HEADACHE IN

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Headache

Primary
History sufficient

Secondary
Diagnostics

TEMPORAL PROFILE

onset – sudden, gradual
time from onset to peak
progressively worsening, continous
duration
frequency

PAIN CHARACTER

dull, throbbing, lancinating, pressing, sharp

LOCALIZATION

diffuse, uni-, bilateral, changing sides, frontal, temporal

INTENSITY

mild, moderate, severe

RESPONDS TO ANALGESICS

PRECIPITATING FACTORS

aura preceeded
premonitory symptoms

DEMOGRAPHY

new onset in pts with tumor, HIV-positive
> 50 g years

OTHER SYMPTOMS / NEUROLOGICAL EXAMINATION

febrile
meningism
vomiting
focal neurological deficit
papiloedema
cognitive decline
seizures

ASSESSMENT OF THE HEADACHE CHARACTERISTICS IN NON- URGENT SETTING BUT MAY HELP IN ER:

Usual time of onset (season, month, menstrual cycle, week, hour of day)
Stable or changing over past 6 months and lifetime
Aggravating factors

Pharmacological and non-pharmacological treatments: effective or ineffective
Functional disabilities at work, school, housework or leisure activities during the past 3 months
Factors which relieve the headache

Diagnostic alarms in the evaluation of headache disorders

Symptoms	Suspected diagnosis
headache begins after age 50	- temporal arteritis, mass lesion
sudden onset headache	- SAH, pituitary apoplexy, bleed into a mass or AVM, mass lesion (especially posterior fossa)
accelerating pattern of headaches	- mass lesion, subdural hematoma, medication overuse
new onset headache in patient with cancer or HIV	- meningitis (chronic or carcinomatous), brain abscess (including toxoplasmosis), metastasis
headache with systemic illness	- meningitis, encephalitis, Lyme disease, systemic infection, collagen vascular disease
focal or generalised neurologic symptoms or signs of disease disease	- mass lesion, AVM, stroke, collagen vascular
papilledema	- mass lesion, IIH, meningitis

DIAGNOSTICS

Emergent:

CT – heamorrhage, trauma, tumor

Urgent:

MRI – AVM, venous thrombosis, tumor, cervicomedular lesion, infection, white matter lesion, menigeal disease (carcinomatosis, sarcoidosis)

Ultrasound – artery dissection, occlusion

EEG – distinction between seizure and atypical migraine aura

Lumbar puncture - menigoencefalitis, SAH (negative CT)
- IIH

Laboratory tests red, white blood cell, SE, CRP,coagulation
blood glucose
hepatic, nephrology tests
respiratory gases (CO)
toxicology
Ca

WHICH PATIENTS WITH HEADACHE REQUIRE NEUROIMAGING IN THE ED?

headache + abnormal findings in neurologic examination (focal deficit, altered mental status, and altered cognitive function): **emergent** non-contrast head CT scan

older than 50 yrs, patient with tumor, HIV, presenting with new type of headache; atypical headache patterns, headache worsened by Valsalva maneuver, infective illness, accelerating pattern of headaches, papiloedema, without abnormal findings in a neurologic examination should be considered for an **urgent** neuroimaging study

General criteria for urgent admission:

1. Medical emergency presenting with a severe headache (secondary cause)
   - brain abscess, and meningitis
   - acute vascular compromise (aneurysm, subarachnoid hemorrhage, carotid dissection)
   - structural disorder causing symptoms requiring an acute setting (brain tumor, increased intracranial pressure)
   - low cerebrospinal fluid headache when an outpatient blood patch has failed and an outpatient treatment plan has failed

2. Severe headache associated with intractable nausea and vomiting producing dehydration or postural hypotension or unable to retain oral medication and unable to be controlled in an outpatient setting

3. Failed outpatient treatment of an exacerbation of episodic headache disorder with failure to respond to "rescue" or backup medications

4. Certain migraine variants (hemiplegic migraine, suspected migrainous infarction, basilar migraine with serious neurologic symptoms such as syncope, confusional migraine, etc.)

