# HEADACHE

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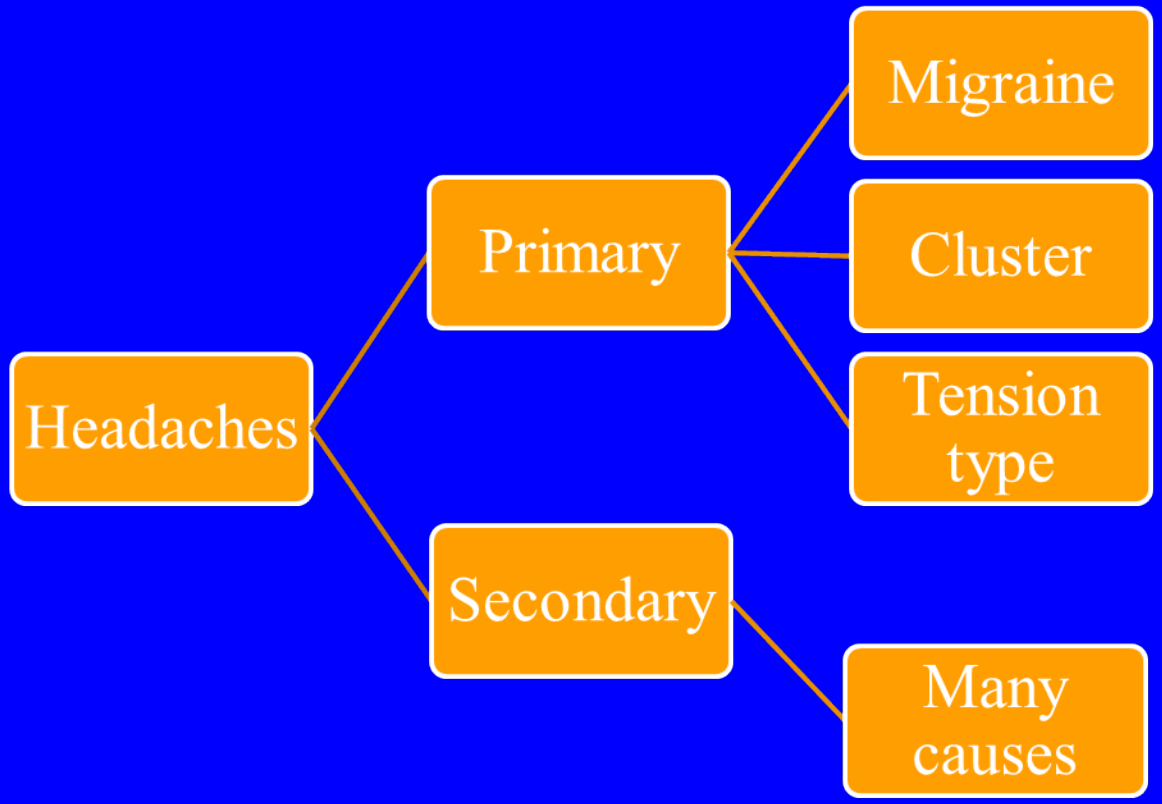
# Classification




Clinical (Practical)

- Acute
  - General
  - Focal
  - Recurrent
- Chronic
  - Progressive
  - Non progressive

# Case AD

- 30 yr male
- 17 yr Hx R-sided headache
- initially one/month
- for last 15 years 3-5 attacks/day (range 1-12)
- day or night; often wake him from sleep
- severe supraorbital/hemicranial pain peaking within minutes; lasting 30 min.
- often preceded by 10 min altered sensation behind right nostril

- No tearing/conjunctival injection
- Bilateral nasal stuffiness, rhinnorhoea, nausea, profound photophobia
- Precipitated by alcohol, cold air, chocolate
- Ergotamine aborts 30% if taken early
- No other medications helpful

- Smoker 16 years
- Examination normal
- MRI brain normal
- ECG normal

# Diagnosis?

- Cluster headache and other trigeminal autonomic cephalalgias
- Cluster headache
  1. Episodic cluster headache
  2. Chronic cluster headache
- Paroxysmal hemicrania
  1. Episodic paroxysmal hemicrania
  2. Chronic paroxysmal hemicrania

# Distinguishing CH from PH

- Pain & associated symptoms can be identical
- PH commonly shorter-lasting, more frequent
- Occur more frequently in females
- Absolute response to indomethacin

# Indomethacin-responsive headaches

- Trigeninal autonomic cephalalgias (EPH, CPH)
- Hemicrania continua
- Idiopathic stabbing headache
- Valsalva-induced headaches

  Cough headache, exertional headache, sex headache

# If indomethacin fails?

- ….reconsider the diagnosis (is it CH?)
- If not tolerated, try other NSAIDS, (ASA, naproxen, COX-II inh), verapamil, acetazolamide, CBZ,GABA, steroids
- Recent case reports of effective pain relief with DBS of ipsilateral posterior hypothalamus

# CASE 2

- 21 Year old lady – admitted to CDH with 2 weeks history of constant headaches.
- Headaches - dull ache involving whole head.
  - physical exertion increases severity
  - no nausea/vomitting
  - blurring of vision left eye
  - occasional double vision to the left
  - Occasional tinnitus right ear.

# EXAMINATION

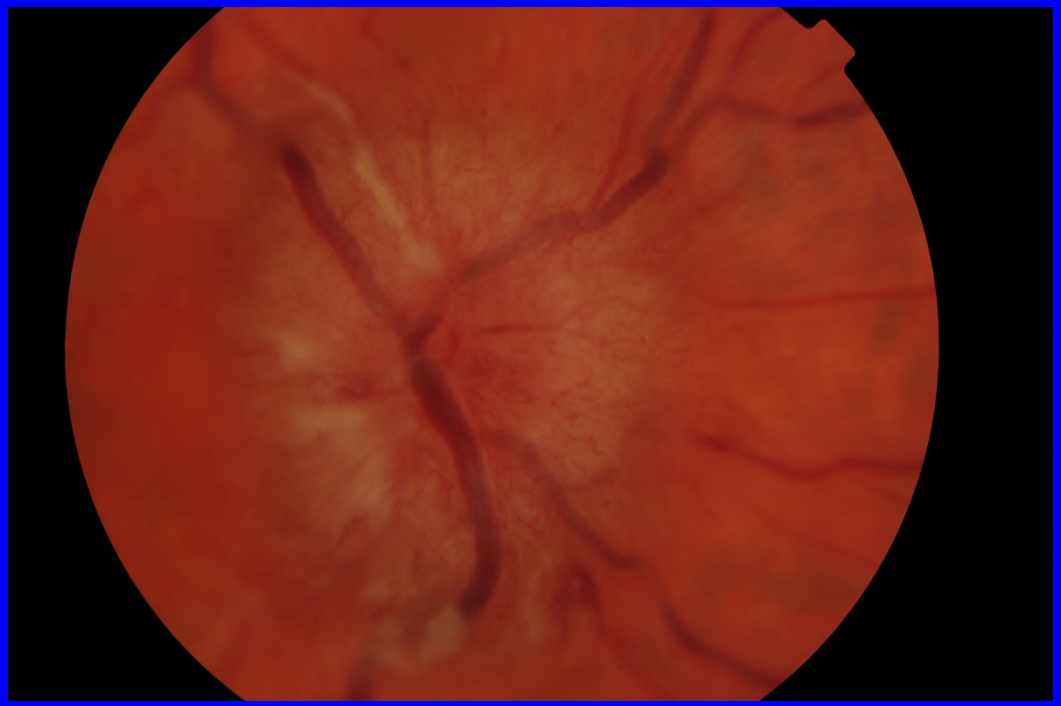
- On admission : NAD
- CT scan of head : NAD
- MR scan of head : NAD
- Treatment : Dihydrocodeine – no response
- Referred to neurologist.

