Headache in Preganacy
For MRCOG
Part 2 and Part 3

Headaches in pregnancy

Kirsty Revell MB ChB MRCOG,[a,*] **Paul Morrish** MRCP DRCOG DM[b]

[a]Specialist Registrar, Obstetrics and Gynaecology, Princess Anne Hospital, Coxford Road, Southampton SO16 5YA, UK
[b]Consultant Neurologist, Gloucestershire, Gloucester, UK
*Correspondence: Kirsty Revell. Email: krbrookes@doctors.org.uk

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Dr Priyata lal
MS /DNB / MRCOG (O&G)
FICS /FICOG

Buzz words for headache

Tension headache – squeezing
Migraine – Unilateral , pulsating aura , sensitivity to light and sound , scotoma , fortification spectra ,
Cluster headache – Unilateral , comes in clusters , suicidal , associated with redness of eye running nose , Trigeminal autonomic cephalalgias
Post Dural puncture – History of epidural , frontocciptpal region , 24 – 48 hours after puncture worsened by standing , relived by lying down
ICH – Throbbing, retro- bulbar, aggravated by coughing or straining ,diplopia . Visual loss with papilledema, tinnitus , vertigo
SAH – occipital , thunder clap ,worst headache ever , collapse , impaired consciousness

CVT - Papilledema, focal deficits, altered consciousness, seizures and cranial nerve signs, in particular diplopia caused by sixth nerve palsy , fever with leukocytosis
RCVS - Postpartum period, recurrent sudden onset and severe headaches over 1–3 weeks, often accompanied by nausea, vomiting, photophobia, confusion and blurred vision
Meningitis – neck stiffness , petechial rash , fever
Preeclampsia headache - bilateral, pulsating , temporal
Unilateral headache – Migraine / Cluster

Box 1. Key causes of headache in pregnancy[4,5]

Primary

- Migraine
- Tension headache

Secondary

- Hypertension
- Subarachnoid haemorrhage
- Drug-related, e.g. nifedipine, medication overuse
- Postdural tap (see Box 2)
- Meningitis
- Cerebral venous thrombosis
- Anaemia
- Caffeine withdrawal
- Idiopathic intracranial hypertension
- Stroke
- Arteriovenous malformation (can enlarge/bleed in pregnancy)
- Enlargement of a pituitary tumour
- Enlargement of a hormone-sensitive tumour, e.g. meningioma
- Bleeding into a pre-existing tumour
- Cerebral metastasis of choriocarcinoma

Tension headache[a]	Often related to periods of stress and may occur daily Features of migraine are usually absent

Box 2. Postdural puncture headache[6]

- Puncture of the dura occurs in 0.5–2.5% of epidurals
- If accidental dural puncture occurs with an epidural needle there is a 70–80% chance of a postdural puncture headache
- The headache is usually in the fronto-occipital regions and radiates to the neck. It is characteristically worse on standing and typically develops 24–48 hours post-puncture
- Conservative management includes hydration and simple analgesics
- Untreated, the headache typically lasts for 7–10 days but can last up to 6 weeks
- Epidural blood patch has a 60–90% cure rate

Read all numbers for exam

Box 3. Red flag features for potential secondary headache (Adapted from Scottish Intercollegiate Guidelines Network guidance)[8]

- Thunderclap: rapid time to peak headache intensity (seconds to 5 minutes), e.g. with a subarachnoid haemorrhage
- Focal neurological symptoms (e.g. limb weakness, aura <5 minutes or >1 hour) – see Schoenen and Sandor[7] for further information
- Non-focal neurological symptoms (e.g. cognitive disturbance) – seen in central venous thrombosis
- Change in headache frequency, characteristics or associated symptoms
- Abnormal neurological examination
- Headache that changes with posture – a sign of high or low cerebrospinal fluid pressure
- Headache awakening the patient – associated with migraine and raised intracranial pressure
- Headache precipitated by physical exertion or Valsalva manoeuvre – consider subarachnoid haemorrhage or raised intracranial pressure
- Patients with risk factors for cerebral venous thrombosis
- Jaw claudication or visual disturbance – associated with giant cell arteritis (women over 50 years)
- Fever – consider meningitis
- Neck stiffness – indicative of meningeal irritation
- New onset of headache in a patient with a history of HIV infection
- New-onset headache in a patient with a history of cancer

