



[Home](#) → [Medical Encyclopedia](#) → CSF leak

URL of this page: //medlineplus.gov/ency/article/001068.htm

## CSF leak

A CSF leak is an escape of the fluid that surrounds the brain and spinal cord. This fluid is called the cerebrospinal fluid (CSF).

### Causes

Any tear or hole in the membrane that surrounds the brain and spinal cord (dura) can allow the fluid that surrounds those organs to leak. When it leaks out, the pressure around the brain and spinal cord drops.

Causes of leakage through the dura include:

- Certain head, brain, or spinal surgeries
- Head or spine injury
- Placement of tubes for epidural anesthesia or pain medicines
- Spinal tap (lumbar puncture)

Sometimes, no cause can be found. This is called a spontaneous CSF leak.

### Symptoms

Symptoms may include:

- A headache that is worse when you sit up and improves when you lie down. It may be associated with light sensitivity, nausea, and neck stiffness.
- Drainage of CSF from the ear (rarely).
- Drainage of CSF from the nose (rarely).

### Exams and Tests

Your health care provider will perform a physical exam and ask about your symptoms. Tests may include:

- CT scan of the head with contrast dye
- CT myelogram of the spine
- MRI of the head or spine
- Radioisotope test of the CSF to track the leakage

## Treatment

Depending on the cause of the leak, many symptoms improve on their own after a few days. Complete bed rest for several days is usually recommended. Drinking more fluids, especially drinks with caffeine, can help slow or stop the leak and may help with headache pain.

Your headache may be treated with pain relievers and fluids. If your headache lasts longer than a week after a lumbar puncture, a procedure may be done to block the hole that may be leaking fluid. This is called a blood patch, because a blood clot can be used to seal the leak. In most cases, this makes symptoms go away. In rare cases, surgery is needed to repair the tear in the dura and stop your headache.

If symptoms of infection (fever, chills, change in mental status) are present, treatment with antibiotics will likely be needed.

## Outlook (Prognosis)

The outlook is usually good depending on the cause. Most cases heal by themselves with no lasting symptoms.

If the CSF leak keeps coming back, high pressure of the CSF (hydrocephalus) might be the cause and should be treated.

## Possible Complications

Complications may occur if the cause is surgery or trauma. Infections after surgery or trauma can lead to meningitis and serious complications, such as swelling of the brain, and need to be treated right away.

## When to Contact a Medical Professional

Contact your provider if:

- You have a headache that gets worse when you sit up, especially if you have recently had a head injury, surgery, or childbirth involving epidural anesthesia.
- You have a moderate head injury, and then develop a headache that is worse when you sit up, or you have a thin, clear fluid draining from your nose or ear.

## Prevention

Most CSF leaks are a complication of a spinal tap or surgery. The provider should use the smallest needle possible when doing a spinal tap.

## Alternative Names

Intracranial hypotension; Cerebrospinal fluid leak

## References

Maslak JP, Casper DS, Pelle D. Neurologic complications of common spine operations. In: Steinmetz MP, Benzel EC, eds. *Benzel's Spine Surgery*. 5th ed. Philadelphia, PA: Elsevier; 2022:chap 91.

Rosenberg GA. Brain edema and disorders of cerebrospinal fluid circulation. In: Jankovic J, Mazziotta JC, Pomeroy SL, Newman NJ, eds. *Bradley and Daroff's Neurology in Clinical Practice*. 8th ed. Philadelphia, PA: Elsevier; 2022:chap 88.

## Review Date 6/13/2024

Updated by: Joseph V. Campellone, MD, Department of Neurology, Cooper Medical School at Rowan University, Camden, NJ. Review provided by VeriMed Healthcare Network. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.

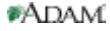
### Learn how to cite this page



CERTIFIED  
Health Content  
Provider  
06/01/2028

A.D.A.M., Inc. is accredited by URAC, for Health Content Provider ([www.urac.org](http://www.urac.org)). URAC's [accreditation program](#) is an independent audit to verify that A.D.A.M. follows rigorous standards of quality and accountability. A.D.A.M. is among the first to achieve this important distinction for online health information and services. Learn more about A.D.A.M.'s [editorial policy](#), [editorial process](#), and [privacy policy](#).

The information provided herein should not be used during any medical emergency or for the diagnosis or treatment of any medical condition. A licensed medical professional should be consulted for diagnosis and treatment of any and all medical conditions. Links to other sites are provided for information only – they do not constitute endorsements of those other sites. No warranty of any kind, either expressed or implied, is made as to the accuracy, reliability, timeliness, or correctness of any translations made by a third-party service of the information provided herein into any other language. © 1997-2025 A.D.A.M., a business unit of Ebix, Inc. Any duplication or distribution of the information contained herein is strictly prohibited.



National Library of Medicine 8600 Rockville Pike, Bethesda, MD 20894 U.S. Department of Health and Human Services

National Institutes of Health