# Headache Mistakes You Do Not Want to Make

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**KEYWORDS**

• Life-threatening causes of headache • Acute headache • Subarachnoid hemorrhage
• Giant cell arteritis • Temporal arteritis • Cerebral venous sinus thrombosis
• Cerebral venous thrombosis • Meningitis

**KEY POINTS**

- Subarachnoid hemorrhage (SAH), cerebral venous sinus thrombosis (CVST)/cerebral venous thrombosis (CVT), giant cell arteritis (GCA)/temporal arteritis, and meningitis/encephalitis are all life-threatening causes of headache in adult patients.
- Thunderclap headache (ie, the worse headache of my life) is a sudden, severe unilateral or occipital headache that begins abruptly and peaks within minutes is the classic description used for SAH. The diagnosis can be confirmed by noncontrast head computed tomography (CT) in most cases and is treated largely with supportive measures and neurosurgical intervention for prevention of rebleed.
- Headache is present in about 90% of CVST/CVT cases and is generally described as gradual in onset and increasing in severity over several days; however, in some cases patients have presented with sudden severe headaches mimicking SAH. Specialized imaging, such as MRI or magnetic resonance venography, may be needed to establish the diagnosis of CVST/CVT, as head CT is read as normal in up to 30% of cases.
- The diagnosis of GCA/temporal arteritis is made clinically. Treatment with corticosteroids should NOT be delayed while awaiting biopsy confirmation.
- Meningitis is suspected when patients present with the classic signs and symptoms of fever, nuchal rigidity, headache, and altered mental status.

**OBJECTIVES**

List the life-threatening causes of acute headache in adults.
Describe the clinical features, diagnosis, and management of subarachnoid hemorrhage (SAH).
Describe the pitfalls in the diagnosis and management of cerebral venous sinus thrombosis (CVST)/cerebral venous thrombosis (CVT).
Discuss pitfalls in the diagnosis of giant cell arteritis (GCA)/temporal arteritis.
Describe the clinical features, diagnosis, and management of meningitis.

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Headache in adult patients is an extremely common complaint in an acute care setting. It represents about 1% to 2% of all emergency medicine visits in the United States every year. Of these visits, fewer than 5% are from life-threatening causes. Given that the cause of headache is very broad, it is vital that the emergency medicine physician assistant be able to recognize and initiate emergent management of the life-threatening causes. **Box 1** lists some of the life-threatening causes for acute headache.

History is a critical component in differentiating life-threatening causes of headache. **Box 2** lists some of the more common questions to ask when evaluating patients with headache.

Headaches can be categorized into either primary or secondary causes. Primary headache represents about 90% of cases. They are considered benign and are often recurrent. Examples of primary headache include migraine, tension, cluster, or rebound. The remainder of headache cases can be considered secondary, occur abruptly and are severe or rapidly progressive. They are often associated with infection, head injury, tumor, or from vascular issues. Examples of secondary headache include meningitis, SAH, intracranial hemorrhage (ICH), hypertensive crisis, and acute glaucoma. **Table 1** lists some of the causes for primary and secondary headache.

Physical examination in patients with headache should include a thorough head and neck examination, focusing on the eyes (including a funduscopic examination), ears, nose, teeth, and throat as well as assessing for cervical stiffness or lymph nodes. Additionally, a thorough neurologic examination should be performed, including attention to the cranial nerves, sensory, motor, and coordination components, as well as an assessment of mental status.

It is important to understand that many structures in the brain lack the ability to sense pain, including the brain parenchyma, the lining of the ventricles, and the choroid plexus. Because of this, clinical presentation can be complicated and difficult to interpret. Intracranial structures that do sense pain include the dural sinuses, the intracranial part of the trigeminal nerve, and the large arteries.

Differentiating acute from chronic causes of headache is crucial so that prompt treatment of life-threatening causes of headache can be initiated. In general, acute forms of headache can be defined as pain or discomfort that starts suddenly and gets worse quickly. **Table 2** highlights some of the clinical features of acute headaches associated with a more serious cause.

**Box 1**
**Life-threatening causes of acute headache**

- SAH
- CVST/CVT
- GCA/temporal arteritis
- Meningitis/encephalitis
- Intracranial tumor

## SUBARACHNOID HEMORRHAGE

SAH is defined as bleeding into the subarachnoid space, which is located between the pia mater and the arachnoid membranes.