

Cerebral venous sinus thrombosis

Characteristics

- Rare cause of stroke, affecting both sexes equally.
- *Risk factors*
 - Septic causes (esp. in childhood):
 - mastoiditis, facial cellulitis, meningitis, encephalitis, brain abscess, intracranial empyema.
 - Aseptic causes:
 - Hypercoagulable states:
 - polycythemia rubra vera, idiopathic thrombocytosis, thrombocytopenia, pregnancy, oral contraceptive pill.
 - Low-flow state:
 - CCF, shock.
- In one-third of patients no aetiology is found.

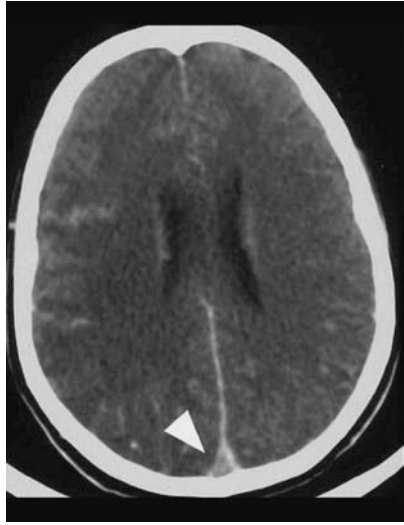
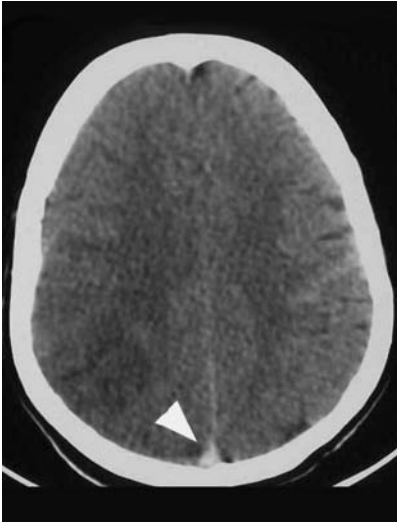
Clinical features

- Classically presents with sudden, severe headache, worsened by coughing and associated with vomiting.
- Focal neurological deficit may be seen if venous infarction occurs. Cranial nerve palsies are characteristic.
- Seizures may occur.
- Sigmoid sinus thrombosis causes cerebellar signs and lower cranial nerve palsies.
- Periorbital oedema and chemosis are seen with cavernous sinus thrombosis.
- Fundoscopy may show papilloedema or retinal vein thrombosis.

Radiological features

CT features

- CT may be normal.
- *Non-contrast CT*
 - Hyperdense material within a vessel representing thrombosed blood. Not reliable as also seen with slow flowing blood.
 - Cerebral infarction not characteristic of an arterial territory.
- *Contrast CT*
 - Look for the 'delta'/'empty triangle' sign (seen in $\approx 70\%$). This is a filling defect within the straight/superior sagittal sinus, and represents flow around a central non-enhanced clot.
 - Gyral enhancement peripheral to an infarct, in 30–40%.
- Co-existing signs of infection or inflammation (e.g. sinusitis/mastoiditis) should raise suspicion.



Sagittal sinus thrombosis. Scans pre- and post-contrast. On the pre-contrast study, hyperdense material is seen within the sagittal sinus. This is an unreliable sign for acute thrombus. However, following contrast, the 'delta' sign is clearly visible.



Venous haemorrhage in the left frontoparietal cortex due to sagittal sinus thrombosis.

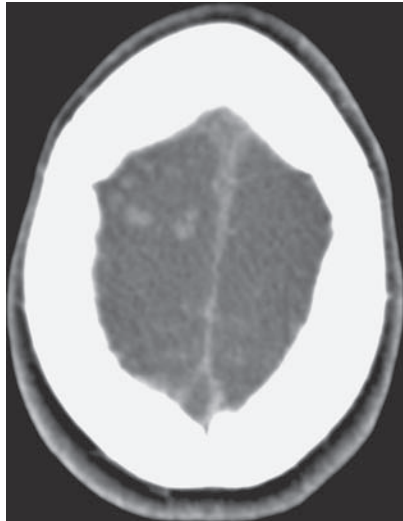


Image from a CTV demonstrating a filling defect in the SSS anteriorly and posteriorly, representing thrombus. The foci of haemorrhage in the right frontal parenchyma are typical of those seen with sinus thrombosis.