Perimesencephalic non-aneurysmal subarachnoid haemorrhage

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DESCRIPTION

A 51-year-old woman, without any relevant personal or family history, presented to the emergency department with acute severe occipital headache.

She has no focal neurological deficits or meningeal signs on examination.

Her funduscopy was normal.

Routine bloods including full blood count, renal profile, coagulation screening and cardiac enzymes were unremarkable.

Her baseline chest X-ray and ECG were also normal.

An initial non-contrast CT of the brain was reported as normal.

However, her subsequent CSF analysis at 12 hours post onset of symptoms revealed the presence of red blood cells (14 800/cmm in Tube 1 and 15 000/cmm in Tube 3) and xanthochromia, which raised the suspicion that a careful check of the CT images is needed.

The subtle perimesencephalic haemorrhage was seen on the subsequent review of the axial view (figure 1A) and sagittal view (figure 1B) of the CT brain, with a characteristic distribution of cisternal blood in which the centre of the bleeding located immediately anterior to the brainstem.[1]

CT cerebral angiography did not show any evidence of cerebral aneurysm or arteriovenous malformation.

MRI of brain and magnetic resonance angiography also revealed no intracranial vascular abnormality.

Diagnosis of perimesencephalic non-aneurysmal subarachnoid haemorrhage (PMNASAH) was established based on the radiological features and lumbar puncture results.

She received prophylactic Nimodipine and made a good recovery prior to being discharged home.

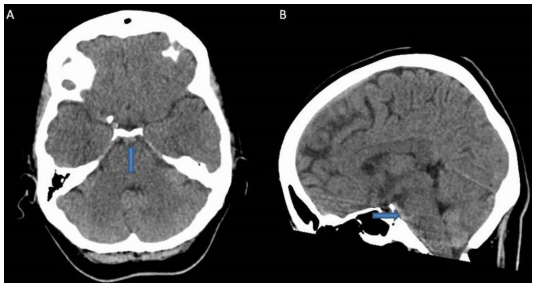

Figure 1 (A) Axial view of CT brain showing perimesencephalic subarachnoid haemorrhage (arrow). (B) Sagittal view of CT brain showing perimesencephalic subarachnoid haemorrhage (arrow).

PMNASAH is a subset of subarachnoid haemorrhage (SAH) with characteristic pattern of localised haemorrhage on CT brain, normal cerebral angiography and a benign course.[2]

The mean age of occurrence is between 50 and 55 years.

It is a rare condition with an overall annual incidence rate of 0.5 per 100 000 persons over 18 years of age.[3]

It represents 5% of all SAH and one-third of non-aneurysmal subarachnoid haemorrhage (NASAH).

The most common hypothesis is that PMNASAH is of venous origin and intracranial venous hypertension plays an important role in the pathogenesis of PMNASAH.[4]

The clinical presentation is otherwise similar to those patients with aneurysmal SAH: with sudden headache, meningism, photophobia, nausea and vomiting being the most common symptoms.

Minor PMNASAH can be missed on the CT brain; hence any patient with high index of clinical suspicion of SAH should undergo routine lumbar puncture. A clinical decision rule improves diagnostic yield by selecting patients requiring further evaluation with lumbar puncture following negative CT brain.[5]

CT angiography is generally the next investigation of choice if there is evidence of SAH on initial CT brain.[6]

Diagnostic cerebral angiography is recommended as aneurysm rupture may produce similar pattern of bleeding.

Learning points

- Perimesencephalic non-aneurysmal subarachnoid haemorrhage (PMNASAH) can be a diagnostic challenge, especially in an alert, neurologically intact patients.
- The perimesencephalic region should be reviewed in all patients undergoing CT scan for suspected subarachnoid haemorrhage (SAH).
- It is really important to have a second look at the CT if the clinical suspicion of SAH is high.
- PMNASAH is a benign variant of SAH and accounts for approximately one third of all non-aneurysmal SAH.
- Non-contrast CT of the brain is the initial investigation of choice while angiogram is the gold standard for the diagnosis of SAH.

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In majority of cases, the aetiology remains unknown and there are no specific treatments for PMNASAH.

Prompt diagnosis and early recognition of PMNASAH is prudent as it carries an excellent long-term prognosis with good clinical outcomes compared with aneurysmal SAH.

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