

A rare case of Bilateral Cerebellar Infarction

Dr Bharath Kumar Cheripelli, Senior House Officer (F2)

Dr Mujtaba Ahmed, Senior House Officer

Dr Aman Anand, Senior House Officer

Dr Peter Carr, Consultant Physician

Dr Herwig Thibaut, Consultant Radiologist

Department of Medicine, Darlington Memorial Hospital.

Correspondence to Peter.Carr@cddft.nhs.uk

Abstract:

A 55 year old male presented with headache, dysarthria, dizziness, and left sided weakness. An MR angiogram revealed bilateral cerebellar haemorrhagic infarcts due to left sigmoid sinus thrombosis. There was no predisposing cause for this presentation and imaging played a vital role in diagnosis.

Introduction:

Cerebral (dural) venous sinus thrombosis (CVST) is an uncommon condition, but its clinical presentation is varied and often dramatic. It often affects young to middle-aged patients - more commonly women. Although recognized for more than 100 years,¹ it has only in recent years come to be diagnosed frequently. This is partly due to greater awareness among physicians and neurologists, and partly to improved non-invasive imaging techniques.

Case Report:

A 55-year-old Caucasian male presented to our hospital complaining of sudden onset of dysarthria. There was associated severe occipital headache, dizziness and left sided weakness.

He had been a healthy man and was not on any medication. He drank 20 units of alcohol every week and had been binge drinking the night before. There was no significant family history.

On examination he was dysarthric and power was reduced in all limbs. The reflexes were brisk with an extensor plantar response on the left. There was horizontal nystagmus on left lateral gaze and co-ordination was impaired on both sides. He had mild neck rigidity and the rest of the examination was unremarkable.

Initial investigations including full blood count, electrolytes, CRP, liver function tests and clotting profile were normal; ESR was raised at 64 mm/hr.

CT scan revealed reduced attenuation in cerebellar white matter bilaterally with relative hyper attenuation over the tentorium and cerebellar cortex (Fig1)

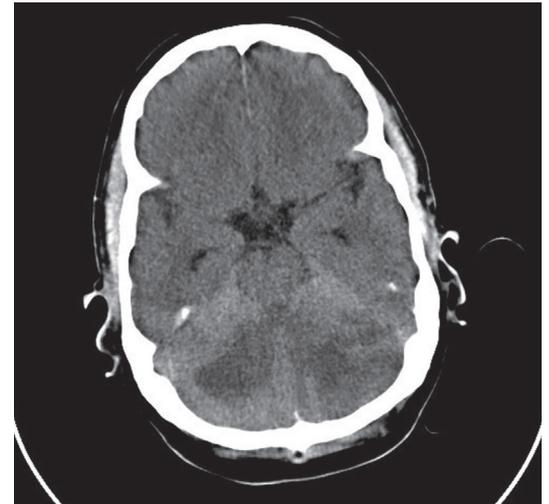


Fig.1

M R revealed bilateral cerebellar haemorrhagic infarcts with the left side more affected than the right (Fig 2). It also demonstrated thrombus in left sigmoid and jugular veins (Fig 3, 4)

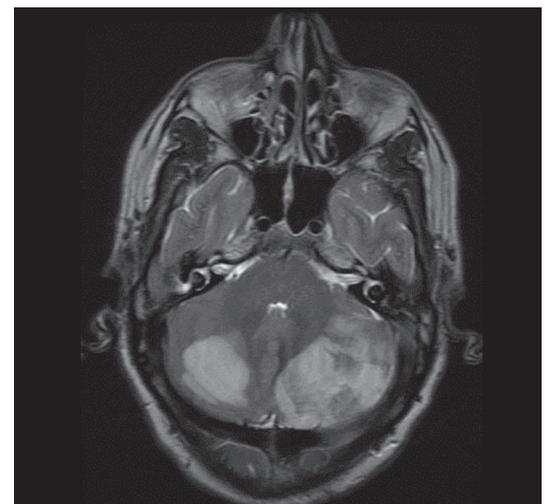


Fig. 2

Axial T2 image showing bilateral cerebellar infarcts

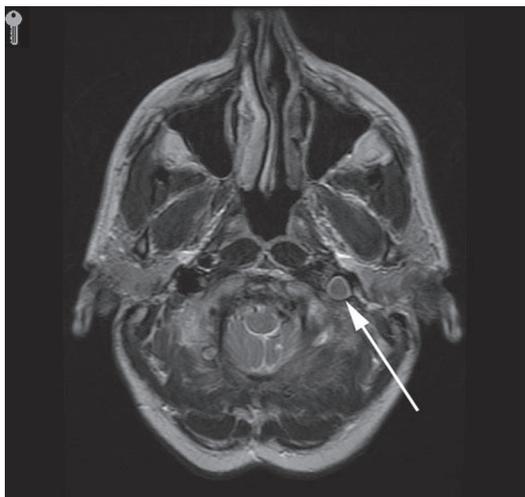


Fig. 3
Axial T2 image showing Clot in left Jugular Vein

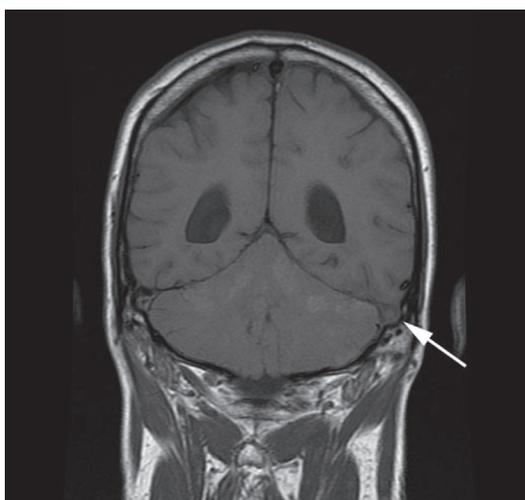


Fig. 4
Coronal T1 image showing Clot in left sigmoid sinus

He was managed conservatively. The power in the limbs improved over 5-6 days but mild dysarthria persisted for 4 weeks.