CLINICAL CONDITIONS IN THE ER

emergent / urgent DIAGNOSTICS

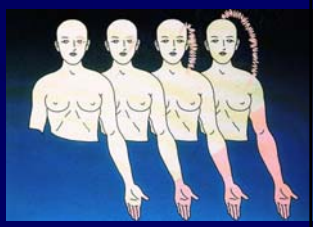
MIGRAINE WITH AURA

Typical aura: up to 60 min
visual, sensory (arm, face), speech problems
headache follows

Atypical – aura with dull, mild or no headache

1st headache?
dif.dg. TIA

Previously established migraine:
normal variation (probable migraine)
new headache (primary, secondary)?



DG: non
urgent CT

FAMILIAL HEMIPLEGIC MIGRAINE

Aura: reversible motoric weakness, and at least 1 of:
visual, sensory, speech problems
Followed by headache
Relatives?
1st attack: CT, ultrasound; admission; MRI, MRA

BASILAR MIGRAINE

Aura, 2 of:
dysarthria, vertigo, tinitus, hipoacusis, diplopia, visual spts simultaneoulsy in temporal or nasal halfs, ataxia, altered consciousness, bilateral parestheasiae
Followed by headache
DG: MRI, MRA

TH: triptans contraindicated

MIGRAINOUS STATUS

Typical as previous, lasts longer **> 72 hours, severe intensity**
Atypical, neurologic deficit

DG: CT

Admission: vomiting
impaired consciousness

TH: analgesics, NSAIDs, triptans
fluids
tranquilizers

CLUSTER HEADACHE

Men, smokers
- severe unilateral orbital / temporal pain
- 30-180 min, 1-3/day
- autonomic spts
- couple weeks-months
- daily

Dif. dg: sinusitis - X ray

DG: not urgent in case of typical clinical signs
MR, MRA

TH
Acute: oxygen; triptans, ergotamins

Prophylaxis: verapamil, corticosteroids, AET, serotonine antagonists

Cluster headaches may involve pain around one eye, along with drooping of the lid, tearing and congestion on the same side as the pain

ADAM.

PAROXYSMAL HEMICRANIA
Sjaastad's sy

- at least 50 attacks
  - severe unilateral pain (orbit, supraorbit, tempor)
  - allways same side
  - 2- 45 min
  - frequency 5 day
  - ispilateral autonomic spts
  - indometacin 150 mg

  DG: not urgent, MR, MRA

OTHER PRIMARY HEADACHES

Hemicrania continua

- lasts > 3 mj
- continous, unilateral
- moderate intensity with severe exacerbations (Valsalva m?)
- ipsilateral autonomic spts

TH: indometacin
DG: CT

OTHER PRIMARY HEADACHES

BENIGN COUGH INDUCED HEADACHE

- bilateral pain,
- 1 sec-30 min
- 40 % symptomatic

DG: CT

BENIGN HEADACHE INDUCED BY PHYSICAL ACTIVITY

- during physical activity
- throbbing
- 5 min – 48 hours
- 1. onset – exclude SAH, dissection

DG: CT, LP, ultrasound, angiography
admission

OTHER PRIMARY HEADACHES

HEADACHE COUSED BY SEXUAL ACTIVITY

- preorgasmic
  - bilateral, dull
  - head, neck, jaw
- orgasmic
  - explosive

- 1 min - 3 hours (mean 30 min)

1st onset: exclude heamorrhage
DG: CT, ultrasound, angiography
admission

OTHER PRIMARY HEADACHES

"THUNDERCLAP HEADACHE"

- sudden, severe headache
- maximal intensity < 1 min
- lasts 1 hour - do 10 days
- can re-ocurr within 1st week
- does not recurr regularly
- dif dg: SAH, dissection

