KWAN ZHENLI

ACE THE MRCP PACES

Concise templates for presentation and history-taking

drzhenli.com

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Preface

The approach to clinical medicine at the postgraduate level differs from the undergraduate level as the candidates are expected to show greater maturity, critical thinking and clinical acumen. Besides demonstrating capability in terms of diagnosis and management, candidates need to explore possible causes and complications that may have occurred. Moreover, candidates should acknowledge and address the patients' ideas, concerns and expectations in relation to each case.

Two key elements of success in short cases are the clinical examination and the presentation/discussion. While medical knowledge is important, the doctor-in-training should also be able to present and discuss in a systematic and concise manner.

This book aims to equip junior doctors with templates that can be used for presentations during short case examinations, particularly for the MRCP PACES. The latter part of the book contains brief guides for the history-taking of various common diagnoses and complaints.

Table of contents

CARDIOLOGY

Aortic stenosis

1. Diagnosis

2. Evidence

a. Findings

- ejection systolic murmur (ESM) aortic area
- radiate to carotids
- grade
- thrill
- Gallavardin

b. Severity

- early ejection click
- long systolic murmur
- S4
- paradoxical splitting of S2
- heaving displaced apex
- systolic thrill
- pulsus parvus et tardus
- narrow pulse pressure
- Symptoms: angina [5 years]: syncope [3 years]: dyspnoea [2 years]

c. Pulse

3. Complications

a. Congestive cardiac failure (CCF)

b. Infective endocarditis (IE)

c. Haemolytic anaemia

4. Aetiology (N.A)

5. Wish list

- BP: narrow pulse pressure

- Temperature

- Symptoms: angina, syncope, dyspnoea

6. Summary

- lesion

- severity

- complications

Mitral regurgitation

1. Diagnosis

2. Evidence

a. Findings

- pansystolic murmur (PSM)
- apex, radiate to axilla
- if radiate to carotids, posterior mitral valve leaflet (PMVL) rupture
- grade, thrill
- soft S1
- S3
- mid-diastolic murmur (MDM)
- apex thrusting and displaced, location

b. Severity

- mild: no pulmonary hypertension
- mod: pulmonary hypertension
- severe: left ventricular hypertrophy, S3

3. Complications

a. pulmonary hypertension

b. congestive cardiac failure

c. atrial fibrillation

d. overanticoagulation (bruising)

e. infective endocarditis

4. Aetiology

- Marfan's syndrome

- rheumatoid arthritis

5. Wish list

- blood pressure, temperature (fever)

- infective endocarditis: abdominal exam, urine dipstick, fundoscopy

6. Summary

- lesion

- severity

- complications

Mitral stenosis

1. Diagnosis

2. Evidence

a. Findings

- mid-diastolic murmur (MDM)

- apex

- accentuated left lateral position

- grade

- diastolic thrill

- loud S1

- apex: tapping, not displaced, location

b. Severity

- early opening snap

- long MDM

- pulmonary hypertension (moderate severity)

- congestive cardiac failure (severe)

- pulses parvus

c. Peripheries

- pulse, atrial fibrillation

- mitral facies

- hoarse voice (Ortner's syndrome)

- lateral thoracotomy scar with possible mitral valvotomy

3. Complications

- pulmonary hypertension + functional tricuspid regurgitation [PSM at left lower sternal edge (LLSE), louder w inspiration, giant V wave]

- Graham Steel murmur (pulmonary regurgitation)

- congestive cardiac failure

- infective endocarditis

- atrial fibrillation - pulsus parvus

- overanticoagulation (bruises)

4. Aetiology

- systemic lupus erythematosus (SLE)

- rheumatoid arthritis (RA)

5. Wish list

- temperature

- blood pressure

6. Summary

- lesion

- severity

- complications

- possible aetiology

Aortic regurgitation

1. Diagnosis

2. Evidence

a. Findings

- high-pitched early diastolic murmur (EDM)

