

Chronic deep venous thrombosis of the petrosal sinus causing multiple cranial nerve palsy

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A 72 year old gentleman was referred for an MRI study of the brain for evaluation of long standing trigeminal neuralgia and right sided 6th nerve paralysis of more than 2 year duration. He had a history of deep venous thrombosis of the lower limbs for which he had been on warfarin which was later discontinued. There were no findings suggestive of raised intracranial pressure.

MRI revealed thrombosis of the right sigmoid sinus with extension of thrombus into the petrosal sinus in relation to the 6th and 5th cranial nerves (Figures 1 a and 1b).

The findings were subsequently confirmed by a CT venogram (Figures 2a, 2b, 3a and 3b).

Cerebral venous sinus thrombosis is a well described cause for multiple cranial nerve syndromes.¹ This could result from oedema, infarction, haemorrhage, direct pressure, or raised intracranial pressure.²

The appearance of the thrombus within the sinuses on MRI varies with the age of the thrombus. The signal may sometimes be hypointense on T2-weighted images as seen in our case and mistaken for a flow void.³ This is more often seen in cases of acute thrombus. Therefore, radiologists should be well aware of this fact when interpreting MRI. The thrombus is easier to identify during the subacute stage when it is bright on both T1-weighted and T2-weighted images.

Thrombosis of the inferior petrosal sinus secondary to infection with resultant Abducens nerve palsy has been recently described in literature.⁴ In our patient both the superior and the inferior petrosal sinus appeared thrombosed. The direct pressure from the distended and thrombosed petrosal sinuses probably accounted for the symptoms in our patient.

Unfortunately, we had no clinical follow up for this patient with regards to improvement of his symptoms following anticoagulation.

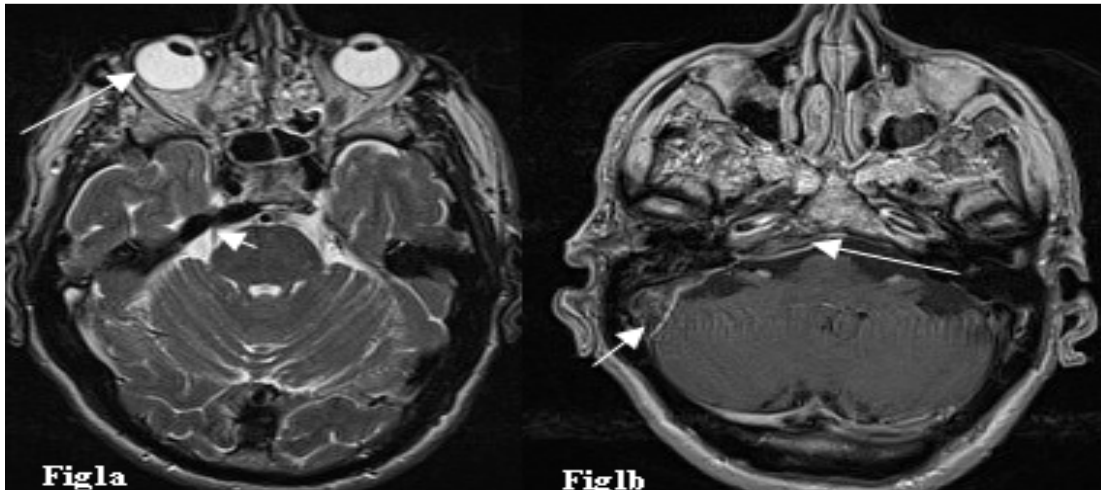


Figure 1a. Axial T2-weighted image of the brain shows a medially deviated right eye globe consistent with right 6th nerve palsy (long white arrow). The right trigeminal nerve is being impinged upon by a hypointense abnormality along the right petrous ridge (short white arrow).

Figure 1b. Contrast enhanced axial T1-weighted image shows thrombus within a distended sigmoid sinus (short white arrow) extending into the right inferior petrosal sinus (long white arrow). The hypointense signal within the left transverse sinus and the confluence is flow related and not due to thrombus as confirmed by the CT venogram.

