



# ENDGAMES



## SPOT DIAGNOSIS

### An unusual cause of headache

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A 64 year old woman presented to the emergency department with a history of sudden onset severe generalised headache after waking, associated with nausea. She had no medical history. On examination, the pain had not eased but she appeared alert with no other discernible features. She underwent a computed tomography scan of the head (fig 1). What is the diagnosis, and are further investigations warranted?



Axial unenhanced computed tomography section at the level of the pons



Area of high density acute haemorrhage in the pre-pontine cistern (arrow)

### Answer

Perimesencephalic subarachnoid haemorrhage (pSAH) is confirmed by the area of high density acute haemorrhage in the pre-pontine cistern on the unenhanced computed tomography scan (fig 2)

A follow-up computed tomography angiogram scan and/or digital subtraction cerebral angiogram is recommended to exclude an underlying posterior circulation aneurysm.<sup>1</sup>

pSAH is a variant of non-traumatic subarachnoid haemorrhage, accounting for approximately 5% of cases.<sup>1</sup> The condition has a distinct and non-aneurysmal aetiology; however, theories about the source of the haemorrhage remain speculative.<sup>2,3</sup>

Potential causes include bleeding from a venous origin or from a perforating arterial branch of the posterior circulation.<sup>3</sup>

pSAH is often benign and associated with a more favourable outcome than aneurysmal subarachnoid haemorrhage.<sup>2</sup>

No reliable features consistently distinguish the two entities—onset (seconds to minutes), intensity, pain localisation, associated nausea and vomiting, and transient loss of

consciousness can all be present in both. Imaging is the best way to distinguish the two.

Debate exists about whether repeat imaging beyond computed tomography angiography is justified. Several retrospective studies and two recent meta-analyses showed no real benefit to further angiographic imaging after initial negative computed tomography angiography or digital subtraction angiography.<sup>1 2 4</sup> They conclude that initial non-contrast computed tomography and one angiographic study are adequate to rule out potentially catastrophic vascular pathology with high sensitivity and specificity if performed within 72 hours of symptom onset.<sup>1 2 4</sup>

### Learning points

1. pSAH has a better prognosis than aneurysmal SAH.
2. pSAH is reliably diagnosed using computed tomography imaging of the head in combination with at least one angiographic study.

Patient consent obtained.

**Competing interests** The BMJ has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: none.

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Provenance and peer review: not commissioned; externally peer reviewed.

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