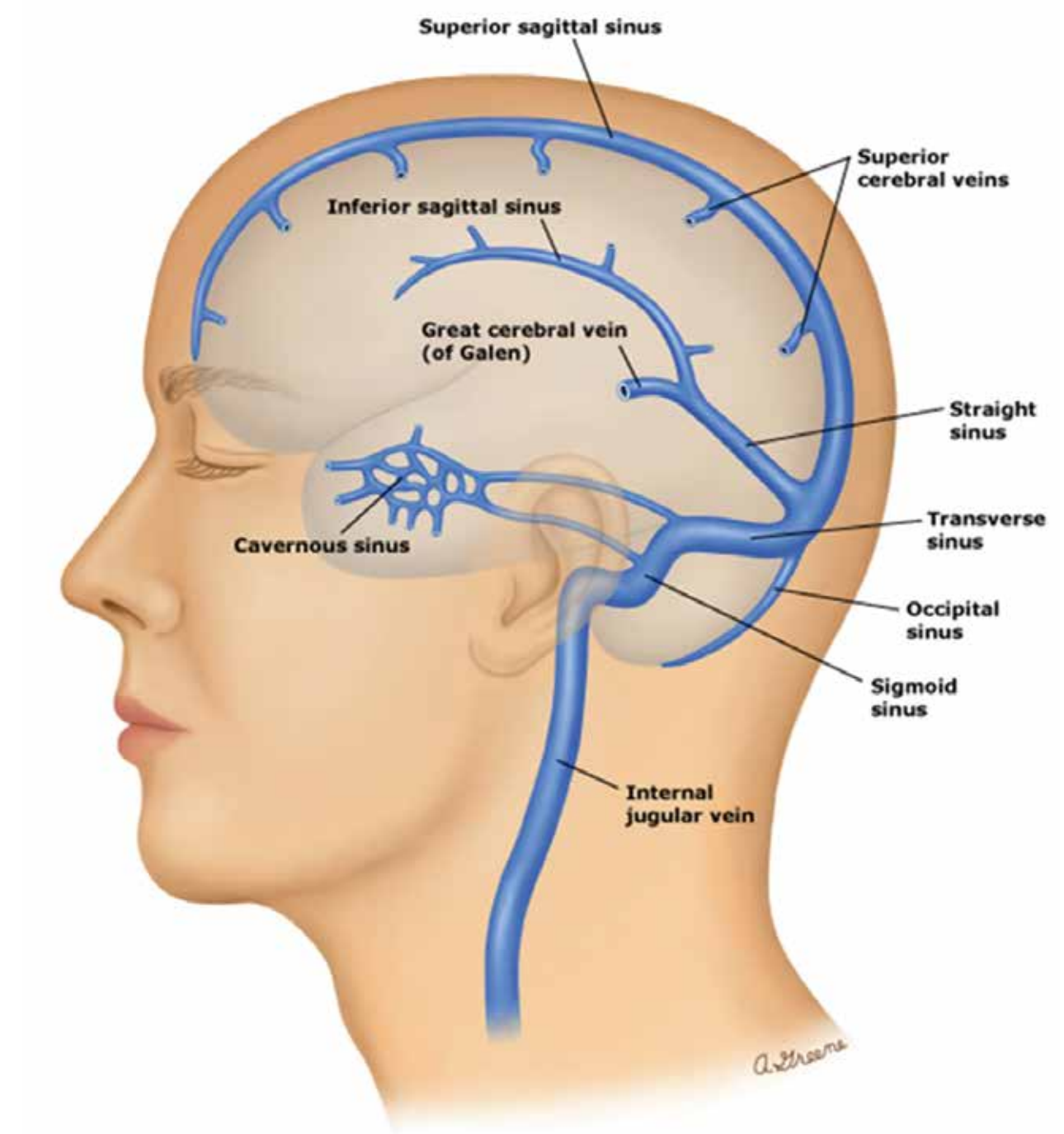
- EEG: Mild diffuse encephalopathy. Slowing wave forms may be result of seizures but can not be clearly delineated.
- Head CT: 4mm hyperdensity left temporal lobe, choroidal fissure.
- LP: Attempted and unsuccessful.
- MRI and MRV: Dural venous sinus and cortical vein thrombus with areas of venous infarct in the right posterior frontal lobe in the region of the superior frontal gyrus and in the region of the left middle temporal gyrus.



- A) Noncontrast head CT shows a hyperdense thrombosed cortical vein (arrow);
 B) Noncontrast head CT shows a hyperdensity in the torcula (black arrow) and the straight sinus (white arrow), a direct sign of dural sinus thrombosis (the dense triangle sign);
 C) Head CT shows non-filling of the confluent sinus after contrast injection (the empty delta sign).

CEREBRAL VENOUS THROMBOSIS

- Cerebral venous thrombosis (CVT) refers to occlusion of venous channels in the cranial cavity, including dural venous thrombosis, cortical vein thrombosis and deep cerebral vein thrombosis.
- Two different mechanisms** that may contribute to the clinical features of CVT
 - Thrombosis of cerebral veins or dural sinus leading to **cerebral parenchymal lesions or dysfunction.**
 - Occlusion of dural sinus resulting in **decreased cerebrospinal fluid (CSF) absorption** and **elevated intracranial pressure.**
- Diagnosis with MRI using gradient echo T2 susceptibility-weighted sequences in combination with magnetic resonance (MR) venography is the most sensitive imaging method for demonstrating the thrombus and the occluded dural sinus or vein
 - Head CT is normal in up to 30 percent of CVT cases, and most of the findings are nonspecific
- Cerebral venous thrombosis (CVT) can result in death or permanent disability, but usually has a favorable prognosis.
 - The risk of recurrent CVT is approximately 2 to 4 percent, while the risk of recurrent venous thromboembolism in other locations ranges from 4 to 7 percent.
- While the overall aim of treatment for cerebral venous thrombosis (CVT) is to improve outcome, the immediate goals of antithrombotic treatment are:
 - To re-canalize the occluded sinus/vein,
 - To prevent the propagation of the thrombus, namely to the bridging cerebral veins,
 - To treat the underlying pro-thrombotic state, in order to prevent venous thrombosis, in other parts of the body, particularly pulmonary embolism.
- The main treatment option to achieve these goals is anticoagulation, using either heparin or low molecular weight heparin (LMWH).



DISCUSSION

- Cerebral venous thromboses are uncommon, but have been shown to have higher incidence in women, particularly those on combined hormonal contraception, with infections or with prothrombotic conditions. Signs and symptoms include headache, vomiting, seizures, and encephalopathy. Our patient also had multiple factors which complicated her diagnostic assessment. Her mother had a history of deep venous thrombosis which was revealed later in the patient's course. In addition, the patient's developmental delay complicated her neurological exam and her symptoms were consistent with multiple possible diagnoses. This case highlights that obtaining a history is an ongoing process and a broad list of differential diagnoses should always be considered.

REFERENCES

- Ferro, JM & Canhao, P. Etiology, clinical features, and diagnosis of cerebral venous thrombosis. In: UpToDate, Kasner, SE (Ed), UpToDate, Waltham, MA. (January 30, 2015.)
- Ferro, JM & Canhao, P. Treatment and prognosis of cerebral venous thrombosis. In: UpToDate, Kasner, SE (Ed), UpToDate, Waltham, MA. (May 05, 2015.)