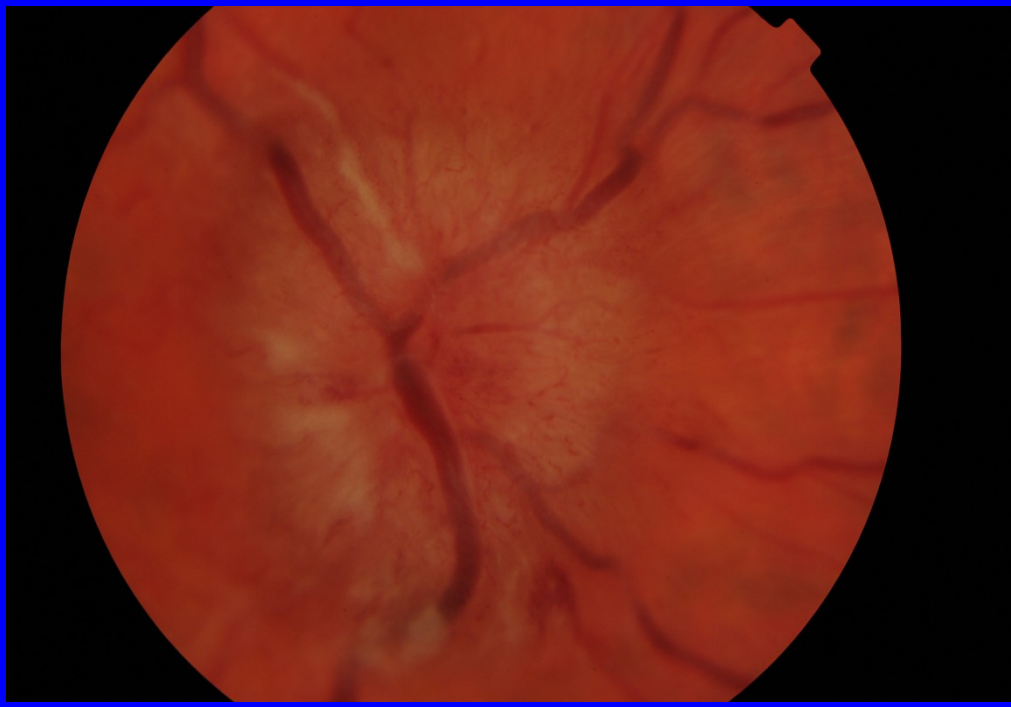
# NEUROLOGY REVIEW

- No ophthalmoscope available in the medical ward
- After 30 minutes hunt sister brought auroscope – "Is this what you want Doctor?"
- Patient therefore examined in out patient clinic after half an hour.

# FINDINGS

- Left pupil – marginally dilated
- Mild left rectus palsy
- Gross papilloedema both eyes
- Peripheral nervous system examination – NAD



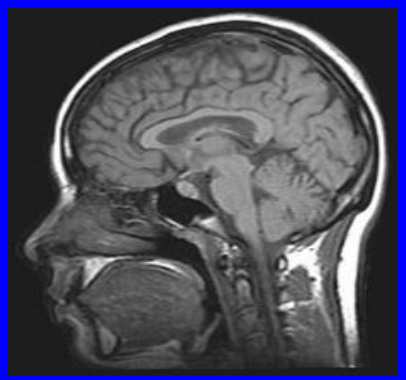


# DIAGNOSIS

- Idiopathic intracranial hypertension
- CSF pressure : > 40 cm of water
- CSF protein, glucose, cytology – Normal

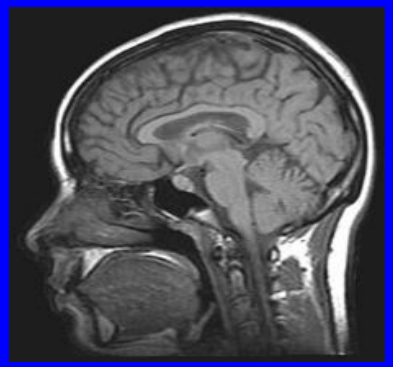
# Idiopathic Intracranial Hypertension

Benign Intracranial Hypertension (BIH) or Pseudotumor Cerebri (PTC), is a neurological disorder that is characterised by increased intracranial pressure (pressure around the brain) in the absence of tumor or other diseases.



# Signs and Symptoms

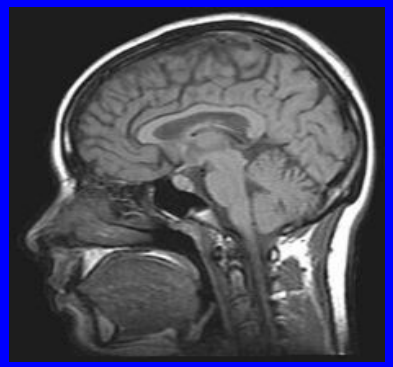
- Headaches
- Pulsatile Tinnitus
- Visual Obscurations
- Cranial Nerve Involvement (vi, vii, iii, iv)
- Papilledema