Six weeks later a repeat MR Venogram revealed patent Sigmoid Sinus on left side (Fig 5)

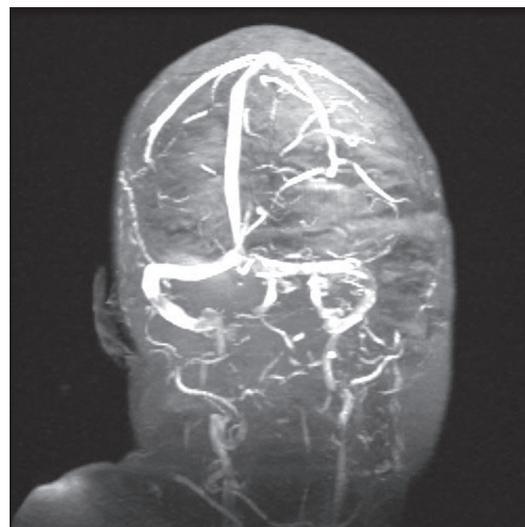


Fig. 5
Venogram showing patency in left sigmoid sinus.

Discussion:

CVST is an uncommon condition that can present with a wide spectrum of symptoms and signs. Headache is the most common in 70-90% of cases. Focal deficits such as hemiparesis and hemisensory disturbance, seizures, impairment of consciousness and papilloedema occur in one-third to three-quarters of cases^{1,2,5}. The onset may be acute, subacute or insidious. CVST is slightly more common in women of child bearing age^{1,5}. Although all ages can be affected, mean age in most studies was between 37 and 38 years. Haemorrhagic infarction occurs in approximately 10-50% of cases, principally affecting the cortex and adjacent white matter^{2,3}.

Common aetiologies include systemic inflammatory diseases, inherited as well as acquired coagulation disorders, low flow states, dehydration, adjacent infectious processes, oral contraceptives, hormonal replacement therapy, pregnancy, and puerperium^{2,4,5,6,7}. In 20-30% of cases of CVST extensive search reveals no underlying cause, ^{1,8} indicating the need for close follow-up.

It is an elusive diagnosis because of its non-specific presentation and its numerous predisposing causes but needs to be considered in the differential diagnosis of a stroke. Improvements in non-invasive imaging techniques enable the

diagnosis to be confirmed⁹. Magnetic resonance imaging with venography is the investigation of choice; Computed tomography alone misses a number of cases.

It has now been conclusively shown that intravenous heparin is the first-line treatment for cerebral venous sinus thrombosis¹⁰. Local thrombolysis may be indicated in cases of deterioration, despite adequate heparinisation and this should be followed by oral anticoagulation for 3-6 months. A randomised control study found no significant increase in cerebral haemorrhage in patients treated with heparin, even in those with pre-existing bleeds at presentation¹¹. Soleau et al. and Buccino et al. (2003), after retrospective review, concurred that in the presence of intracranial haemorrhage, anticoagulation may be given.

Because of the generally good prognosis and variable clinical presentation^{1,2} of CVST, its recognition remains a challenge for the clinician. A high index of clinical suspicion is needed to diagnose this uncommon condition so that appropriate treatment can be initiated.

References

1. **Bousser MG.** Cerebral venous thrombosis: nothing, heparin or local thrombolysis. *Stroke* 1999; **30**:481-3.
2. **Villringer A, Mehraen S, Einhäupl KM.** Pathophysiological aspects of cerebral sinus venous thrombosis. *J Neuroradiol* 1994;**21**:72-80
3. **Bousser MG, Barnett HJM.** Cerebral venous thrombosis. *Stroke: pathophysiology, diagnosis and management*, 2nd edn. New York: Churchill-Livingstone, 1992;517-537.
4. **Vandenbroucke JP.** Cerebral sinus thrombosis and oral contraceptives. *BMJ* 1998;**317**:483-484
5. **Bousser MG, Chiras J, Bories J, Castagne P.** Cerebral venous thrombosis - a review of 38 cases. *Stroke* 1985;**16**:199-213.
6. **Buonanno FS, Moody DM, Ball TLM.** CT scan findings in cerebral sinus venous occlusion. *Neurology* 1982;**12**:288-292.
7. **Provenzale JM, Joseph GJ, Barboriak DP.** Dural sinus thrombosis: findings on CT and MRI imaging and diagnostic pitfalls. *AJR* 1998;**170**:777-783.
8. **Gates PC.** Cerebral venous thrombosis: a retrospective review. *Aust NZ J Med* 1986;**16**:766-770
9. **Buccino et al., 2001; Buccino et al., 2003; Ekseth et al.; Frey et al.; Patel et al.**
10. **Baker et al.; Buccino et al., 2001; Buccino et al., 2003; Chow et al.; deBruijn et al. 2000; Ekseth et al.**
11. **Einhaupl K, Villringer A, Meister W, Mehraein S, Garner C, Pellkofer M, Haberl R, Pfister HW, Schmiedek P.** Heparin treatment in venous sinus thrombosis. *Lancet* 1991; **338**:597-600.

Address for correspondence:

Dr Bharath Kumar Cheripelli
Specialist Registrar (ST1)
Aberdeen Royal Infirmary
Aberdeen
AB25 2ZN

OR

Dr Peter Carr
Consultant Physician
Darlington Memorial Hospital
Darlington
DL3 6HX