

Headache – A Symptom not a Disease

QD MOHAMMAD

Summary:

Headache is a ubiquitous symptom, yet it is one that often elicits anxiety in both patients and physicians. No symptom more than headache gives a physician the chance to regain the time-honored role of “healer.” Most primary headache can be managed in primary care and investigations are rarely needed. When a patient presents with headache, the clinician must answer the following questions: (1) Is the

headache “worrisome” (secondary to underlying disease)? (2) If the headache is benign, what type is it? (3) How is headache best treated? Every presentation of headache requires care to exclude organic disease, and every presentation provides the opportunity to relieve suffering. The following review is intended to aid physicians in answering these questions.

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Introduction:

Headache (HA) is the most common symptom in neurology and very common symptom in other systemic diseases too. Headache is defined as pain or any kind of discomfort in the head excluding the lower part of the face and including the upper part of the neck. Although the pain is felt over the head so it seems that the pain comes from the brain but surprisingly this is not the reality because the brain parenchyma is pain insensitive, so from where the pain arises? The pain arises from the pain sensitive structure in the head e.g. from blood vessels, venous sinuses, meninges mostly from basal dura, nerve roots, scalp, orbital contents, Para nasal sinuses, teeth, gum etc. as all have pain receptors, These receptors when stimulated either by distension, traction, compression or irritation the pain sensation starts & then goes to thalamus when we perceive only pain not the nature but when goes to sensory cortex then we can identify the nature of pain.

Classification of Headache:

According to international headache society: It is of (A) primary and (B) secondary headache^{1,2,3}.

A) Primary HA: It means idiopathic (80-90%) The major types are

- Muscle contractor or tension type headache (80-90%)
- Migraine (10-15%)
- Cluster headache (1%)
- Idiopathic Intracranial Headache (IIH)

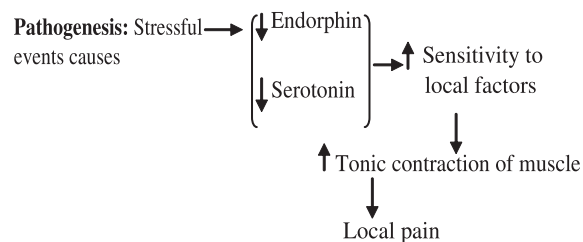
(B) Secondary HA: It means there is cause (10-20%). The major types are

- Head trauma (3-4%)
- Brain tumor (3%-4%)
- Infective (7-8%)
- Referred headache (7-8%)

According to clinical presentation

- Acute: Migraine, Cluster HA, stroke, meningitis, glaucoma, arteritis, post traumatic, coital, venous sinus thrombosis etc.
- Subacute: meningitis, intracranial space occupying lesion, chronic subdural haematoma, (CDH) idiopathic intracranial hypertension (IIH), Temporal arteritis (TA) etc.
- Recurrent: TTH migraine, Cluster HA, Neuralgias, referred HA
- Chronic: TTH, IIH, intracranial space occupying lesion (ICSOL), Referred HA, TA, drugs, eye strain etc.

Tension Type Headache (TTH): The very name suggests that this kind of headache is related with underlying stress, anxiety, depression and tension. This is more common in women than men and found in childhood to middle aged person^{4,5,6,7}.



Clinical Features of TTH: According to the international headache society the accepted diagnostic criteria of TTH are as follows:

- At least 10 previous attacks of headache

Address of Correspondence: Prof. Dr. Quazi Deen Mohammad, Principal, Dhaka Medical College, Dhaka & Director, National Institute of Neurosciences (NINS), Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh.

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- HA for >15 days / month or 180 days / year
- HA lasting for 30 minutes to 7 days and at least 2 criteria form group A and none from group B

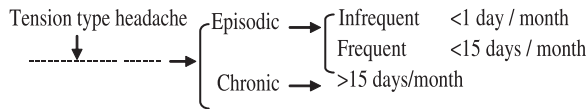
Group A

- Pressing, Tightness, band like in nature
- Mild to moderate in severity
- Bilateral on location
- Not aggravated by straining & physical activity

Group B

- Nausea
- Vomiting
- Photophobia
- phonophobia

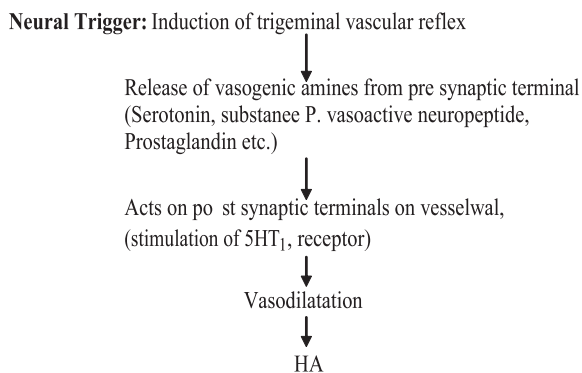
Types of TTH : Whatever may be the types the nature of headache is similar.