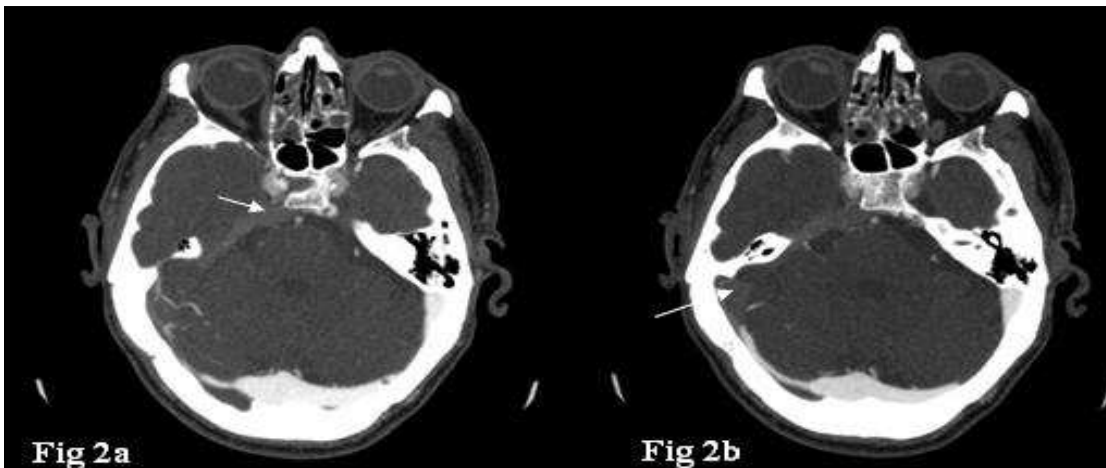
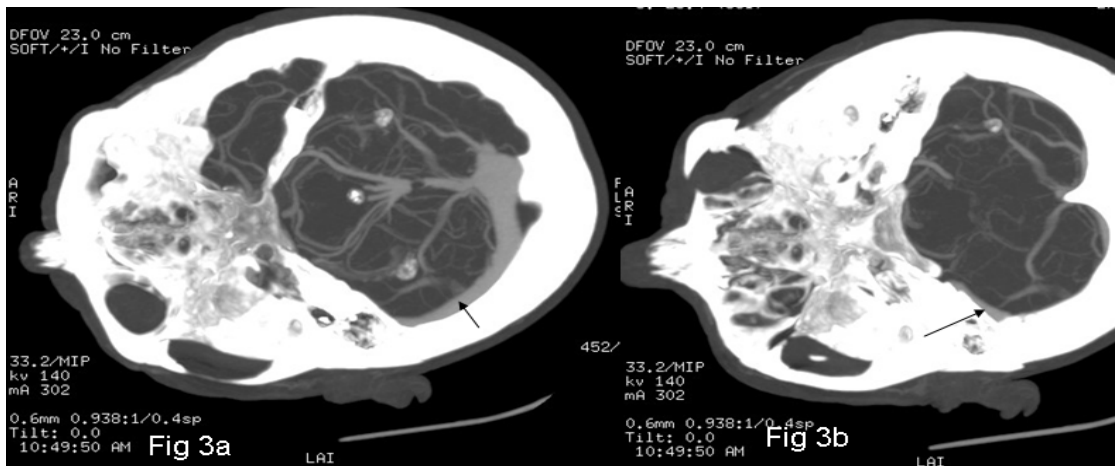


Figure 2a. Axial CT venogram study confirms thrombus in the right superior petrosal sinus (short white arrow).

Figure 2b. Axial CT venogram study shows thrombus in the right sigmoid sinus. The right transverse sinus is hypoplastic but patent. The left sigmoid and transverse sinuses are patent; this shows normal enhancement.



Figures 3a and b. Axial reconstructed MIP images (Inferior view) show normal left transverse sinus (short black arrow) and left petrosal sinus (long black arrow). The corresponding right petrosal sinus is not visualized.

References

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