

Pseudosubarachnoid hemorrhage: the clot that mimicked a bleeding

Abstract

Pseudosubarachnoid hemorrhage is commonly associated with cerebral edema and can present in cases of severe meningitis or cerebral venous sinus thrombosis. It is important to distinguish these conditions from subarachnoid hemorrhaging to allow for swift appropriate therapy.

Key Clinical Message

Densities in the subarachnoid space on a non contrast enhanced CT are not necessarily proof of a hemorrhage: be mindful of other pathologies, especially those requiring urgent intervention.

A 44 year old female patient with no significant medical history presented to the ER with unusual multifocal neurologic manifestations: mild anisocoria , echolalic speech and right sided facial paresis. A non enhanced CT (NECT) of the brain was performed (Figure 1) and demonstrated bilateral sulcal densities without involvement of the basal cisterns. A commercially available AI program (Aidoc, Intracranial hemorrhage) also identified these densities as potential hemorrhages. Since we would not expect disseminated bilateral subarachnoid hemorrhages (SAH) without antecedents of trauma, a contrast enhanced CT venography was performed (Figure 2). This demonstrated an extensive thrombosis of the sinus sagittalis superior and right sided sinus transversus and sigmoïdeus (CVST).

An apparent increased attenuation within the basal cisterns is called pseudosubarachnoid hemorrhage. These densities are usually symmetrical with sparing of the sulcal region. It is caused by dilatation of superficial venous structures within the subarachnoid space.

Pseudosubarachnoid hemorrhage is commonly associated with cerebral edema, but can also be seen in cases of severe meningitis and CVST (1). It is important to distinguish these

conditions from SAH to allow for swift appropriate therapy. CVST in this case for example should immediately be treated with anticoagulants, even if a mild bleeding is present.

References

1. Given CA 2nd, Burdette JH, Elster AD, Williams DW 3rd. 2003. Pseudo-subarachnoid hemorrhage: a potential imaging pitfall associated with diffuse cerebral edema. *AJNR Am J Neuroradiol.* 24 (2): 254-6.

Figures



Figure 1: Non contrast-enhanced CT of the brain, axial plane. Note the sulcal densities in the left frontal lobe (red arrows) and more subtly in the right parietal lobe (blue arrow). Also note the discrete hyperdensity of the sinus sagittalis superior (green arrow).

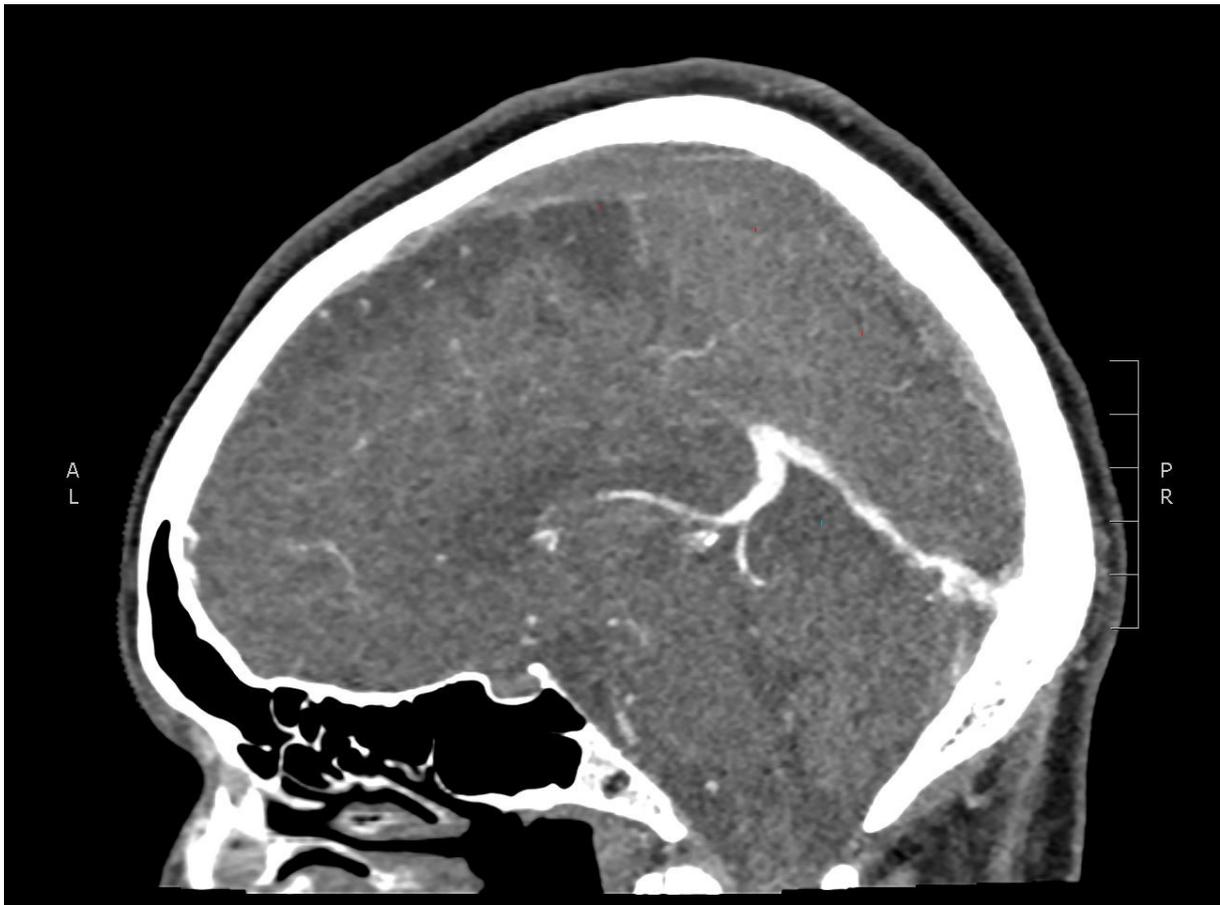


Figure 2: Contrast-enhanced CT of the brain, venography, sagittal plane. Note the absent enhancement of the sinus sagittalis superior (red arrows) as opposed to the sinus rectus (blue arrow).