Examination

- Fundoscopy – looking for papilledema

- Cranial nerve assessment

  Pupil reaction to light and accommodation

  Eye movements – a sixth nerve palsy presents with binocular horizontal diplopia with in-turning of the eye and decreased lateral movement

  A third nerve palsy, with or without pupillary dilatation, can point to an aneurysm in the posterior communicating artery

- Tone, power, reflexes and coordination in all four limbs

Migraine

- Unilateral
- Pulsating
- Builds up over minutes to hours
- Moderate to severe in intensity
- Associated with nausea and/or vomiting
- Sensitivity to - sound / light
- Aggravated by routine physical activity
- Aura involves fully reversible phenomena of vision, sensation, motor power, balance and speech. The symptoms include flickering lights, spots, zigzag lines (fortification spectrum), tingling, numbness and visual holes.

Treatment – rest / hydration / paracetamol / antiemetic

Triptans – avoided in Preganacy / reserved for refractory cases

Prophylaxis - propranolol 10 -40 mg three times / also amitriptyline

Associated with increase risk of preeclampsia 2times / MI / stroke

Idiopathic intracranial hypertension

Obese women
Childbearing age.
May present for the first time in pregnancy and pre-existing disease tends to worsen during pregnancy.

Features
Generalized,
Throbbing, retro- bulbar
Aggravated by coughing or straining
Associated with diplopia (38%)
Visual loss (31%) with papilledema.
Some times tinnitus , vertigo

Box 1. Modified Dandy criteria

- Signs and symptoms of increased intracranial pressure: headaches, nausea, vomiting, transient obscurations of vision, papilloedema
- No localising neurologic signs otherwise, with the single exception being unilateral or bilateral sixth nerve paresis
- Cerebrospinal fluid can show increased pressure, but no cytologic or chemical abnormalities otherwise
- Normal to small symmetric ventricles must be demonstrated (originally required ventriculography, but now demonstrated by computed tomography scan)

Diagnosis - abnormally elevated cerebrospinal fluid pressure (>25 cmH2O) on lumbar puncture.

Management-
Monitoring of the visual fields and visual acuity because of the risk of optic nerve infarction.
Limit weight gain
Therapeutic lumbar puncture
Acetazolamide (500 mg twice daily)
Vaginal delivery possible
Spinal safe

CT or MRI brain
Lumbar puncture (measure opening pressure)

Headache with preeclampsia

Box 4. Diagnostic criteria for headache attributed to pre-eclampsia or eclampsia

A. Headache in a woman who is pregnant or in the puerperium fulfilling criterion C
B. Pre-eclampsia or eclampsia has been diagnosed
C. Evidence of causation demonstrated by at least two of the following:

1. Headache has developed in temporal relation to the onset of the pre-eclampsia or eclampsia
2. Either or both of the following:

   a). headache has significantly worsened in parallel with worsening of the pre-eclampsia or eclampsia
   b). headache has significantly improved or resolved in parallel with improvement in or resolution of the pre-eclampsia or eclampsia

3. Headache has at least two of the following three characteristics:

   a). bilateral location
   b). pulsating quality
   c). aggravated by physical activity

Investigations

Urinalysis

Full blood count and coagulation screen if platelets $<100\times10^9$/L

Urea, electrolytes and creatinine

Liver function tests

Subarachnoid haemorrhage

Subarachnoid haemorrhage[a]	Headache is usually sudden and severe (thunderclap), often occipital Associated vomiting, neck stiffness, loss of (or impaired) consciousness, sudden collapse Papilloedema Focal neurological signs are often, but not invariably, present	CT or MRI Magnetic resonance angiography (MRA) Lumbar puncture if CT normal

Buzz words –

Severe /worst headache
Thunderclap
Sudden collapse

Reversible cerebral vasoconstriction syndrome

Associated with multifocal arterial constriction and dilation

Postpartum period
Recurrent sudden onset and severe headaches over 1–3 weeks, often accompanied by nausea, vomiting, photophobia, confusion and blurred vision

Diagnosis - diffuse arterial beading on cerebral angiography with resolution within 1–3 months.