DG: CT, LP, ultrasound, angiography
admission

Diffuse cerebral vasoconstriction sy (Call–Fleming syndrome)

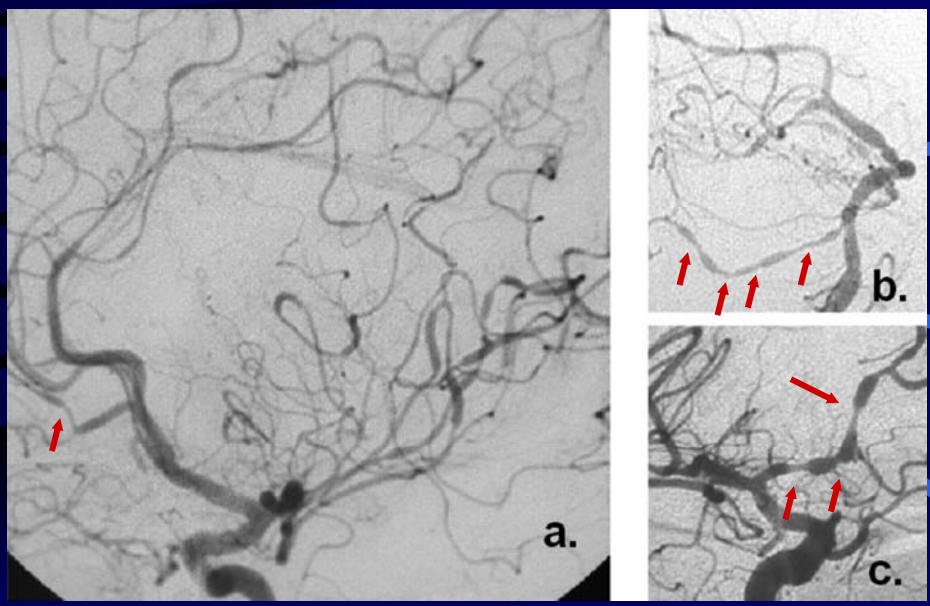
Reversible segmental vasoconstriction of cerebral arteries manifested by
- severe headaches ("thunderclap")
- with or without seizures
- focal neurological deficits

- resolves spontaneously in 1–3 months
- mean age of onset: 45 years
- approx. 60% of cases are secondary, postpartum and after exposure to vasoactive substances.

Complications: localised cortical SAH (22%)
parenchymal ischaemic or haemorrhagic strokes (7%)

Diagnosis requires the demonstration of the "string of beads" appearance of cerebral arteries on angiography, with complete or almost complete resolution on repeat angiography 12 weeks after onset

Nimodipine seems to reduce thunderclap headaches within 48 h but has no definite effect on the haemorrhagic and ischaemic complications



SECONDARY HEADACHES

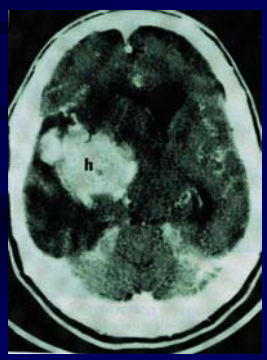
Posttraumatic headache

- loss of consciousness
- posttrumatic amnesia > 10 min
- abnormality in at least 2 of:
  - clinical examination
  - craniogram, neuroimaging
  - EP
  - LP
  - vestibular tests
  - neuropsychological testing (latter)
- onset of headache < 14 days from trauma
- headache lasts > 8 weeks from trauma

