70 y/o F presents with headache

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Subarachnoid hemorrhage
Axial NECT shows small foci of hemorrhage in the sulci of the right cerebral convexity.
Coronal NECT confirms subarachnoid hemorrhage's curvilinear configuration.
Subarachnoid hemorrhage (SAH)

Most common cause?
Subarachnoid hemorrhage (SAH)

**Most common cause?**
Trauma (trick question)
- typically associated with hemorrhagic cortical contusions
Subarachnoid hemorrhage (SAH)

Most common atraumatic (spontaneous) cause?
Subarachnoid hemorrhage (SAH)

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- Ruptured saccular (berry) aneurysm >85%
Subarachnoid hemorrhage (SAH)

Most common atraumatic (spontaneous) cause?
- Ruptured saccular (berry) aneurysm >85%
- AVM
- dural arteriovenous fistula
- isolated perimesencephalic hemorrhage (unknown cause, probably venous)
Subarachnoid hemorrhage (SAH)

Clinical presentation
- “worst headache of my life”
- Sudden thunderclap headache
- 10% preceded by “sentinel hemorrhage” = self limiting SAH+ headache in preceding days/weeks & can present with infarction
Subarachnoid hemorrhage (SAH)

**Imaging:**

CT: gold standard, ER work-horse
- sensitivity is influenced by size & time of bleed.
MRI: when optimized is more sensitive
- CSF hyperintensity on FLAIR
- CSF hypointensity on SWI or GRE
- 3D-FLAIR avoids flow artifacts in cisterns
- DSA is the gold standard for diagnosis of aneurysm
CTA, 90-95% positive if aneurysm >/=2mm
MRA can detect causative aneurysm
Subarachnoid hemorrhage (SAH)

Rx (if aneurysm)
Coil embolization
Micro-neurosurgical clipping – better for some aneurysms
Vasospasm – Ca2+ antagonist, angioplasty

Top differential (Pseudo-SAH)
Severe meningitis
Global cerebral edema (Hyperdense on CT)
Supplemental Oxygen (Hyperintense on FLAIR)
Cisternal flow (Hyperintense on 2D-FT FLAIR)
Old SAH (Hypointense on SWI)
Complications

- Rebleeding
- Hydrocephalus (early & late)
- Cerebral infarction from vasospasm (peak ~ 1 week post-bleed)
References