# Causes

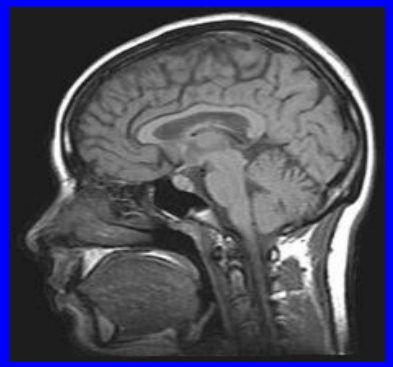
**Drugs**

- "Idiopathic" means "of unknown etiology"
- High-dose vitamin A derivates
- Tetracycline
- Hormonal contraceptives
- Nitrofurantoin



# Secondary Causes of Intracranial Hypertension

- Obstructive Sleep Apnea
- Systemic Lupus Erythematosis
- Chronic Kidney Disease
- Behcet's disease

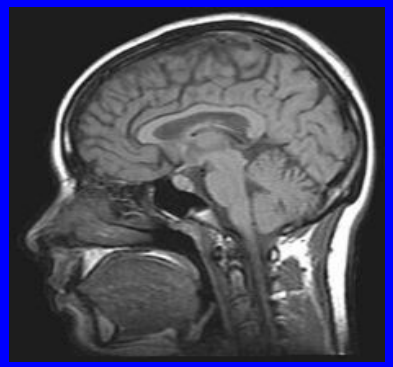


# Investigations

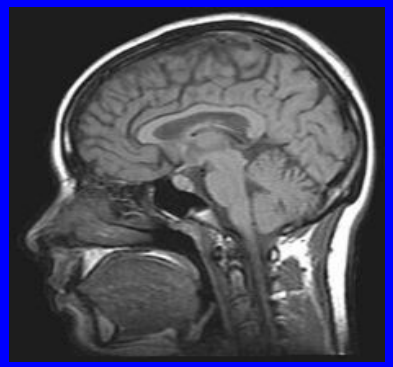
Computerised Tomography (CT/CAT) or Magnetic Resonance Imaging (MRI) of the head

- Normal
- Slit-like ventricles
- Flattening of the pituitary gland

MR Venogram



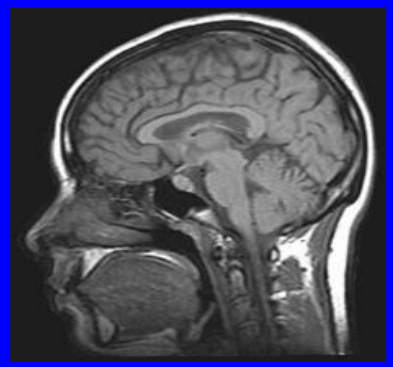
# Lumbar Puncture



# Classification

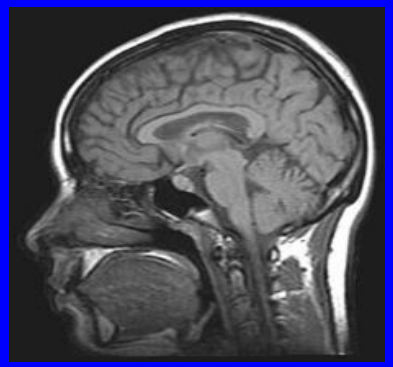
**Dandy criteria**

- Signs & symptoms of increased ICP – CSF pressure >25 cmH2O
- No localizing signs with the exception of abducens nerve palsy
- Normal CSF composition
- Normal to small (slit) ventricles on imaging with no intracranial mass



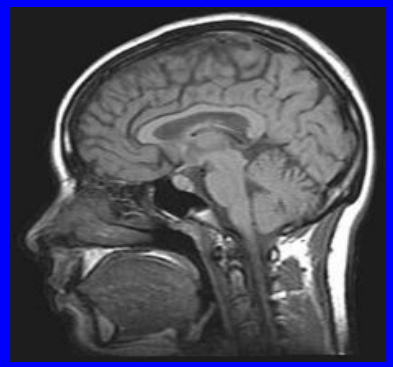
# Modified Dandy criteria

- Symptoms of raised intracranial pressure (headache, nausea, vomiting, transient visual obscurations, or papilledema)
- No localizing signs with the exception of abducens (sixth) nerve palsy
- The patient is awake and alert
- Normal CT/MRI findings without evidence of thrombosis
- LP opening pressure of >25 cmH2O and normal biochemical and cytological composition of CSF
- No other explanation for the raised intracranial pressure



# Treatment

- Lumbar Puncture
- Medication
- Surgery
  - Optic Nerve Sheath Decompression and fenestration



# Shunt Surgery

- Lumboperitoneal
- Ventriculoatrial
- Ventriculoperitoneal Shunt

# An approach to the headache history

**How many different headaches types does the patient experience?**

# Time questions

- Why consulting now?
- How recent in onset?
- How frequent, and what temporal pattern
- How long lasting?

# Character questions

- Intensity of pain
- Nature and quality of pain
- Site and spread of pain
- Associated symptoms

# Cause questions

- Predisposing and/or trigger factors
- Aggravating and/or relieving factors
- Family history of similar headache

# Response questions

- What does the patient do during the headache?
- How much is activity (function) limited or prevented?
- What medication has been and is used, and in what manner?

# State of health between attacks

- Completely well, or residual or persisting symptoms?

- Concerns, anxieties, fears about recurrent attacks, and/or their cause

# Diagnosis of tension-type headache, migraine and cluster headache

NHS National Institute for Health and Clinical Excellence

| *Headache feature* | *Tension-type headache* | | *Migraine (with or without aura)* | | *Cluster headache* | |
|---|---|---|---|---|---|---|
| **Pain location**[1] | Bilateral | | Unilateral or bilateral | | Unilateral (around the eye, above the eye and along the side of the head/face) | |
| **Pain quality** | Pressing/tightening (non-pulsating) | | Pulsating (throbbing or banging in young people aged 12–17 years) | | Variable (can be sharp, boring, burning, throbbing or tightening) | |
| **Pain intensity** | Mild or moderate | | Moderate or severe | | Severe or very severe | |
| **Effect on activities** | Not aggravated by routine activities of daily living | | Aggravated by, or causes avoidance of, routine activities of daily living | | Restlessness or agitation | |
| **Other symptoms** | None | | • Unusual sensitivity to light and/or sound or nausea and/or vomiting.<br>• Aura: symptoms can occur with or without headache and; are fully reversible, develop over at least 5 minutes, last 5 - 60 minutes. Typical aura symptoms include visual symptoms such as flickering lights, spots or lines and/or partial loss of vision; sensory symptoms such as numbness and/or pins and needles; and/or speech disturbance. | | On the same side as the headache:<br>• Red and/or watery eye<br>• Nasal congestion and/or runny nose<br>• Swollen eyelid<br>• Forehead and facial sweating<br>• Constricted pupil and/or drooping eyelid | |
| **Duration of headache** | 30 minutes–continuous | | 4–72 hours in adults<br>1–72 hours in young people aged 12–17 years | | 15–180 minutes | |
| **Frequency of headache** | < 15 days per month | ≥ 15 days per month for more than 3 months | < 15 days per month | ≥ 15 days per month for more than 3 months | 1 every other day to 8 per day[3], with remission[4] >1 month | 1 every other day to 8 per day[3] with a continuous remission[4] <1 month in a 12-month period |
| **Diagnosis** | **Episodic tension-type headache** | **Chronic tension-type headache**[2] | **Episodic migraine (with or without aura)** | **Chronic migraine (with or without aura)** | **Episodic cluster headache** | **Chronic cluster headache** |