HEADACHE RELATED TO CEREBROVASCULAR DISEASE: STROKE, HAEMORRHAGE

- headache in temporal relation to symptoms
- neurological deficit, seizure

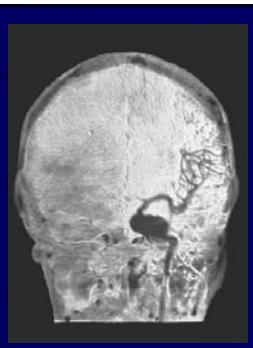
DG: CT

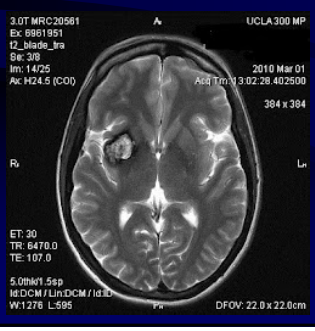


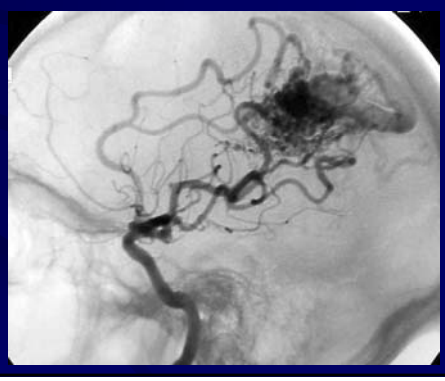
suspected:

- aneurysm
- AV malformation
- AV fistula
- cavernous angioma

DG: CT angio; MR, MR angio, DSA





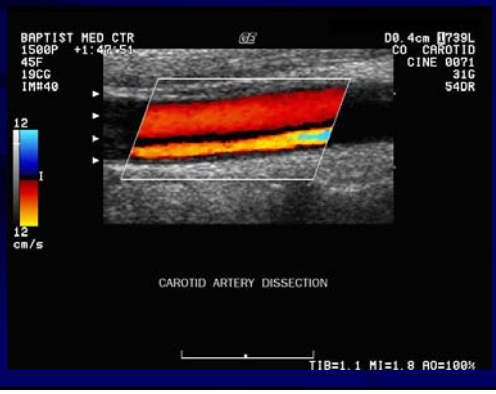


DISSECTION OF CAROTID, CEREBRAL ARTERIES

- headache and cervical pain ipsilateral to side of dissection
- TIA, stroke in correspondent territory
- Horner sy, bruit ipsilateral, tinitus

DG: ultrasound, MR angiography

TH: aspirin, heparin



TEMPORAL ARTERITIS (GIANT CELL ARTERITIS)

> 50 g

Clinical spts: amaurosis fugax,
optic neuropathy,
diplopia
Horner sy; IVC, TIA
painfull palpation of ATS

DG: increased SE rate (85 +/- 30), CRP
normokromic microcytic anemia
increased α 2 globulins
biopsy
ultrasound

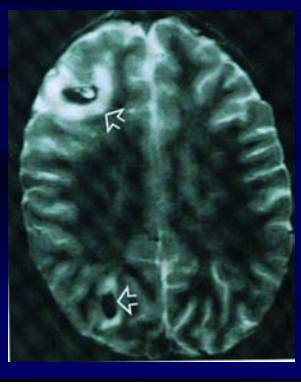
TH: prednisolon 60 mg /5 days, continue cortiocsteroids per os 2 yrs
- headache withdraws withins 2-3 days from corticosteroid onset

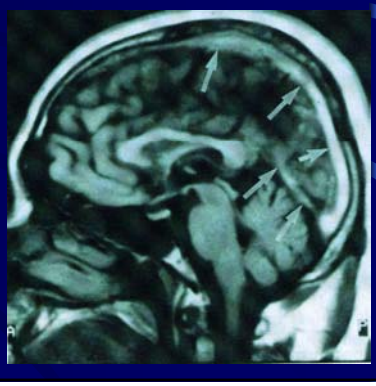
CEREBRAL VENOUS THROMBOSIS

- postpartal, trauma, postoperative, Tm, abscess, meningitis, febrile state, policitemia,
- increased intracranial pressure
- headache diffuse or on affected side
- neurological deficit, papiloedema, coma, convulsions

