

# Thunderclap headache

see [Benign Thunderclap headache](#).

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A **thunderclap headache (TCH)** is a severe headache that reaches peak intensity within **seconds to one minute** of onset. It is often described as the **worst headache of a person's life** and can be a symptom of a serious underlying condition, such as **subarachnoid hemorrhage (SAH)**, or a benign primary headache disorder.

## Key Features

- **Sudden onset**, reaching maximum intensity within **seconds to 1 minute**.
- **Severe intensity**, often described as **explosive, crushing, or unbearable**.
- May be associated with **nausea, vomiting, photophobia, neck stiffness, or neurological deficits**.
- Can occur spontaneously or be **triggered by exertion, sexual activity, coughing, or Valsalva maneuvers**.

## Common Causes

### Serious Causes (Need Urgent Evaluation)

#### 1. [Subarachnoid hemorrhage \(SAH\)](#) from a [ruptured aneurysm](#)

1. The most dangerous cause.
1. Often presents with a **sudden, severe headache**, loss of consciousness, vomiting, or neck stiffness.
1. Requires **urgent CT scan ± lumbar puncture**.

#### 2. **Reversible cerebral vasoconstriction syndrome (RCVS)**

1. Characterized by sudden, recurrent headaches over days/weeks.
2. May be triggered by **sexual activity, exertion, stress, or vasoactive drugs**.

#### 3. **Cervical or intracranial artery dissection**

1. Can cause **headache with neck pain and neurological symptoms** (e.g., Horner syndrome, stroke).

#### 4. **Intracranial hemorrhage (other than SAH)**

1. Hypertensive crisis or vascular malformations can cause sudden bleeding.

## 5. Cerebral venous sinus thrombosis (CVST)

1. May present with headache, seizures, or focal neurological deficits.

## 6. Meningitis or encephalitis

1. Accompanied by fever, altered mental status, and photophobia.

## 7. Pheochromocytoma or hypertensive emergency

1. Sudden blood pressure surges can trigger severe headaches.

#### **Benign Causes (Diagnosis of Exclusion) - Primary thunderclap headache** (idiopathic, but must rule out secondary causes first). - **Primary sexual headache** (orgasmic headache). - **Primary exertional headache**. - **Primary cough headache**.

### **Evaluation & Diagnosis - CT brain (non-contrast)** → First-line test for ruling out SAH. - **Lumbar puncture** (if CT is negative but SAH is suspected). - **MRI/MRA or CTA head and neck** → Evaluate for RCVS, dissection, or vascular pathology.

### **Management - Emergency evaluation required** for any first-time TCH. - **Treat underlying cause** if identified. - **If benign (primary headache disorder)**, preventive medications like **indomethacin, propranolol, or calcium channel blockers** may be used.

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