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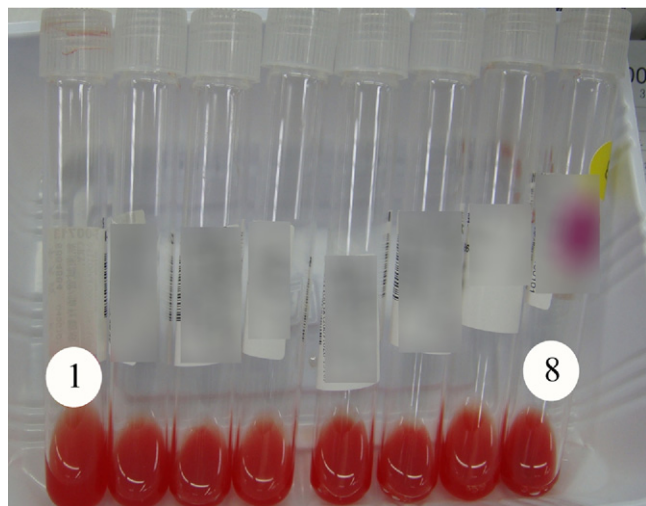


Figure 1. Homogenous bloody cerebrospinal fluid in every tube. The tubes are placed in consecutive order, with the first tube labeled “1” and the last tube labeled “8.”

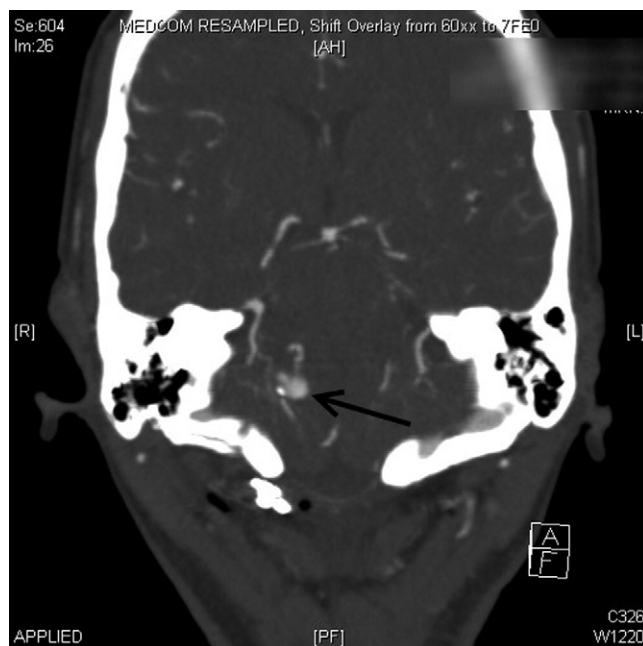


Figure 2. CT angiography of brain. Used with permission of Ching-Hsing Lee, MD, Department of Emergency Medicine, Chang Gung Memorial Hospital, Taoyuan, Chang Gung University College of Medicine, Taoyuan, Taiwan, ROC.

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A 54-year-old woman presented to hospital with a sudden-onset general headache and neck pain for 2 days. The physical examination showed a temperature of 37°C (98.6°F), a pulse rate of 106 beats/min, and a blood pressure of 175/106 mm Hg. The Glasgow Coma Scale score was 15; her pupils were 3 mm in diameter, with a light reflex. Neck stiffness was found. Her limb muscle power was symmetric bilaterally and full. The blood laboratory evaluation result was unremarkable. Unenhanced brain computed tomography (CT) showed no abnormality. Lumbar puncture yielded homogenous bloody cerebrospinal fluid in every tube (Figure 1). CT angiography was arranged (Figure 2).

For the diagnosis and teaching points, see page 707.

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1. Diercks DB, Hollander JE. Catheterization laboratory activation: more about drawing than the balloons. *Ann Emerg Med.* 2010;55:431-431.

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DIAGNOSIS:

Aneurysmal subarachnoid hemorrhage. The opening pressure of lumbar puncture was 23 cm H₂O. The cerebrospinal fluid evaluation disclosed an RBC count of 190,000/ μ L, WBC count of 1640/ μ L with 60% segmented neutrophils, and xanthochromia. CT angiography disclosed a 1.1- \times -1.2-cm, right-sided, distal, vertebral artery aneurysm (Figure 2). An aneurysmal subarachnoid hemorrhage was diagnosed. The patient was discharged uneventfully 2 weeks after surgical intervention.

The high density of blood on CT is a function of the hemoglobin concentration.¹ With the clearance of blood in the cerebrospinal fluid, the sensitivity of CT decreases over time from the onset of symptoms.² Lumbar puncture is mandatory to confirm the diagnosis if subarachnoid hemorrhage is suspected clinically but brain CT result is negative.¹⁻³ An increased opening pressure, an increased RBC count that does not decrease from the first to fourth tubes, and xanthochromia suggest subarachnoid hemorrhage.²

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