Dg: emergent MRI, MRA

TH: heparin





Posterior reversible encephalopathy syndrome (PRES)

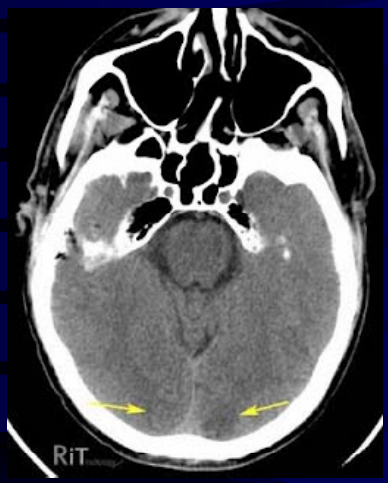
Due to hyperperfusion state with blood brain barrier breakthrough

Clinical manifestations include:
- mental status change
- headache
- visual disturbance
- seizures

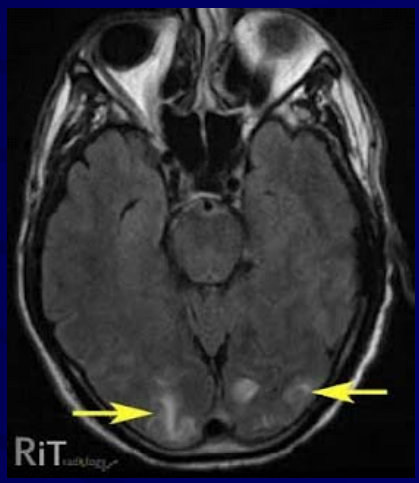
Related to hypertension, eclampsia, preeclampsia,
Immuno-suppressive medication

Characteristic abnormalities in the posterior cerebral white matter,
seen best on DW MRI:
- cortical or subcortical oedema
- preferential involvement of posterior aspect of the lobes (particularly parieto-occipital lobes)
- sparing of calcarine and paramedian occipital lobe structures
- usually bilateral

Rapid identification and appropriate diagnostics are essential,
as prompt treatment usually results in reversal of symptoms



Axial non-contrast CT image



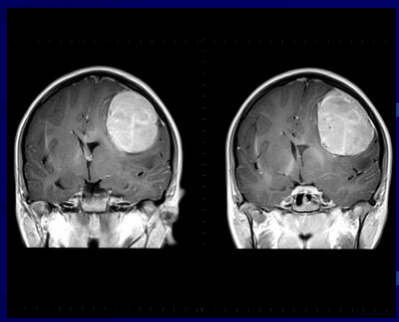
Axial FLAIR MR image shows abnormality in cortical and subcortical white matter of the posterior aspect of the occipital lobes

INCREASED INTRACRANIAL PRESSURE

TUMOR

- headache, nausea, vomiting
- seizure
- psychological disturbance
- impaired consciousness
- change in respiration, pulse

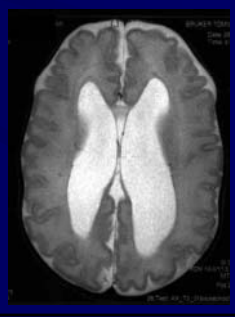
DG: CT; MR



HYDROCEPHALUS

- diffuse pain, worse in morning
- worseness with Valsalva maneuver
- vomiting
- papiledema, paresis VI
- altered cosciousness
- impaired balance

DG: CT



INCREASED INTRACRANIAL PRESSURE

IDIOPATHIC INTRACRANIAL HYPERTENSION

- **LP** > 20 cm H2O
- normal neurological findings (papiledema, paresis VI)
  (transitory obscurations <30s, tinitus sinchrone with pulse)
  - severe, throbbing pain, nause, meningism
  - CSF – normal cell count, proteins