[1] Headache pain can be felt in the head, face or neck. [2] Chronic migraine and chronic tension-type headache commonly overlap. If there are any features of migraine, diagnose chronic migraine. [3] Frequency of recurrent headaches during a cluster headache bout. [4] The pain-free period between cluster headache bouts.

# MIGRAINE

Migraine without aura (previously common migraine) 75%

Migraine with aura (previously classic migraine) 20%

Other migrainous disorder (hemiplegic, basilar, ophthalmoplegic) 5%.

# TENSION-TYPE HEADACHE

Episodic tension-type headache (previously muscle contraction headache stress headache and so on).

Chronic tension-type headache.

Tension-type-like headache.

# SEX AND AGE DISTRIBUTION

## Migraine

Migraine is more common in women than in men, male to female ratio of around 1 : 2 to 3.

In men, both types have been found to be equally common whereas in women the prevalence of migraine without aura is higher than that of with aura.

The most common age at onset of migraine is within the 2nd and 3rd decade.

## Tension-type headache

Male to female ratio 1 : 1 to 5.

The most common age at the onset of tension-type headache is in the 2nd decade but lower than that of migraine.

# FREQUENCY (Number of days or attacks/year)

## Migraine

In general population:

62% of subjects with migraine had migraine < 8 days a year.

24% - 8 - 14 days a year.

14% - > 14 days a year.

7% of the migraineurs required prophylaxis due to frequent migraine attacks

(Rasmussen et al 1991).

## Tension-type headache

In general population:

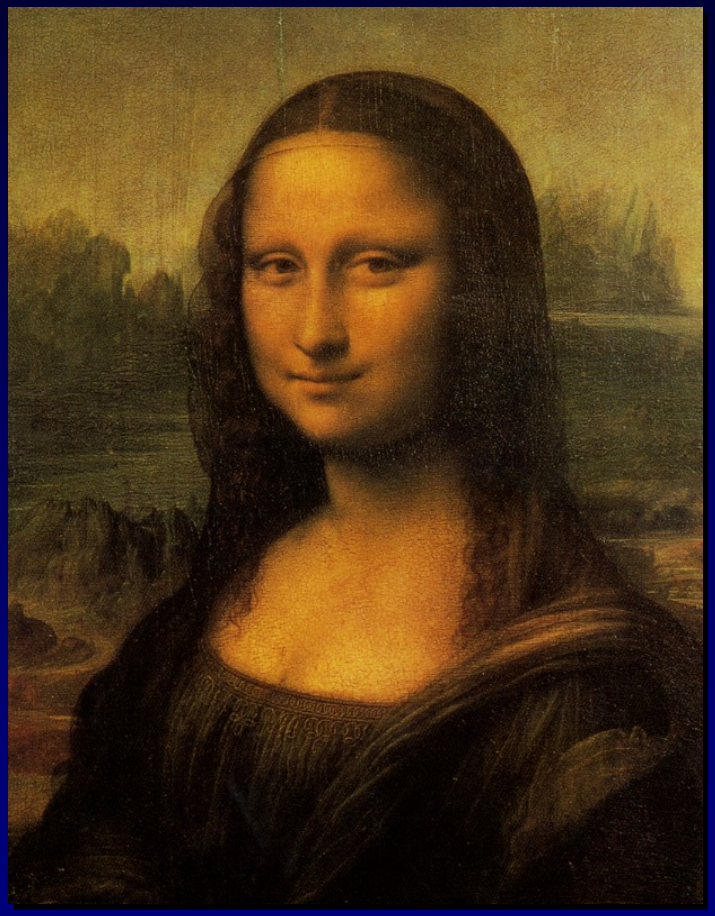
59% of subjects with tension-type headache had it 1 day a month or less. < 12 days a year.

37% several times a month.

3% had chronic tension-type headache (ie headache > 180 days a year)

(Rasmussen et al 1992)

