
**The Diagnosis and Management of
ED Headache Patients:
When Must Cranial CT and LP Both
Be Performed in Order to
Exclude the Diagnosis of SAH?**

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Disclosures

- All past advisory board or speakers' bureau activities have expired within the past year

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Sessions Objectives

- Discuss which ED patients are at greatest risk for SAH
- Discuss the CT evaluation for SAH
- Discuss the role of LP in SAH ED evaluation

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Case Presentation...

- 63 yo F presents to ED
- CC: Severe HA
- Continuous, worst of life, non-throbbing x 3 days
- PMHx: HTN, DM
- She is requesting morphine

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Subarachnoid Hemorrhage

- Serious impairment of death in 40-60%
- Outcome: early diagnosis & intervention
- Early rebleeding (days-wks): 26-73%
- Missed diagnosis: up to 50% with 1st physician
- Missed diagnosis: worse M & M
50% with neurologic complications

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Patients With Greatest Risk For SAH

- HA to ED: ~1% with SAH
- Worst HA of life:
 - (-) CNS exam: 12% SAH
 - (+) CNS exam: 25% SAH
- Thunderclap headache ("top of head blown off," "Hit on head with a hammer") :
 - develops in seconds
 - maximal intensity in minutes
 - lasts hours to days

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SAH Missed Diagnosis

- Kowalski et al: JAMA 2004
- Missed diagnosis: 12%
 - 36%: migraine or tension headache
- Missed diagnosis factors:
 - normal mental status, small SAH volume and right sided aneurysm
- Diagnostic error:
 - Failure to obtain CT scan: 73%
 - Misinterpretation of tests: 23%

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Relief of Headache Symptoms

- No randomized studies
- Many case reports:
 - Relief of symptoms with pain meds
 - ED discharge
 - Return to ED with serious pathology

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CT Scan Detection of SAH

- Non-contrast studies, 3 mm cuts
- Sensitivity decreases over time:
 - Within 12 hrs: 98%
 - 24 hrs: 93%
 - Day 5: 85%
 - Day 7: 50%

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Van Der Wee et al: J Neurol Neurosurgery Psychiatry 1995

- CT scan within 12 hrs
- Neuroradiologist reading scan
- (-) CT & (+) LP: 2/119
- Optimal setting for CT scanning:
 - Early presentation
 - Neuroradiologist

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SAH Evaluation: (-) CT & Discharge

- HA evaluation at a University ED with HA & (-) CT:
 - No LP performed: 50%
- (-) CT, no LP & ED discharge: ??

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Case Cont'd

- 63 yo F presents to ED
- CC: Severe HA
- Continuous, worst of life, non-throbbing x 3 days
- PMHx: HTN, DM
- She is requesting morphine

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Case Cont'd

- CT scan ordered
- She received morphine (4 mg) twice with good pain relief
- Prior to CT scan: she eloped
- ED return 2 days later: IC bleed

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Conclusions

- Missed diagnosis of SAH is associated with M & M
- CT scan evaluation for SAH is excellent but not 100%
- Do HA patients with (-) CT always need an LP?

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Questions?

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