

CASE REPORT

When the Head Only Works When Lying Down: A Case Report

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Headaches can have many causes. The causes can be very common but can also have a rare etiology. Therapy is the treatment of the respective etiology. Certain symptoms, so-called red flags, can prompt the general practitioner to act more quickly.

The case report is about a 67-year-old patient who suffered from headaches, fatigue and nausea. The symptoms disappeared when lying down and only occurred when standing. An magnetic resonance imaging (MRI) of the skull was ordered. This showed hygromas of the cerebral hemispheres, which were caused by cerebrospinal fluid loss. A MR - myelography was performed, which showed cerebrospinal fluid loss at the level of thoracic vertebrae 11 and 12. The clinical symptoms and the imaging findings led to the diagnosis of spontaneous cerebrospinal fluid loss syndrome. Treatment was carried out by neurosurgical leak closure. The patient became symptom-free after the therapy.

Intracranial hypotension is usually caused by loss of cerebrospinal fluid. Early detection is important for treatment and reduction of further complications.

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Introduction

Headaches are a common reason for consultation in general practice. The diagnosis is usually easy for the experienced general practitioner. There can be several reasons for headaches. Reasons can be psychological, low fluid intake, neurological such as migraine, tension and cluster headaches, infectious,

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bleeding, stroke, arteriovenous malformations, aneurysms, cavernous sinus thrombosis, arterial hypertension, metabolic disbalance, medication-related, after spinal anesthesia and many other reasons.¹ There are also rare causes of headaches, such as spontaneous cerebrospinal fluid (CSF) leakage syndrome or also called intracranial hypotension. A leading symptom of CSF leakage syndrome is orthostatic or position-related headache. Other symptoms include double vision, numbness, loss of smell and taste, and dizziness, or in the worst cases rarely coma or death.² Three types of CSF leakage syndrome are anatomically distinguished. Type I is ventrally localized dural lesions caused by a microspur. Type II is caused by a root pocket diverticulum and type III is caused by a CSF-vein fistula.³

In the vast majority, headaches are diagnosed by taking a thorough history and a clinical examination. Further diagnostics may include taking a blood sample and imaging, mainly in form of MRI of the brain.⁴

The treatment of headaches is usually the treatment of the etiology.⁵ In the case of CSF leakage syndrome, the treatment may be neurosurgical closure of the CSF leak.⁶

Case report

A 67-year-old patient presented with pain in his entire head for 10 days with no clear cause. He had never had such headaches before. For his neck pain he was treated symptomatically with paracetamol and consulted an atlaslogist on his own.

Ten days later, he presented again with unchanged headaches, fatigue, abdominal discomfort and nausea with loss of appetite. When he was laying down, the headaches and abdominal discomfort disappeared. Due to these complaints, he had lost over three kilograms in weight in three weeks. He reported that he had felt hypoesthesia on his left cheek and left little finger for one minute. The patient further reported orthostatic headaches.

Personal history

The patient was married and had no children. He had a testicular tumor at the age of 30. There were no known neurological diseases in the family. Otherwise, he was a healthy cyclist and did not take any regular medication. The patient never had this kind of headache including the neck stiffness.

Clinical examination

During the neurological examination in sitting and standing the patient developed headaches, nausea and vomiting. When lying down, the nausea and the severe headaches up to 8/10 on the visual analog scale (VAS) disappeared again within a few minutes. This also led to discontinuation of the initial clinical neurological examination. The patient was afebrile, the abdomen soft, indolent, normal heart-lung auscultation, the cervical spine freely mobile,

the temporal arteries not painful, no chewing claudication. The neurological examination was unremarkable except for a slight cervical syndrome in form of tension in the neck muscles and a convergent strabismus that had existed for many years. Laboratory tests showed no abnormalities other than an erythrocyte sedimentation rate (ESR) of 16 mm/h.