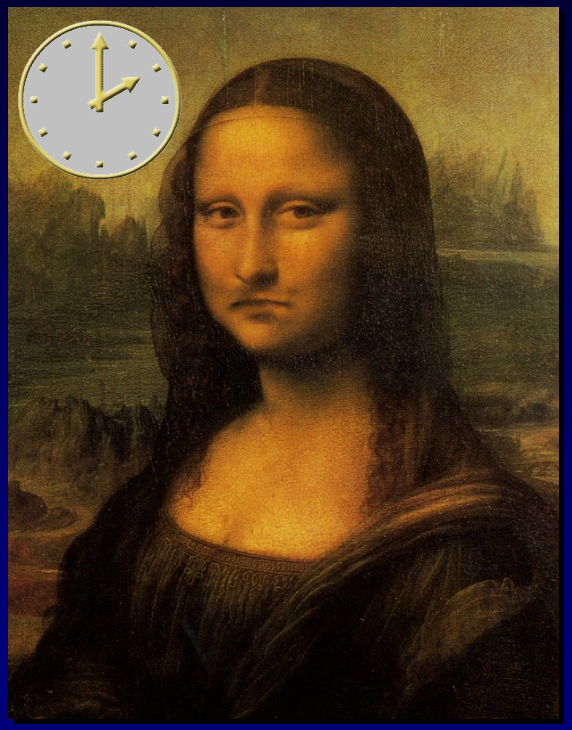
# This is migraine



# This is migraine

**Duration:**

- **4 - 72 hours**

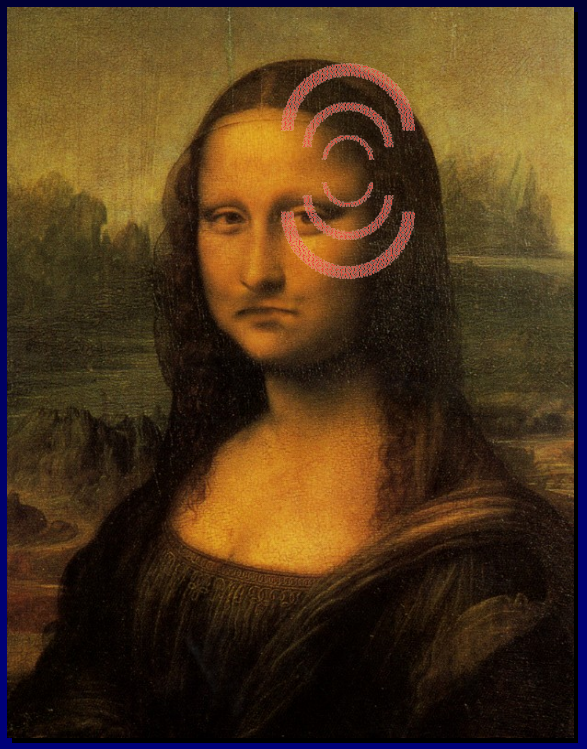


IHS Guidelines Cephalalgia 1988

# This is migraine

**At least two of:**

- **Unilateral**
- **Pulsating**

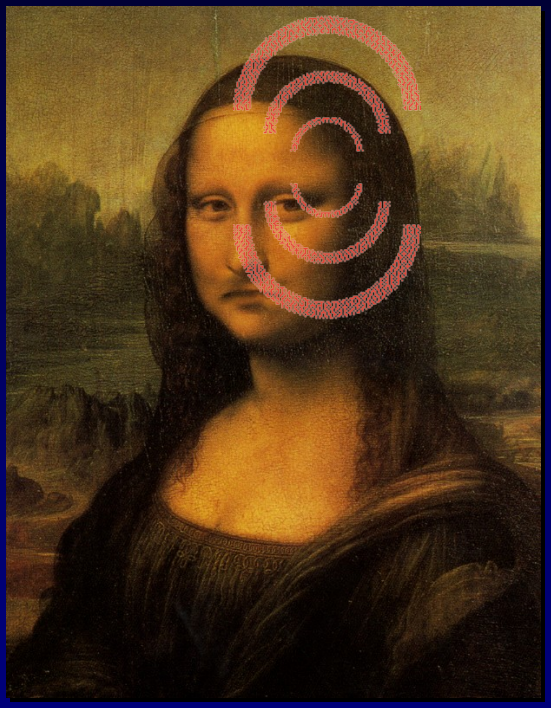


IHS Guidelines Cephalalgia 1988

# This is migraine

**At least two of:**

- **Unilateral**
- **Pulsating**
- **Moderate/severe intensity**



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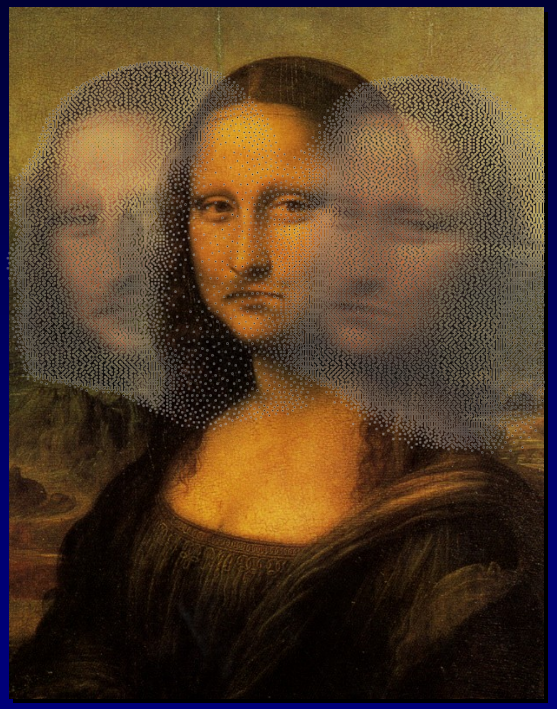
# This is migraine

**At least two of:**

- Unilateral
- Pulsating
- Moderate/severe intensity
- Aggravated by movement



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# This is migraine

## Accompanied by:

- Photophobia

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# This is migraine

**Accompanied by:**

- **Photophobia**
- **Phonophobia**

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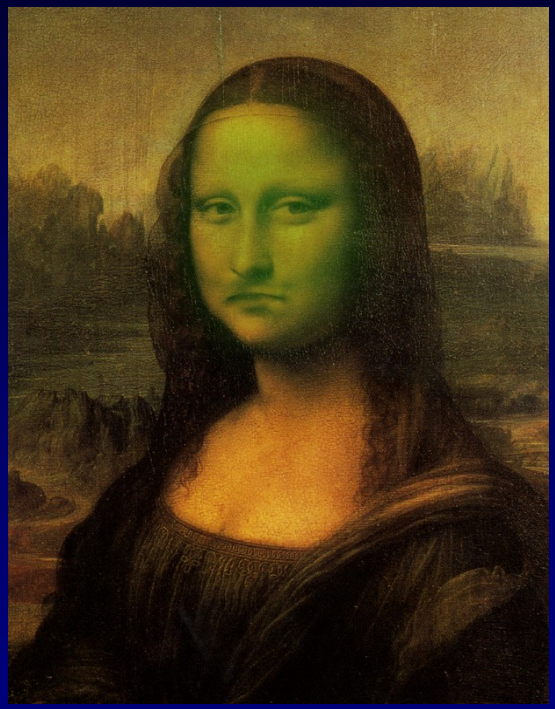
# This is migraine

**Accompanied by:**

- **Photophobia**
- **Phonophobia**
- **Nausea**



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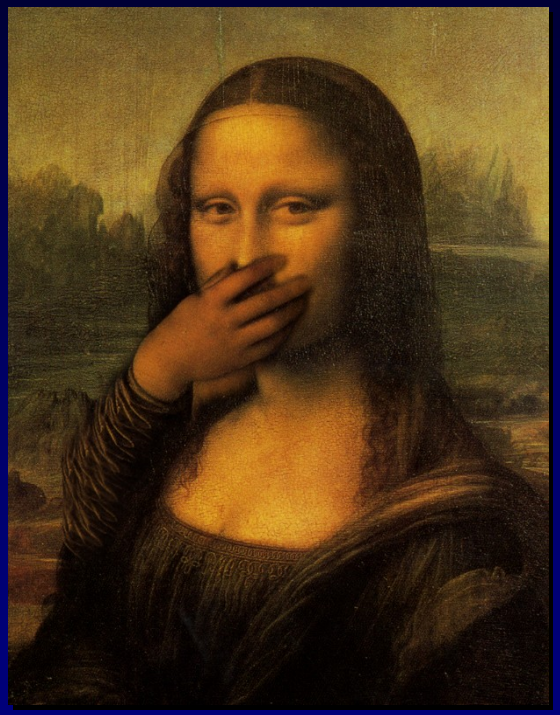
# This is migraine

