Migraine Headache Clinical Presentation

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History

Migraine attacks commonly occur when the migraineur is awake, although an attack may have already started by the time the individual wakes. Less commonly, it may awaken the patient at night.

The typical migraine headache is throbbing or pulsatile. However, more than 50% of people who suffer from migraines report nonthrobbing pain at some time during the attack.

The headache is initially unilateral and localized in the frontotemporal and ocular area, but pain can be felt anywhere around the head or neck. The pain typically builds up over a period of 1-2 hours, progressing posteriorly and becoming diffuse.

The headache typically lasts from 4-72 hours. Among females, more than two thirds of patients report attacks lasting longer than 24 hours.

Pain intensity is moderate to severe and intensifies with movement or physical activity. Many patients prefer to lie quietly in a dark room. The pain usually subsides gradually within a day and after a period of sleep. Most patients report feeling tired and weak after the attack.

Other symptoms

Nausea and vomiting usually occur later in the attack in about 80% and 50% of patients, respectively, along with anorexia and food intolerance. Some patients have been noted to be pale and clammy, especially if nausea develops. Photophobia and/or phonophobia also commonly are associated with the headache. Lightheadedness is frequent. See Migraine-Associated Vertigo for more information on migraine-related vestibulopathy.

Other neurologic symptoms that may be observed include the following:

- Hemiparesis (this symptom defines hemiplegic migraine)
- Aphasia
- Confusion
- Paresthesias or numbness

Prodrome

About 60% of people who experience migraines report premonitory symptoms that occur hours to days before headache onset. Although the prodromal features vary, they tend to be consistent for a given individual and may include the following:

- Heightened sensitivity to light, sound, and odors
- Lethargy or uncontrollable yawning
- Food cravings
- Mental and mood changes (eg, depression, anger, euphoria)
- Excessive thirst and polyuria
- Fluid retention
- Anorexia
- Constipation or diarrhea

These symptoms may be difficult to diagnose as part of the migraine complex if they occur in isolation from the headache or if they are mild. The prodrome of migraine has yet to receive significant investigational attention.

Aura

The migraine aura is a complex of neurologic symptoms that may precede or accompany the headache phase or may occur in isolation. It usually develops over 5-20 minutes and lasts less than 60 minutes. The aura can be visual, sensory, or motor or any combination of these.

Visual symptoms

Auras most commonly consist of visual symptoms, which may be negative or positive. Negative symptoms (see the images below) include negative scotomata or negative visual phenomena, such as the following:

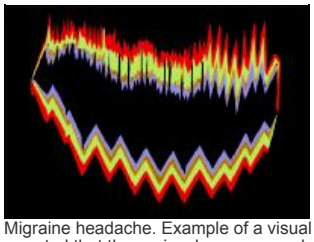
- Homonymous hemianopic or quadrantic field defects
- Central scotomas
- Tunnel vision
- Altitudinal visual defects
- Complete blindness

Migraine headache. Frank visual field loss can also occur associated with migraine. This example shows loss of the entire right visual field as described by a person who experiences migraines.

Migraine headache. Example of a central scotoma as described by a person who experiences migraines. Note the visual loss in the center of vision.

Migraine headache. Example of a central scotoma as described by a person who experiences migraine headaches. Again note the visual loss in the center of vision.

The most common positive visual phenomenon is the scintillating scotoma. This consists of an arc or band of absent vision with a shimmering or glittering zigzag border. The disturbance begins in the paracentral area, and gradually enlarges and moves across the hemifield, eventually breaking up and resolving. It is often combined with photopsias (uniform flashes of light) or visual hallucinations, which may take various shapes (see the images below).



Migraine headache. Example of a visual migraine aura as described by a person who experiences migraines. This patient reported that these visual auras preceded her headache by 20-30 minutes.

Migraine headache. Example of visual changes during migraine. Multiple spotty scotomata are described by a person who experiences migraines.

Scintillating scotoma occurs prior to the headache phase of an attack and is pathognomonic of a classic migraine. It is sometimes called a "fortification spectrum," because the serrated edges of the hallucinated "C" resemble a "fortified town with bastions around it."

Heat waves, fractured vision, macropsia, micropsia, and achromatopsia are other visual symptoms that may occur.

Sensory symptoms

Paresthesias, occurring in 40% of cases, constitute the next most common aura; they are often cheiro-oral, with numbness starting in the hand, migrating to the arm, and then jumping to involve the face, lips, and tongue. As with visual auras, positive symptoms typically are followed by negative symptoms; paresthesias may be followed by numbness.

Sensory aura rarely occurs in isolation and usually follows visual aura. The rate of spread of sensory aura is helpful in distinguishing it from transient ischemic attack (TIA) or a sensory seizure. Just as a visual aura spreads across the visual field slowly, paresthesias may take 10-20 minutes to spread, which is slower than the spread of sensory symptoms of TIA.

Motor symptoms

Motor symptoms may occur in 18% of patients and usually are associated with sensory symptoms. Motor symptoms often are described as a sense of heaviness of the limbs before a headache but without any true weakness.

