

4. aggravated by straining
5. accompanied by nausea
- B. Neuroimaging and/or laboratory evidence of brain abscess
- C. Headache develops during active infection
- D. Headache resolves within 3 months after successful treatment of the abscess

Comments:

Direct compression and irritation of the meningeal or arterial structures and increased intracranial pressure are the mechanisms for causing headache.

The most common organisms causing brain abscess include streptococcus, staphylococcus aureus, bacteroides species and enterobacter. Predisposing factors include infections of paranasal sinuses, ears, jaws, teeth or lungs.

9.1.5 Headache attributed to subdural empyema

Diagnostic criteria:

- A. Headache with at least one of the following characteristics and fulfilling criteria C and D:
 1. unilateral or much more intense on one side
 2. associated with tenderness of the skull
 3. accompanied by fever
 4. accompanied by stiffness of the neck
- B. Neuroimaging and/or laboratory evidence of subdural empyema
- C. Headache develops during active infection and is localized to or maximal at the site of the empyema
- D. Headache resolves within 3 months after successful treatment of the empyema

Comments:

Headache is caused by meningeal irritation, increased intracranial pressure and/or fever.

Subdural empyema is often secondary to sinusitis or otitis media. It may also be a complication of meningitis. Early diagnosis is best made by CT or MRI.

9.2 Headache attributed to systemic infection

Coded elsewhere:

Headache attributed to meningitis or encephalitis accompanying systemic infection should be coded accordingly under 9.1 *Headache attributed to intracranial infection*.

Diagnostic criteria:

- A. Headache with at least one of the following characteristics and fulfilling criteria C and D:
 1. diffuse pain
 2. intensity increasing to moderate or severe
 3. associated with fever, general malaise or other symptoms of systemic infection
- B. Evidence of systemic infection
- C. Headache develops during the systemic infection
- D. Headache resolves within 72 hours after effective treatment of the infection

Comments:

Headache in systemic infections is usually a relatively inconspicuous symptom and diagnostically unhelpful. These conditions are mostly dominated by fever, general malaise and systemic symptoms. Nevertheless, some

systemic infections, particularly influenza, have headache as a prominent symptom along with fever and other symptoms. In other cases, systemic infection is accompanied by meningitis or encephalitis, and the headache should be coded to these disorders.

The great variability in their propensity for causing headache indicates that systemic infections do not have this effect simply through fever. The mechanisms causing headache include direct effects of the microorganisms themselves. In infectious disease, headache commonly coexists with fever and may be dependent on it, but headache can occur in the absence of fever. The presence or absence of fever may be used in the differential classification of headache. The exact cause of headache by fever is not elucidated. Some infective microorganisms may influence brainstem nuclei which release substances to cause headache, or endotoxins may activate inducible NOS causing production of nitric oxide (NO). The exact nature of these mechanisms remains to be investigated.

9.2.1 Headache attributed to systemic bacterial infection

Diagnostic criteria:

- A. Headache fulfilling criteria for 9.2 *Headache attributed to systemic infection*
- B. Laboratory investigation discloses the inflammatory reaction and identifies the organism

Comment:

Some infective agents have a particular tropism for the central nervous system. They may activate brainstem nuclei where release of toxins induces headache mechanisms.

9.2.2 Headache attributed to systemic viral infection

Diagnostic criteria:

- A. Headache fulfilling criteria for 9.2 *Headache attributed to systemic infection*
- B. Clinical and laboratory (serology and/or PCR molecular) diagnosis of viral infection

9.2.3 Headache attributed to other systemic infection

Diagnostic criteria:

- A. Headache fulfilling criteria for 9.2 *Headache attributed to systemic infection*
- B. Clinical and laboratory (serology, microscopy, culture or PCR molecular) diagnosis of infection other than bacterial or viral

9.3 Headache attributed to HIV/AIDS

Coded elsewhere:

Headache attributed to a specific supervening infection is coded according to that infection.

Diagnostic criteria:

- A. Headache with variable mode of onset, site and intensity¹ fulfilling criteria C and D
- B. Confirmation of HIV infection and/or of the diagnosis of AIDS, and of the presence of HIV/AIDS-related pathophysiology likely to cause headache², by neuroimaging, CSF examination, EEG and/or laboratory investigations
- C. Headache develops in close temporal relation to the HIV/AIDS-related pathophysiology
- D. Headache resolves within 3 months after the infection subsides