**Accompanied by:**

- Photophobia
- Phonophobia
- Nausea
- **Vomiting**



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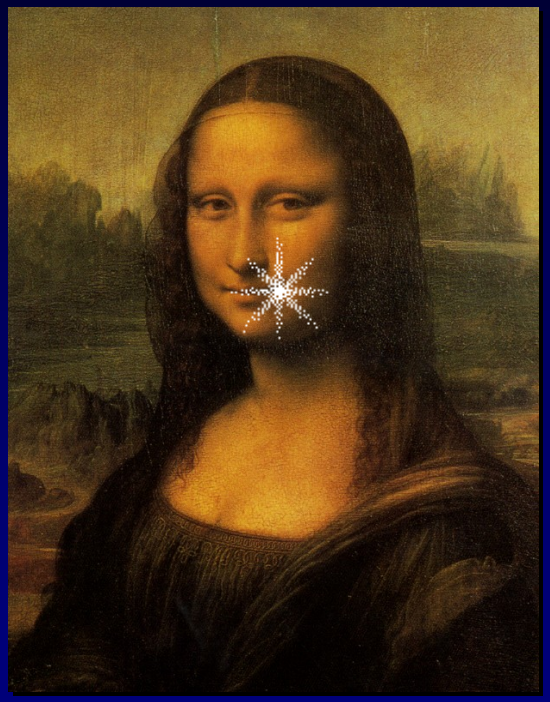
# This is migraine

- Patients are completely symptom-free between attacks



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# DIAGNOSTIC CRITERIA FOR MIGRAINE WITHOUT AURA

A At least five attacks fulfilling criteria B-D.

B Headache lasting 4 to 72 hours (untreated or unsuccessfully treated).

C Headache has at least two of the following:

1. Unilateral location.
2. Pulsating quality.
3. Moderate or severe intensity (inhibits or prohibits daily activity).
4. Aggravation by walking stairs or similar routine physical activity.

D During headache, at least one of the following occurs:

1. Nausea or vomiting or both
2. Photophobia and phonophobia.

# DIAGNOSTIC CRITERIA FOR MIGRAINE WITH AURA (CLASSIC MIGRAINE)

A At least two attacks fulfilling criterion B.

B At least three of the following four characteristics are present:

1. One or more fully reversible aura symptoms occur, indicating brain dysfunction.
2. At least one aura symptom develops gradually over more than 4 minutes or two or more symptoms occur in succession.
3. No single aura symptom lasts more than 60 minutes.
4. Headache follows aura with a free interval of less than 60 minutes (it also may begin before or simultaneously with the aura).

C History, physical examination and, where appropriate, diagnostic tests exclude a secondary cause.

# DIAGNOSTIC CRITERIA FOR EPISODIC TENSION-TYPE HEADACHE

At least 10 previous headache episodes fulfilling the following criteria
(number of days with such headache <180/y)

Headache lasting from 30 minutes to 7 days.

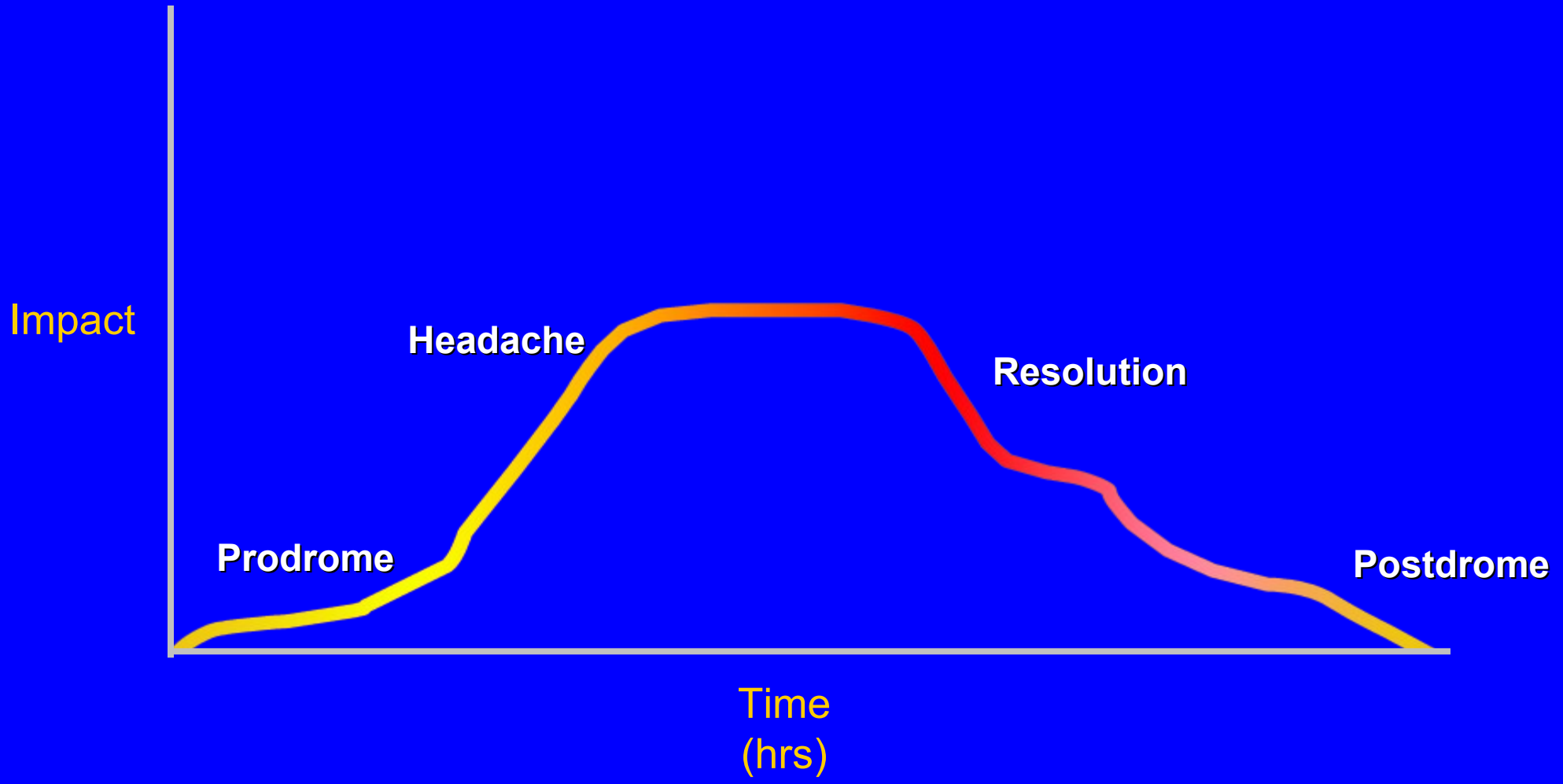
At least two of the following pain characteristics:

- Pressing or tightening (nonpulsating) quality.
- Mild or moderate intensity.
- Bilateral location.
- No aggravation by walking stairs or similar routine physical activity.