Differential diagnosis

An MRI of the skull with MRI of the neck vessels was performed ([Figure 1](#)). Subdural hygromas and slight contrast enhancement of the dura were seen without blood residues. In terms of differential diagnosis, it was suspected radiologically that these could have occurred after subdural bleeding, which would be supported by the characteristic signal changes for blood residues in the susceptibility-weighted sequence. However, trauma could not be determined from the medical history. There was no evidence of recent ischemia or a space-occupying lesion. Our neurologist then made a suspected diagnosis of idiopathic cerebrospinal fluid loss syndrome. The brain MRI already showed bilateral hygromas over the cerebral hemispheres, which were caused by the loss of cerebrospinal fluid. Further a conventional MR – Myelography and MRI off the spine was performed which revealed a CSF leakage ([Figures 2, 3, 4](#)).

Treatment

The first measure was to order bed rest, but this did not lead to any significant improvement. The next important measure was to specifically search for a suspected cerebrospinal fluid leak in the area of the spine. The patient was referred to the Neurosurgery Clinic, Inselspital, Bern, for inpatient assessment. Conventional myelography postulated a cerebrospinal fluid leak at the level of T11/12, where a bone spur was also present. The MRI of the spinal axis showed a long dural double contour, which corresponded to the leaked cerebrospinal fluid.

Due to the severe symptoms with disabling headaches, the indication for surgery was made 6 weeks after the initial presentation to the general practitioner (GP). The ventral cerebrospinal fluid leak was closed using transdural duraplasty via a dorsal interlaminar window at T11/12 from the left and the spur was operated.

Follow-up

Postoperatively, tinnitus probably occurred as part of the change in the intracranial pressure conditions, which regressed again later. The preoperative orthostatic headaches had completely disappeared. Mobilization was initially carried out with the help of physiotherapy, and the patient was quickly able to move independently again.

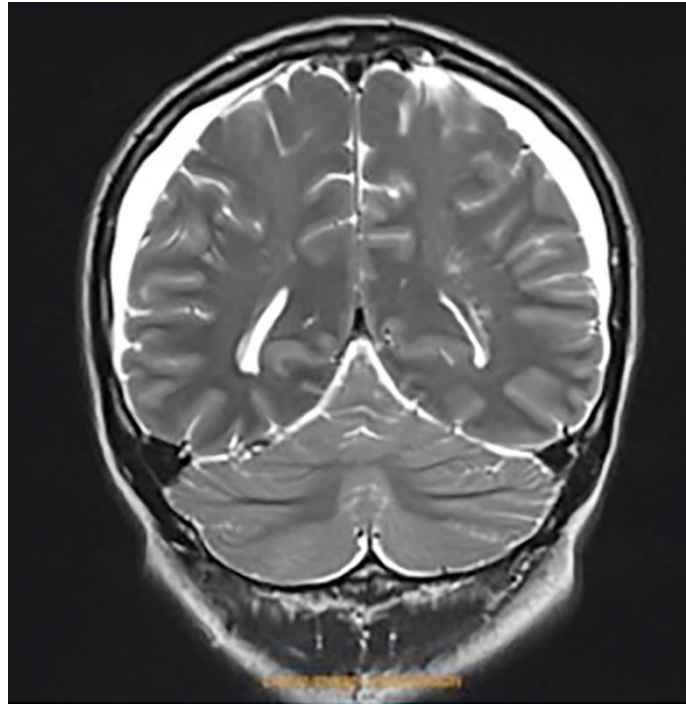


Figure 1. Cranial magnetic resonance imaging (MRI) of the patient.

