Intracranial hypotension secondary to spinal CSF leak: symptoms

Spinal cerebrospinal fluid (CSF) leak is an important and underdiagnosed cause of new onset headache that is treatable and often curable. CSF bathes and supports the brain and spinal cord. When the connective tissue known as dura that holds CSF in around the spinal cord has a hole or tear, the result is a loss of CSF volume, known as intracranial hypotension. This results in a loss of buoyancy of the brain that is much worse when upright. This brain sag causes traction on pain-sensitive structures in the head as well as other neurologic symptoms and signs.

The most common and classic symptom is a positional (orthostatic) headache that is worse when upright and improved when lying down, but there are usually other signs and symptoms. The headache is often located at the back of the head but can be frontal, bi-temporal or all-over (holocephalic). Headache severity varies enormously from mild to severe and may not correlate well with findings on imaging. The positional aspect of headache tends to lessen with time and may not be evident even from the onset. Many patients are quite disabled by their inability to be functional while upright.

Recognition of the headache pattern and other symptoms is important in leading physicians to suspect the diagnosis of intracranial hypotension due to spinal CSF leak.

**Common symptoms**
- positional headache
- nausea and vomiting
- impaired balance
- photophobia (sensitivity to light)
- pain between shoulder blades
- arm pain or numbness
- neck pain or stiffness
- change in hearing (muffled, tinnitus)
- dizziness
- phonophobia (sensitivity to sound)
- changes in cognition (brain fog)

**Less common symptoms**
- visual changes
- changes in taste
- pain or numbness below arm level
- facial numbness or pain
- fatigue
- galactorrhea (nipple discharge)

**Rare complications**
- quadriplegia (paralysis, weakness)
- Parkinsonism, tremor, other movement disorders
- ataxia (unsteady gait)
- stupor / coma
- stroke
- dementia
- cerebral venous thrombosis
- reversible cerebral vasoconstriction
- death

**Key points**
- not all patients with a positional headache have a spinal CSF leak
- headache may be trivial or absent with other symptoms being more prominent
- the positional aspect of headache often lessens with time or may be absent
- the severity of symptoms and associated disability is often underappreciated