Speech and language disturbances have been reported in 17-20% of patients. These disturbances are commonly associated with upper extremity heaviness or weakness.

Course and diagnostic significance

The migrainous aura generally resolves within a few minutes and then is followed by a latent period before the onset of headache. However, some patients report merging of the aura with the headache.

Whether migraine with and without aura (prevalences, 36% and 55%, respectively) represent 2 distinct processes remains debatable; however, the similarities of the prodrome, headache, and resolution phases of the attacks, as well as the similarity in therapeutic response and the fact that 9% of patients experience both, suggest that they are the same entity.

When an aura is not followed by a headache, it is called a migraine equivalent or acephalic migraine. This is reported most commonly in patients older than 40 years who have a history of recurrent headache.

Scintillating scotoma has been considered to be diagnostic of migraine even in the absence of a headache; however, paresthesias, weakness, and other transient neurologic symptoms are not. In the absence of a prior history of recurrent headache and first occurrence after age 45 years, TIA should be considered and investigated fully.

Postdromal symptoms

Postdromal symptoms may persist for 24 hours after the headache and can include the following:

- Tired, “washed out,” or irritable feeling
- Unusually refreshed or euphoric feeling
- Muscle weakness or myalgias
- Anorexia or food cravings

Migraine triggers

A history of migraine triggers may be elicited. Common triggers include the following:

- Hormonal changes (eg, those resulting from menstruation, ovulation, oral contraceptives, or hormone replacement)
- Head trauma
- Lack of exercise[47]
- Sleep changes
- Medications (eg, nitroglycerin, histamine, reserpine, hydralazine, ranitidine, estrogen)
- Stress

Family history

Approximately 70% of patients have a first-degree relative with a history of migraine. The risk of migraine is increased 4-fold in relatives of people who have migraine with aura.[30] Migraine headache generally shows a multifactorial inheritance pattern, but the specific nature of the genetic influence is not yet completely understood.

Disability assessment

Simple questionnaires, such as the Migraine Disability Assessment Scale (MIDAS), can be used to quantify the extent of disability on the first visit. These questionnaires can also be used for follow-up evaluations.

Physical Examination

Although a thorough screening neurologic examination is essential, the results will be normal in most patients with headache. Evidence of autonomic nervous system involvement can be helpful, although most patients with migraine exhibit few or no findings. Serial neurologic examinations are recommended.

Possible findings during a migraine include the following:

- Cranial/cervical muscle tenderness
- Horner syndrome (ie, relative miosis with 1-2 mm of ptosis on the same side as the headache)
- Conjunctival injection
- Tachycardia/bradycardia
- Hypertension/hypotension
- Hemisensory or hemiparetic neurologic deficits (ie, complicated migraine)
- Adie-type pupil (ie, poor light reactivity, with near dissociation to light)

Pertinent physical examination findings that suggest a headache diagnosis other than migraine include the following:

- Dim scotoma lasting a few seconds to several minutes (ie, amaurosis)
- Temporal artery tenderness in the elderly
- Meningismus
- Increased lethargy (unrelated to medication use)
- Mental status changes

Physical examination findings suggesting a more serious cause of headache include systemic symptoms (eg, myalgia, fever, malaise, weight loss, scalp tenderness, jaw claudication) and focal neurologic abnormalities or confusion, seizures, or any impairment of level of consciousness. On the other hand, focal neurologic findings that occur with the headache and persist temporarily after the pain resolves suggest a migraine variant, as follows:

- Unilateral paralysis or weakness - Hemiplegic migraine

- Aphasia, syncope, and balance problems - Basilar-type migraines
- Third nerve palsy, with ocular muscle paralysis and ptosis, including or sparing the pupillary response - Ophthalmoplegic migraine

Ophthalmic migraines cause a visual disturbance (usually lateral field deficit). This variant is more common in children, with the abnormal motor findings lasting hours to days after the headache.

Diagnostic Criteria

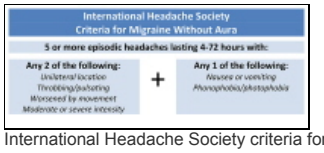
The diagnosis of migraine is based on the history. According to diagnostic criteria established by the International Headache Society, patients must have had at least 5 headache attacks that lasted 4-72 hours (untreated or unsuccessfully treated) and the headache must have had at least 2 of the following characteristics[2] :

- Unilateral location
- Pulsating quality
- Moderate or severe pain intensity
- Aggravation by or causing avoidance of routine physical activity (eg, walking, climbing stairs)

In addition, during the headache the patient must have had at least 1 of the following:

- Nausea and/or vomiting
- Photophobia and phonophobia

Finally, these features must not be attributable to another disorder. (See the chart below.)



International Headache Society criteria for migraine without aura.

The International Headache Society defines aura as reversible focal neurologic symptoms that usually develop gradually over 5-20 minutes and last for less than 60 minutes. Headache with the features of migraine without aura usually follows the aura symptoms. Less commonly, the headache lacks migrainous features or is completely absent.