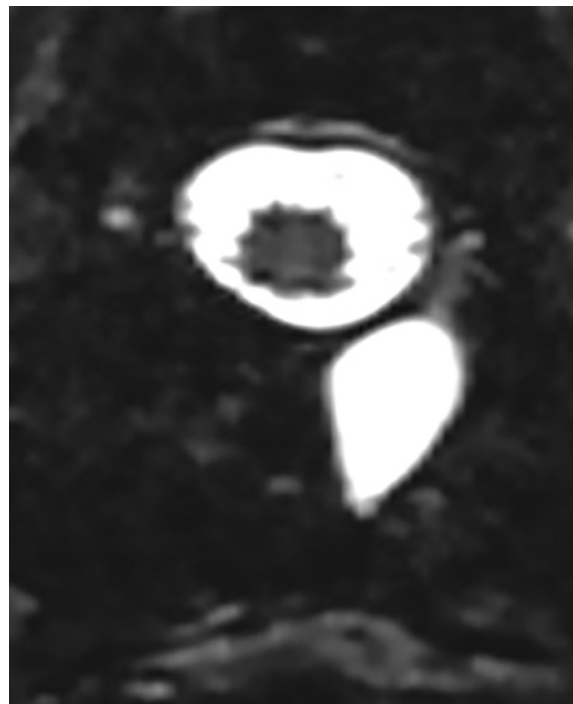


Figure 2. Conventional magnetic resonance (MR) - myelography in cross section with leakage of cerebral spinal fluid (CSF).

Discussion

The brain and spinal cord are surrounded by about 140 ml of cerebrospinal fluid. This system is sealed by the dura mater. If there is a defect in the dura mater, cerebrospinal fluid can leak out and negative pressure is created in the system, which may lead to a caudal displacement of the brain.⁷ This puts



Figure 3. Sagittal section magnetic resonance imaging (MRI) of the spine with leakage of cerebral spinal fluid (CSF).



Figure 4. Conventional magnetic resonance (MR) - myelography in sagittal section with leakage of cerebral spinal fluid (CSF).

tension on pain-sensitive structures such as the meninges and cranial nerves, causing irritation and the resulting symptoms. The defect usually occurs in the area of the spine, but the symptoms are noticeable in the head area.⁸

CSF loss syndrome, also known as low cerebrospinal fluid pressure syndrome or intracranial hypotension, is a rare disease that affects women more often than men and occurs in approximately 5 out of 100,000 per year.⁹ The most common cause of cerebrospinal fluid loss is probably puncture during diagnostics or during anesthesia. In the case of “spontaneous CSF leak syndrome”, the dura is usually injured by a bone spur in the spinal column.¹⁰ Typical signs can be found in the cranial MRI. As in our patient, these would be hygromas and a slight contrast enhancement. In addition, subdural hematomas (without trauma), congestion (dilatation) of the large venous structures and the brain stem resting on the base of the skull can also be found.¹¹

To localize the CSF leak, an MRI of the spinal axis and a conventional MR - myelography can be performed.¹² If the symptoms do not disappear spontaneously after 3–4 weeks and the leak can be localized, treatment can be carried out using blood patches. If this is not successful, the only option is surgery in a center.^{13,14}

Complications occur very rarely in experienced centers and are usually of a temporary nature. A full recovery can be expected shortly after surgery. In the chronic stage after missed initial diagnostics, however, the chances of success are unfortunately significantly worse due to scarring of the damaged nerve structures and possibly also due to impaired cerebrospinal fluid circulation.¹⁵ We therefore think it is important to present this not very common but typical clinical picture with some morbidity but good treatability.

The most important points for practice:

- In the primary care setting, a medical history and a precise assessment of the status are the key to diagnosis, even for headaches.
- For headaches with red flags, further investigations might be indicated. If there should be unclear reasons for headaches a neurologist can already be consulted, even before cranial imaging.
- Treatment for secondary headaches is the treatment of the underlying etiology.
- For rarer causes of headaches such as spontaneous cerebrospinal fluid loss syndrome, the symptoms, especially orthostatic headaches, are important key symptoms for diagnosis.
- Spontaneous cerebrospinal fluid loss syndrome is treatable with neurosurgery.

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Ethics approval and consent to participate

General written consent was obtained from the patients for the publication of this study.

Availability of data and materials

All patient data supporting this article are included in anonymized form in the published article.

Conflicts of Interest

This study was conducted in the absence of any commercial or financial relationships, and has no conflicts of interest.

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Author Contribution

The authors wrote the manuscript and approved it.

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