Perimesencephalic subarachnoid hemorrhage treatment

- Prognostic Factors and Imaging Strategies in Unknown Subarachnoid Hemorrhage: A Retrospective Study
- Cranial Nerve Palsies and Peri-Mesencephalic Subarachnoid Haemorrhage: A Case Report and Review of the Literature
- Transcarotid flow reversal for proximal control during cerebral aneurysm clip reconstruction: illustrative case
- Two Cases of Subarachnoid Hemorrhage with Microaneurysmal Changes and Spontaneous Disappearance in the Basilar Artery
- Basilar Artery Perforator Aneurysms - The Phantom Menace of the Intracranial Universe
- Nonaneurysmal Perimesencephalic Subarachnoid Hemorrhage Associated with an Anomalous Anastomotic Cisternal Vein
- Perimesencephalic subarachnoid hemorrhage as a rare delayed complication of radiation therapy in a patient with parotid basaloid squamous cell carcinoma
- Risk stratification of delayed causative aneurysm detection and long-term outcome in angiographically negative spontaneous subarachnoid haemorrhage

Management Approach

1. Initial Stabilization

Airway & Breathing: Evaluate the need for airway protection in patients with decreased consciousness (rare in PMSAH).

Blood Pressure Management: Maintain systolic BP < 160 mmHg to reduce the risk of rebleeding.

First-line agents: Labetalol, nicardipine, or esmolol.

2. Diagnostic Workup

Non-contrast CT Brain: Characteristic localized hyperdensity in perimesencephalic cisterns.

CT Angiography (CTA): Rule out aneurysms.

Digital Subtraction Angiography (DSA): Indicated if CTA is inconclusive or in young patients with atypical hemorrhage patterns.

Lumbar Puncture (LP): Not usually required if CT is done within 6 hours of symptom onset.

3. Supportive Care

Pain Control: Acetaminophen or mild opioids.

Antiemetics: Ondansetron or metoclopramide for nausea.

Hydration: IV fluids to maintain euvolemia (avoid overhydration).

Deep-Vein Thrombosis Prophylaxis: Intermittent compression devices; low-molecular-weight heparin can be considered after 48 hours if no aneurysm is found.

Seizure Prophylaxis: Not routinely recommended.

4. Monitoring & Follow-Up

Neuro-ICU Admission: Monitor for delayed complications, though risks are low.

Repeat Vascular Imaging: Typically not necessary unless initial imaging is inconclusive.

Long-term Follow-up: MRI/MRA may be considered in select cases.

A survey aimed to evaluate the clinical management among neurosurgical departments in Germany. 135 neurosurgical departments in Germany received a hardcopy questionnaire. Encompassing three case vignettes with minor, moderate and severe NASAH on CT-scans and questions including the in-hospital treatment with initial observation, blood pressure (BP) management, cerebral vasospasm (CV) prophylaxis and the need for digital subtraction angiography (DSA). 80 departments (59.2%) answered the questionnaire. Whereof, centers with a higher caseload state an elevated complication rate (Chi2 < 0.001). Initial observation on the intensive care unit is performed in 51.3%; 47.5%, 70.0% in minor, moderate and severe NASAH, respectively. Invasive BP monitoring is performed more often in severe NASAH (52.5%, 55.0%, 71.3% minor, moderate, severe). CV prophylaxis and transcranial doppler ultrasound (TCD) are performed in 41.3%, 45.0%, 63.8% in minor, moderate and severe NASAH, respectively. Indication for a second DSA is set in the majority of centers, whereas after two negative ones, a third DSA is less often indicated (2nd: 66.2%, 72.5%, 86.2%; 3rd: 3.8%, 3.8%, 13.8% minor, moderate, severe). This study confirms the influence of bleeding severity on treatment and follow-up of NASAH patients. Additionally, the existing inconsistency of treatment pathways throughout Germany is highlighted. Therefore, we suggest to conceive new treatment guidelines including this finding [1)]

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1)
Wolfert C, Maurer CJ, Sommer B, Steininger K, Motov S, Bonk MN, Krauss P, Berlis A, Shiban E. Management of perimesencephalic nonaneurysmal subarachnoid hemorrhage: a national survey. Sci Rep. 2023 Aug 7;13(1):12805. doi: 10.1038/s41598-023-39195-2. PMID: 37550334; PMCID: PMC10406943.