Examination is usually normal and needs no investigations for the diagnosis of TTH. Treatment is basically aimed to address the underlying precipitating factor. The usual drugs are beta blockers, tricyclic antidepressant and anxiolytic. The prognosis is usually unrewarding, so needs to treat by a team where there is psychiatrist; psychologist & neurologist. Patients mind setup is very very important. Counseling to patient & parent is mandatory.

Migraine: This is one of the neuro vascular headache syndromes which is at times over diagnosed. It is a highly prevalent, largely familial (autosomal dominant) disorder found in early adult life and with diminishing frequency with advancing age. Migraine affects 13% of population of which 70% are women. Initially it was thought that migraine is purely due to vascular mechanism but now it is referred as neuro vascular mechanism that means there is neural as well as vascular phenomenon^{8,9,10,11}.

Presumed mechanism of HA in Migraine



- Types of Migraine: (1) Migraine without aura (70-80%)
 (2) Migraine with aura (10-20%)
 (3) Chronic migraine (<5%)
 (4) Migraine variants (<1%)

Diagnostic Criteria of Migraine without Aura :

- At least 5 previous headache
- HA lasting for 48-72 hours

Patient must fulfill two criteria from group A & one from group B:

Group A

- Unilateral pain
- Pulsatile or throbbing in nature
- Moderate to severe in intensity
- pain aggravated by physical activity, bending etc.

Group B

- Nausea
- Vomiting
- photophobia
- phonophobia

Diagnostic Criteria of Migraine with Aura : Headache characteristic is like migraine without aura but here in addition there is aura. Aura is usually present 4-60 minutes before or during headache. The most common aura is visual (99%) in the form of teichopsia, photopsia, scotoma, hemianopia, visual hallucination, Then sensory (30%) in the form of paresthesia, tingling and numbness of a part of body, then motor (2%) in the form of dysphasia or weakness of a part of body. The aura is due to initial vasoconstriction & it points the site of vascular involvement.

Diagnostic Criteria of Chronic Migraine: The headache character is migrainous in nature and which could be like TTH and lasting for >15 days in a month and at least for 3 months or HA for > 8 days with migrainous quality. Provided it is not by drug overuse.

The Migraine Variants: HA like migraine but here in addition there is involvement of other structure. It includes the following:

- Hemiplegic migraine
- Basilar migraine
- Childhood periodic syndrome
- Retinal migraine
- Ophthalmoplegic
- Complicated migraine

Migraine Triggers: Diet, sleep deprivation or excess sleep, hormonal change, environmental factors, physical exertion, stress, anxiety, head trauma, coffee, tea, chocolate, perfumes etc.

Phases of Migraine: (i) Prodrome : mental & physical change

- (ii) Aura
- (iii) Headache
- (iv) Postdrome – confusion, tiredness, sleepy, angry, irritability etc.

Staging of Migraine: (i) Mild; where there is occasional HA without major functional impairment. (ii) Moderate: moderately severe HA with nausea and some functional impairment (iii) Severe: frequent severe HA with nausea, vomiting significant functional impairment.

Treatment of Migraine: The most important goal of treatment is complete pain relief without recurrence. This could be achieved by two ways

- a) to kill pain – abortive
- b) to prevent further HA – prophylactic.

To kill pain the following classes of drugs are usually used e.g. NSAIDS, paracetamol, tryptans, and ergots. In case of mild to moderate headache oral preparation & in severe headache parenteral drugs are used, our experience says naproxen, ibuprofen are better active drug than paracetamol & aspirin. Tryptans is a heroic drug which has more potent & specific effect. There are few formulations of tryptans available which are used orally before or after aura in migraine.

Indications of migraine prophylaxis. These are

- (i) frequent headache – atleast 2 per month
- (ii) limited use of abortive drugs due to any cause
- (iii) patients preference
- (iv) to reduce attack – in frequency, severity & duration
- (v) to improve quality of life.