Both of the following:

- No nausea or vomiting (anorexia may occur).
- Photophobia and phonophobia are absent, or one but not the other is present.

# A migraine attack: graphical profiles



# CLINICAL PATTERN OF MIGRAINE ATTACK (Blau 1980)

**Phase I** "Prodrome" - hours to days before the onset of headache.
Premonitory phenomenon occurs in 60% of migraineurs and include:

1. Psychological symptoms - depression, euphoria, irritability, restlessness, mental slowness, hyperactivity, fatigue, drowsiness.
2. Neurological pheonomenon - photophobia, phonophobia and hyperosmia.
3. Constitutional symptoms - stiff neck, cold feeling, sluggishness, increased food craving.

**Phase II** "Aura" - consists of focal neurological symptoms.
20% experience aura.
Aura symptoms develop over 5 to 20 minutes and last less than 60 minutes.
Characterised by visual scintillations and/or scotoma, hemisensory or motor disturbances.

**Phase III** "Headache phase" Head pain is invariably accompanied by other features (anorexia, nausea, vomiting

photophobia, phonophobia, osmophobia.

**Phase IV** "Termination phase"

In the temination phase the pain wanes.

**Phase V** "Postdrome" - tiredness, irritability, listlessness and impaired concentration, mood changes.

# COMMON PRECIPITANTS OF MIGRAINE

Fatigue, overwork, travel.

Relaxation after stress - holiday and Saturday morning headache.

Bright lights, discos.

Sleep excess or shortage - Sunday morning headache.

Missing meals.

Rare dietary sensitivity.

Alcohol, red wines.

Menstruation.

Exercise-related vascular headaches:  footballer's migraine, coital cephalgia

# Migraine: the economic impact

Lost productivity in the UK:


Hall, M. Target Migraine. ABPI 2000

# TREATMENT

- General Advice
- Look for underlying emotional stress.
- Avoid aggravating factors - oral contraceptives in females and abuse of analgesics.
- Advise to have regular meals, good sleep and regular working schedule.
- Avoid undue physical and emotional stress, tea and coffee.

For nausea:

1. Metoclopramide  No congenital malformations have been reported.

2. Chlorpromazine.  Most studies indicate safe for mother and foetus if used in occasional low doses.

3.Prochlorperazine.  Most evidence indicates that both this drug and promethazine are safe for mother and foetus if used occasionally in

# ABORTIVE/SYMPTOMATIC TREATMENT

- Over-hydration at the beginning of the attack with 1-2 pints of water
- Local application of products such as menthol strips
- Massage to the neck temples or scalp
- Application of ice or heat pack
- Rest

A Simple analgesic.

Soluble Aspirin 600 mgs or Paracetamol 1 gram - take immediately after the onset of an attack and repeat 4 - 6 hourly as needed.

Non-steroidal anti-inflammatory drug Naproxen 500 mgs.

Absorption is improved by ingestion with Metaclopramide 10 mgs or Domperidone 20mg QDS or 60mg rectally as suppository

**Triptans**

- Sumatriptan (5HT1D agonist)

S/C (6 mgs) relieves headache in 77% of patients at 60 minutes and in 83% at two hours.

Oral (100 mgs) provides relief in 70% of attacks within two hours.

Recurrence of headache occurs with 48 hours in 42% of patients.

- Zolmitriptan (5HT1A, 1B, !D agonist

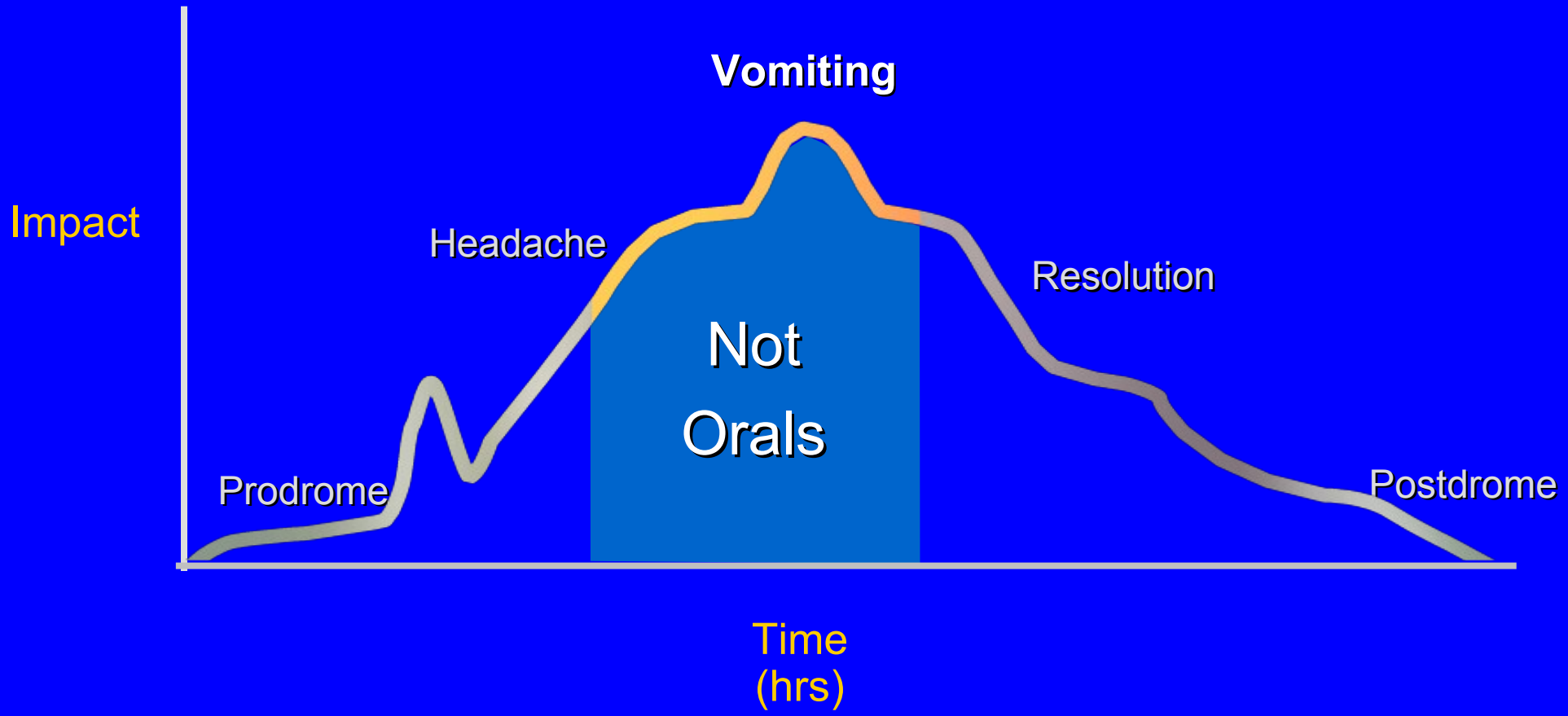
1. 64% relief in 2 hours - 2.5 mgs.
2. 73% of patients experience migraine relief 4 hours after the intake.