Migraine Variants

Migraine variants include the following:

- Childhood periodic syndromes
- Late-life migrainous accompaniments
- Basilar-type migraine
- Hemiplegic migraine
- Status migrainosus
- Ophthalmoplegic migraine
- Retinal migraine

See the Medscape Reference article Childhood Migraine Variants for more information on these topics.

Childhood periodic syndromes

Childhood periodic syndromes evolve into migraine in adulthood. These syndromes include cyclic vomiting, abdominal migraine, and benign paroxysmal vertigo of childhood.

In cyclic vomiting, the child has at least 5 attacks of intense nausea and vomiting ranging from 1 hour to 5 days. Abdominal migraine consists of episodic midline abdominal pain lasting 1-72 hours with at least 2 of 4 other symptoms (ie, nausea, vomiting, anorexia, and/or pallor). Benign paroxysmal vertigo of childhood involves recurrent attacks of vertigo, often associated with vomiting or nystagmus.

See Migraine in Children for more information on these topics.

Late-life migrainous accompaniments

In elderly persons, a stereotypical series of prodromelike symptoms may entirely replace the migrainous episode; this is termed late-life migrainous accompaniments. If the headache is always on one side, a structural lesion needs to be excluded using imaging studies.

Eliciting a history of recurrent typical attacks and determining the provoking agent are important because a secondary headache can mimic migraine. A new headache, even if it appears typical on the basis of its history, should always suggest a broad differential diagnosis and the possibility of a secondary headache.

Basilar-type and hemiplegic migraine

Patients with basilar-type migraine can present without headaches but with basilar-type symptoms, such as the following:

- Vertigo
- Dizziness
- Confusion
- Dysarthria
- Tingling of extremities
- Incoordination

Hemiplegic migraine is a very rare migraine variant in which headaches are associated with temporary, unilateral

hemiparesis or hemiplegia, at times accompanied by ipsilateral numbness or tingling, with or without a speech disturbance. The focal neurologic deficit may precede or accompany the headache, which is usually less dramatic than the motor deficit. Other migraine symptoms may variably be present. Patients may also experience disturbance of consciousness, and (rarely) coma

Ophthalmoplegic and retinal migraine

Ophthalmoplegic migraine

Ophthalmoplegic migraine is characterized by transient palsies of the extraocular muscle with dilated pupils and eye pain. This migraine variant has been reclassified by the International Headache Society as a neuralgia and is thought to be caused by idiopathic inflammatory neuritis. In the acute phase, enhancement of the cisternal segment of the third cranial nerve occurs.

Retinal migraine

Rarely, patients develop retinal and optic nerve involvement during or before a migraine headache and present with visual disturbance, papilledema, and retinal hemorrhages affecting 1 eye. This variant is called retinal migraine or ocular migraine.

The International Headache Society criteria for retinal migraine[67] are at least 2 attacks of fully reversible, monocular visual phenomena, positive and/or negative (eg, scintillations, scotomata, or blindness). These are to be confirmed by examination during an attack or (after proper instruction) by the patient's drawing of a monocular field defect during an attack. In addition, migraine without aura must begin during the visual symptoms or follow them within 60 minutes.

The patient must have a normal ophthalmologic examination between attacks. Other causes of transient, monocular blindness must be excluded with appropriate investigations.

Status migrainosus and chronic migraine

Status migrainosus occurs when the migraine attack persists for more than 72 hours. It may result in complications such as dehydration.

Chronic migraine is defined as migraine headache that occurs for more than 15 days a month for greater than 3 months. Most patients with chronic migraine have a history of migraine headaches that started at a young age. Associated symptoms of nausea, vomiting, photophobia, and phonophobia may be less frequent.

Comorbidities of Migraine

Migraine is associated with the following:

- Epilepsy (eg, benign rolandic epilepsy, benign childhood epilepsy)
- Familial dyslipoproteinemias
- Hereditary hemorrhagic telangiectasia
- Tourette syndrome
- Hereditary essential tremor
- Hereditary cerebral amyloid angiopathy
- Ischemic stroke (migraine with aura is a risk factor, with an odds ratio of 6)
- Depression and anxiety
- Asthma
- Patent foramen ovale
- Obesity
- Posttraumatic stress disorder

Epilepsy increases the relative risk of migraine by 2.4. A Danish study found that migraine occurs in 20-30% of patients with several medical conditions, including kidney stone, psoriasis, rheumatoid arthritis, and fibromyalgia.[68] Migraine with aura had more comorbidities than migraine without aura.

Complications of Migraine

Complications of migraine include the following:

- Chronic migraine
- Migraine-triggered seizures
- Migrainous infarction (stroke with migraine)
- Persistent aura (eg, 30-60 minutes) without infarction

Ischemic stroke may occur as a rare, but serious, complication of migraine.[69] In migraines with aura, hemorrhagic stroke is also a possible, but rare, complication.[70] Risk factors for stroke include the following:

- Migraine with aura
- Female sex
- Cigarette smoking
- Estrogen use

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