

Perimesencephalic subarachnoid hemorrhage

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Perimesencephalic [subarachnoid hemorrhage](#) (PMSAH) is a distinct pattern of [subarachnoid hemorrhage](#) (SAH), which is centered on the [basal cisterns](#) around the [midbrain](#).

Epidemiology

[Perimesencephalic Subarachnoid Hemorrhage Epidemiology](#).

Classification

There are two main categories based on the distribution of blood on the initial CT:

1. Classic (Pure) Perimesencephalic SAH

Blood is confined to the cisterns around the midbrain and pons, especially:

Interpeduncular cistern

Prepontine cistern

Ambient cistern

Minimal or no extension into lateral sylvian fissures or interhemispheric fissure

No intraventricular or intraparenchymal hemorrhage

No aneurysm on CTA/DSA

2. Non-Classic (Non-Pure) or Atypical Perimesencephalic SAH

Blood starts in the perimesencephalic region but extends into:

Sylvian fissures

Interhemispheric fissure

Other cortical cisterns

May raise suspicion for aneurysm → usually leads to repeat angiography to exclude a missed aneurysm

Still, if angiography remains negative, often behaves like classic PNSAH

see [Non-aneurysmal perimesencephalic subarachnoid hemorrhage](#).

Etiology

see [Perimesencephalic Subarachnoid Hemorrhage Etiology](#).

Clinical features

see [Subarachnoid hemorrhage clinical features](#).

Diagnosis

[Perimesencephalic subarachnoid hemorrhage diagnosis](#).

Treatment

[Perimesencephalic subarachnoid hemorrhage treatment.](#)

Outcome

[Perimesencephalic subarachnoid hemorrhage outcome](#)

Retrospective observational studies

van Gijn et al. studied 28 patients with subarachnoid hemorrhage and normal angiograms. On early CT (within 5 days) in 13 cases, blood was seen mainly or only in the cisterns around the midbrain. This pattern of hemorrhage was found in only 1 of 92 patients with a ruptured aneurysm. None of the unexplained perimesencephalic hemorrhages was associated with intracerebral hematoma or intraventricular hemorrhage. The clinical features also differed from those of aneurysmal hemorrhage; loss of consciousness was rare, and after 3 months, all 13 patients had returned to normal life. The cause of this benign disorder remains elusive, but a venous or capillary source seems likely ¹⁾

Case reports

[Perimesencephalic subarachnoid hemorrhage case reports](#)

¹⁾

van Gijn J, van Dongen KJ, Vermeulen M, Hijdra A. Perimesencephalic hemorrhage: a nonaneurysmal and benign form of subarachnoid hemorrhage. *Neurology*. 1985 Apr;35(4):493-7. doi: 10.1212/wnl.35.4.493. PMID: 3982634.

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