- Frovatriptan (Migard) – Long acting
- Maxalt Melt

# Abortive

- If vomiting restricts oral treatment, consider a non-oral formulation (such as zolmitriptan nasal spray or subcutaneous sumatriptan).

# Triptan options: when orals may not be appropriate



# Triptan options: when orals may not be appropriate

Sumatriptan nasal spray onset of relief from 15 minutes[1]

Sumatriptan injection onset of relief from 10 minutes[2]

- Rapid relief
- When vomiting precludes oral therapy

1: Imigran™ (sumatriptan) Nasal Spray SPC
2: Imigran™ (sumatriptan) Injection SPC

# Indications for preventive drug treatment

- Recurring migraine that significantly interferes with quality of life and the pt's daily routine, despite acute treatment of the attacks
- Frequency of migraine attacks > 1/week
- Frequency of acute headache medication use> 2 days/week

# Indications for preventive drug treatment

- Failure of,  contraindication to, or troublesome adverse effects from acute medication
- Presence of uncommon migraine conditions, including hemiplegic migraine, basilar migraine, migraine with prolonged, disabling or frequent aura, or migrainous cerebral infarction
- Keep a headache diary

- *Prophylaxis should be continued for 6 months and then tapered off gradually*

# PROPHYLACTIC MEDICATION

1.B-blockers are effective in 50 - 60% of cases
- Propranolol 80 - 160mg BD
- Nadolol 40 –100mg BD

2. Antidepressants
- Dothiepin 25-75mg nocte
- Amitryptiline 25-100mg QDS
- Fluoxetine 10-80mh QDS

3. Antiepileptic drugs -
- Topiramate 50-200mg BD
- Epilim 500 -1500mg BD

4. 5HT2 Antagonist (Serotonin inhibitor)
   1. Pzotifen (Sanomigran)
   2. Methysergide.

5. Ca-channel blockers
   - Verapamil 80-120 mg QDS
   - Flunerazine 5-10 mg QDS

6. Miscellaneous
   - Cyproheptadine 4 - 16 mg/day
   - Clonidine .05 mg tds
   - Phenytoin.
   - Indomethacin.

# NICE GUIDELINES

- Offer topiramate or propranolol first-line
- If both topiramate and propranolol are ineffective (after two months of therapy at the target dose), or are unsuitable, offer gabapentin or acupuncture
- Acupuncture : A course of up to ten sessions over 5–8 weeks.

# Botox in Migraine: NICE guidelines

- Treatment of chronic migraine (headaches on at least 15 days per month of which at least 8 days are with migraine)
- condition has not responded to taking at least three prior preventative medications
- condition has been appropriately managed for medication overuse

# Behavioural treatments

1. Relaxation training

2. Biofeedback therapy

3. Cognitive behavioural therapy

*Stress management training*

# Medication overuse headache

- headache develops or worsens while they are taking the following drugs for 3 months or more:
  - triptans, opioids, ergots or combination analgesic medications on 10 days per month or more
  - Paracetamol, aspirin or an NSAID, either alone or in any combination, on 15 days per month or more.

# Symptomatic Treatment options in the pregnancy

- **For Headache**
  1. Paracetamol – mild analgesic of choice in pregnancy.

- 2. Ibuprofen,Naproxen.Neither has been shown to have a teratogenic effect. Avoid in third trimester as may cause premature closure of foetal ducts arteriosus, inhibition of labour, decreasing amniotic fluid volume.

- 3. Codeine Indiscriminate use may present a risk to foetus during first or second trimester. Cleft lip and palate, inguinal hernia, hip dislocation, cardiac and respiratory system defects reported

# Migraine in children

- Patient/parent education
- Eliminating triggers (chocolate, etc)
- Regular diet, sleep, exercise
- Counseling

# NICE guidance (12 -17 years)

- Acute Rx
  - Oral triptan + NSAID/Paracetamol
  - Children 12-17yrs – Nasal Triptan
  - Antiemetic (even in the absence of nausea)
    - If vomiting severe rectal
  - Do not offer Ergots
- Prophylaxis
  - Discuss benefits and risks
  - Offer Topiramate/propranolol
  - Consider amitriptyline
  - Alternatives: 10 sessions of acupuncture
  - R/v in 6 months

# Dietary triggers

- Alcohol
- Caffeine
- Chocolate
- Specific foods —should only be suspected when migraine occurs within 6 hours of intake, and the effect is reasonably reproducible
- Use a trigger diary to establish cause-effect
- Dehydration
- Missing meals

# WHEN TO SCAN

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- In adult and paediatric patients with migraine, with no recent change in attack pattern, no history of seizures, the routine use of *Neuroimaging* is not warranted

# WHEN TO REFER

- Diagnostic uncertainty
- Treatment failure
- Suspicion of a secondary headache syndrome
- Rebound or chronic daily headache
- Reassurance for patient or provider

# RED FLAGS FOR A SECONDARY HEADACHE DISORDER

- A new or different headache
- Thunderclap headache (peak intensity within seconds – minutes)
- Worst headache ever
- Focal neurological signs or symptoms
- Change in existing headache
- New onset headache after age 50
- Headache associated with systemic symptoms (fever, weight loss, jaw claudication)