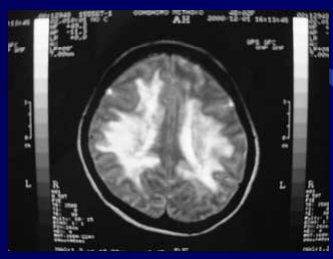
Exclude: CVT, mass, intraventricular enlargement
DG: CT, LP, funduscopy; MR

TH: acetazolamid < 2 g/dn, LP, cortikosteroids, shunting,
fenestration of optical shealth

HYPERTENSIVE CRISIS,
HYPERTENSIVE ENCEFALOPATHY

- malignant hypertension
- eclampsia, acute nephritis, crises in essential hypertension
- headache, restlessness, nausea, disturbances of consciousness, seizures, retinal hemorrhages, papilledema

DG: elevated blood pressure
CT
blood sampling, blood gas analysis
urinanalysis
ECG
EEG
funduscopy

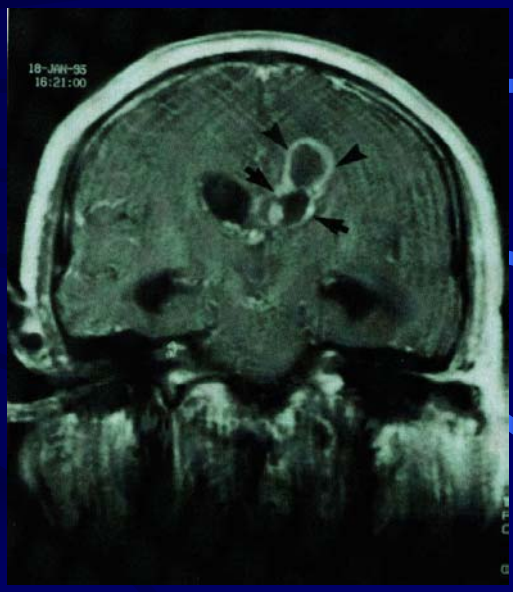


HEADACHE caused by INFECTION

Intracranial
- brain apscess
- encefalitis
- meningitis
- subdural empyema

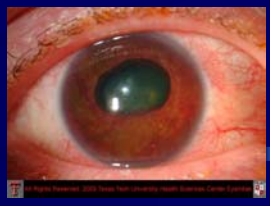
Systemic
AIDS
Chronic postinfective

DG: CT; MR
LP
Lab (SE, LE, CRP)

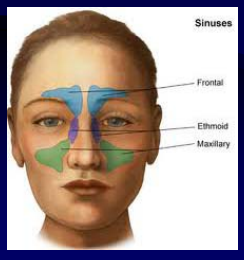


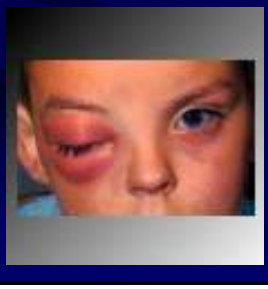
HEADACHE caused by

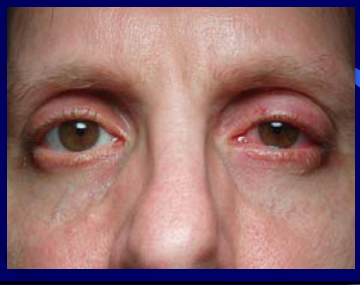
OPHTHALMOLOGICAL DISEASE
Acute glaucoma
Infection



SINUSITIS
Pain frontal, temporal
Signs of nasal congestion
Lab: SE, CRP, LE
X ray sinuses







Trigeminal neuralgia; tic douloureux

- couple of sec – 2 min
- 4 of:
  - distribution in 1 or more branches trigeminal nerve
  - paroxysmal, sharp, lancinating pain
  - severe
  - triggers: chewing, speech, touch, wind
  - between attacks asymptomatic
- no other nerological deficit

DG: non emergent neuroimaging (MR, MRA)
Th: carbamazepine