Why Migraine Prevention: 60% of migrainous have one or more severe attack per month 25% experience 4 or more severe attack per month

- (iii) limited use of abortive drug e.g. 2 times / week
- (iv) limited efficacy of abortive drug
- (v) to reduce frequency, severity & duration of HA

Prophylaxis of Migraine: This is the most important approach in the management of migraine is vast majority of cases. There are quite a good number of drugs in this list but commonly used are nonselective beta-blocker, (propranolol) Tricyclic antidepressant, (amitryptaline, nortryptaline), anti convulsant (disalproate soduim, lamitrigin), serotonin agonist (tryptans), cyptoheptadine; & others like riboflavin and pizotifen, The drugs are to selected depending on the patients age, occupation, underlying co-morbid disease, side effects &

affordability, our experience shows combination of beta-blocker & TCA offers better result than single agent. Other drugs are also effective.

Migraine Prognosis : Early onset migraine (<20yr) 80% has spontaneous cure within 5 yr. and late onset (>20 yr) migraine 25-30% spontaneous cure in 5 year, prophylaxis is effective in 55% patient where there is 50% less frequent attack, Prophylactic therapy should be continued at least 3 -6 months from the last attack then gradual withdrawal within 1-2 months.

Cluster Headache: Cluster HA is a serious condition that constitute as its most prominent feature, repeated attack of excruciating severe pain that occurs always on only one side of the head (unilateral) . It affects approximately 0.1% of the population and men are more commonly affected than women by a ratio of 2.1:1^{12,13,14}.

Cluster headache are recurring bouts of unilateral headache of extreme intensity. The duration of typical cluster headache attack ranges from about 15-180 minutes. The nature of pain like migraine. The pain is lancinating or boring in quality and is located behind the eye (priorbital) or in the temple. There is autonomic features in the form of ptosis, miosis, conjunctival injection. Lacrimation, rhinorrhea, facial swelling or sweating all appearing in the same side of headache.

This headache is sometimes referred as alarm clock headaches because of their ability to wake some people from sleep and because of the regularity of their timing e.g. attack striking at a same time of the day, each morning or night is typical e.g. 3am. 9pm, 2pm. In episodic cluster headache, these attacks occur once or more daily often at the same times each day for a period of several weeks followed by a headache free period lasting weeks, months or years.

Each headache has distinct underlying pathogenesis and clinical characteristics those are diagnostic of itself.

The exact mechanism of cluster HA is not known, but it belongs to the group of triggering autonomic cephalgia. It is a vascular headache where there is dysfunction of hypothalamus that explains the biological clock. Tobacco & alcohol may worsen or trigger the headache. Treatment is usually abortive & preventive. Rapid oxygen (100%) therapy 7-10 litter / min for 15 – 20 minutes then subcutaneous triptans. Prophylactic

therapy by anti convulsant as in migraine and prednisolone 1-2mg/kg/day for 1-2 week may be helpful. There is no cure for cluster HA. The goal of treatment is to decrease the severity of pain, shorten the headache and prevent the attack.

Headache due to raised Intracranial Pressure (ICP):

Although the headache due to raised ICP is very rare about 3-4% . But it always demand especial attention when a case of headache is analyzed. This kind of headache has few characteristic features^{15,16}. These are

- Generalized headache over cranium
- Worst on awaking or morning
- Aggravated by bending, stooping
- Severity gradually progress
- There is usually nausea or vomiting. The combination of headache, vomiting & papilloedema (cushing triad) is for raised ICP.
- There is obscuration of vision – transient loss of vision.
- Diplopia
- Bilateral Papilloedema. Neuro Imagine e.g. CT or MRI of head is diagnostic. Treatment is to reduce the raised ICP either by IV mannitol or IV dexamethason 5mg qds and supported by Analgesic: Immediate referral to neurosurgeon is mandatory.

Headache due to Infection: In this condition headache is usually due to underlying infection involving the pain sensitive structure in head particularly the meninges in meningitis & other structures in encephalitis: Here the headache is in whole head severe in intensity, dull or throbbing in nature. There could be associated vomiting, The most striking feature is there evidence of other stigmata of infection like fever, malaise & toxicity and signs of meningism. The treatment needs analgesics along with specific antibiotic.