Treatment - calcium channel blockers, high-dose corticosteroids and magnesium sulphate.

Postpartum. Headache usually severe and associated with hypertension
Symptoms may wax and wane
Often associated with atypical subarachnoid haemorrhage

CVT

CVT may cause fever and leukocytosis

Risk factors –
Dehydration/ Caesarean section/ systemic infection/ vomiting

Greatest risk period is the third trimester and the first 4 weeks postpartum,

Thrombosis of one of the cortical veins, are the most common sites of involvement in pregnancy
.
Headache is the most frequently (80–90%)s usually acute or sub acute in onset, localized, continuous and moderate to severe
Other - Papilledema, focal deficits, altered consciousness, seizures and cranial nerve signs, in particular diplopia caused by sixth nerve palsy. The development of symptoms may occur over hours, days or even weeks.
Investigation of choice – MRV
Treatment –
Anticoagulation with low-molecular-weight heparin – should be continued typically for 6 months
Follow up MRV after 3-6 months
No contraindication to future Preganacy

Meningitis

Meningitis	Features include: malaise, fever, rigors, photophobia, vomiting and neck stiffness Petechial rash suggests meningococcal infection	Blood cultures CT to exclude raised intracranial pressure prior to lumbar puncture

SOL – space occupying lesion

Space-occupying lesion	Headache may be focal Onset is usually gradual and may be associated with progressive localizing signs and/or seizures	CT or MRI

Cluster headache

Primary headache disorder
Trigeminal autonomic cephalalgias
Occur in groups, or “clusters.” During a cluster cycle, severe headache attacks recur between 1-8 times per day.
remission periods
Excruciating pain behind or around one eye, but may radiate to other areas of face, head and neck
One-sided pain
Excessive tearing
Redness of your eye on the affected side
Stuffy or runny nose on the affected side
Forehead or facial sweating on the affected side
Pale skin (pallor) or flushing on your face
Swelling around your eye on the affected side

- The accepted background cumulative dose of radiation during pregnancy is 50 mGy.
- Fetal exposure for CT scan of the head is estimated at <0.005 mGy
- Magnetic resonance imaging (MRI) should be avoided in the first trimester because of the potential hazards of hyperthermia and acoustic noise, but MRI remains preferable to any studies radiation.
- Contrast media based on the element iodine should be avoided in pregnancy unless essential. If iodinated contrast media are used the neonatal thyroid function should be checked.
- Gadolinium-based contrast agents appear to be safe in pregnancy.

Questions

A aseptic meningitis
B bacterial meningitis
C brain abscess
D brain metastases
E cerebrovascular occlusion
F cluster headache
G hypertensive crisis
H infective endocarditis
I migraine
J primary brain tumour
K tension headache
L subarachnoid haemorrhage
M trigeminal neuralgia
N benign intracranial hypertension
O pre-eclampsia
P iatrogenic headache
Q none of the above

For each description below, choose the **single** most appropriate diagnosis from the answers in the above list of options. Each option may be used once, more than once, or not at all.

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1 A 32-year-old lady is admitted via the Accident and Emergency unit with sudden severe unilateral right-sided headache at 12 weeks' gestation. She is noted to have swelling around her right eye. Her blood pressure is normal and there are no focal neurological signs. There is no history of migraines.

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unilateral headache
Swelling around eye
No migraines
Answer – cluster headache

A aseptic meningitis
B bacterial meningitis
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2 A 38-year-old lady presents to the labour ward with headache. She works as a manager and is currently 24 weeks pregnant. She describes it as a squeezing type of pain in her forehead. Her blood pressure and neurological examination are normal.

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Squeezing headache

Answer – tension headache

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3 A 39-year-old lady attends the day unit with headache. She is 26 weeks' pregnant and was on captopril, which was later converted to methyldopa at booking. Nifedipine has recently been added to her medication. There is no proteinuria and she denies any history of visual disturbances. On examination her reflexes are normal.

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Drug-related headache	Use of vasodilators and calcium antagonists in particular May also occur with persistent use of analgesics

No PET

No visual problem

Nifedepine

Answer – drug induced

Thanks

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