Post Traumatic Headache: This is also a rare entity where headache is associated with trauma in head. The headache starts simultaneously or little late even after months, If headache starts simultaneously – this is primarily due to injury affecting the pain sensitive structure. If headache occur after few months it could be due to late onset complication like subdural haematoma or post traumatic stress headache, CT or MRI of Brain is necessary in this condition. Treatment is by analgesic, assurance, psychotherapy and specific if needed,

Headache in Subarachnoid Haemorrhage (SAH): This is one of the very severe headache which is qualified as bursting headache, ever a person has never felt. There is sudden severe excruciating headache usually occipital, with vomiting and obtundation. It is said that if a person develops sudden severe headache with vomiting it is SAH unless proved otherwise. C.T. of head is usually diagnostic. Headache is managed by paracetamol & tramadol but not by NSAID which might aggravates bleeding. Complete rest, stool softener are also necessary. Immediate Neuro-surgical referral also mandatory¹⁷.

Headache due to Sinusitis: This is one of the common condition causing headache. This is usually over diagnosed. The classical presentation is headache usually over the infected sinus which is dull and at times very severe but there is no vomiting. There is other features of infection like fever, nasal discharge, nasal block, Treatment is by paracetamol, Aspirin & by specific antibiotic, ENT consultation is always helpful.

Idiopathic Intracranial Hypertension (IIH): The frequency of IIH is about 1/100000 per year. This is more common in 20-40 yr, of age and in obese women. The cause is unknown but the known symptomatic causes needs to be excluded such as steroid, Toxins, vit E, tetracycline etc.¹⁸.

The presenting features are bifrontal headache transient visual obscuration and bilateral papilloedma. There could be also 6th cranial nerve palsy. Diagnosis is confirmed by excluding other causes of raised ICP like venous sinus thrombosis by MRV and by measuring CSF pressure.

Treatment is aimed at (i) eliminating the symptomatic causes (ii) weight reduction (iii) NSAID (iv) carbonic anhydrase inhibitors (v) short course of high dose steroid (vi) serial lumbar puncture (vii) Lumbo peritoneal or ventricular peritoneal shunt (viii) optic nerve sheath fenestration.

Headache in Special Situations: like children and elderly and in child bearing age deserves special attention. Because HA in the extreme age is usually secondary e.i. symptomatic proper investigations are necessary. Drug selection is also carefully done so that it does not impair daily activity or invites side effects. Headache in women particularly catamenial headache e.i. headache of migrainous quality that happens before or during menstruation. The treatment of this type of

headache is like migraine but acetazolamide here has priority.

Diagnosis of HA: Diagnosis of headache is largely clinical and history is the most important part, Then meticulous examination particularly nervous system is always mandatory particularly in secondary headache. Examination includes, fundoscopic examination. Cranial nerve particularly 2nd & 6th nerve examination is mandatory and then look for neck stiffness, other focal neurological deficit & blood pressure⁴.

Investigations: Investigations are indicated for secondary headache syndrome, depending on the underlying suspicion.

Brain Imaging: Neuro imaging of head should not be routine investigation in headache, Brain imaging is indicated in the following conditions called diagnostic warning flags⁴.

- (i) New HA of recent onset (the first)
- (ii) New HA of severe type (the worst)
- (iii) HA with focal neurological deficit
- (iv) HA associated with systemic illness
- (v) HA that peaks rapidly
- (vi) HA increased by exertion
- (vii) Recent change in character of HA
- (viii) Persistent unilateral HA.
- (ix) Nocturnal HA
- (x) HA associated with raised ICP
- (xi) New HA before 5 yr & after 55 year of age
- (xii) Patients preference

When to Consult a Physician: Headache is often ignored or underaddressed by the patient because of lack of knowledge and because they get over the counter drugs for killing pain. However certain situations demand immediate attention those are mentioned before as warning flags.

Conclusions:

Headache is a symptom but not a disease which has to be dealt carefully. There are many causes and many types of headache but the most common type and cause is benign in nature. Although the most common type is TTH but as a physician it has to be kept in mind whether there is any secondary headache syndrome like ICSOL, SAH or meningitis. Detail history and related meticulous examination particularly fundoscopic examination and looking for focal neurological deficit all the time important, CT of head should not be a routine investigation in headache. After the diagnosis appropriate drug in appropriate dose & duration looking

into side effects, contraindications, age, sex, occupation & affordability are then considered. By mere prescribing medication only cannot give rise to success of treatment, if counseling to patient & parents are not done simultaneously. Outcome is better if headache is treated by a team consisting of physician preferably neurologist, psychiatrist & psychologist. Otherwise the problem of headache may remain for long time and at one stage a situation may come when headache becomes a headache for physician also.

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