- left lower sternal edge (LLSE)

- loudest end expiration with patient sitting forward

- diastolic thrill

b. Severity

- S3

- Austin Flint (mid-diastolic murmur, MDM apex)

- soft S2

- duration of decrescendo murmur and loudness of murmur (c.f. aortic stenosis, AS)

- apex displaced and thrusting

- congestive cardiac failure

- wide pulse pressure

- Hill sign

c. Peripheries

- pulse: rate, bounding/collapsing

- no radio-radial/radiofemoral delay (coarctation of aorta)

- Quincke/Corrigan/brachial dance/Muller/Duroziez/Traube

3. Complications

- congestive cardiac failure
- infective endocarditis

4. Aetiology

- rheumatoid arthritis
- Marfan syndrome
- Lewitic disease: Argyll Robertson pupil

5. Wish list

- blood pressure: wide pulse pressure and severe hypertension
- temperature

6. Summary

- lesion
- severity
- complications
- aetiology

Prosthetic heart valves

1. Diagnosis

2. Evidence

- midline sternotomy scar
- audible metallic clicks to unaided ear

a. Mitral valve replacement

- metallic S1, normal S2
- pansystolic murmur (PSM): valve leakage
- apex: displaced (mitral regurgitation, MR)
- pulmonary hypertension
- atrial fibrillation

b. Aortic valve replacement

- normal S1 – metallic click – metallic S2
- early diastolic murmur (EDM) +/- collapsing pulse: valve leakage
- apex: displaced (aortic regurgitation, AR)
- collapsing pulse (leakage)

3. Complications

- valve thrombosis

- haemolytic anaemia
- congestive cardiac failure
- infective endocarditis
- overanticoagulation (bruising)
- pulmonary hypertension (mitral valve replacement, MVR)
- atrial fibrillation (MVR)
- collapsing pulse (aortic valve replacement, AVR with leak)

4. Aetiology

- Marfan
- rheumatoid arthritis
- ankylosing spondylitis (AS)
- syphilis

5. Wish list

- blood pressure, temperature
- neurological: strokes

6. Summary

RESPIRATORY SYSTEM

Bronchiectasis

1. Diagnosis

2. Evidence

a. Findings

- late coarse inspiratory crepitations
- heard best posteriorly, bilateral
- productive cough
- large volume purulent sputum
- haemoptysis

b. Peripheries

- chest expansion: reduced bilaterally
- percussion: normal
- vocal resonance: normal
- trachea
- apex
- clubbing
- nicotine staining, cachexic, lymph nodes

c. Treatment: steroid/salbutamol/ipratropium MDI

3. Complications

- respiratory distress (respiratory rate, accessory muscles)

- respiratory failure (O_2, cyanosis, asterixis, bounding pulse)
- chronic obstructive pulmonary disease (COPD)
- pulmonary hypertension + cor pulmonale
- polycythaemia

4. Aetiology

- Kartagener: dextrocardia, nasal voice
- rheumatoid arthritis
- systemic lupus erythematosus
- kyphoscoliosis

5. Wish list

- temperature: fever
- abdomen: splenomegaly (amyloid)
- neurology: brain abscess

6. Summary

Collapse

1. Diagnosis

2. Evidence

- reduced chest expansion

- percussion: dull

- reduced vesicular breath sounds

- reduced vocal resonance

- extent

- trachea: deviation to same side

- apex displaced

3. Complications

- respiratory distress

- respiratory failure

- if malignancy: Horner's syndrome, superior vena cava obstruction (SVCO)

4. Aetiology

a. Malignancy

- cachexia, clubbing, hypertrophic pulmonary osteoarthropathy (HPOA), lymph nodes, pallor/jaundice

- pleural effusion

- raised hemidiaphragm

- SVCO

- Horner's syndrome

- wasting of intrinsic muscles of hand

- hoarseness of voice (left)

- fever/cough/haemoptysis

b. Tuberculosis (TB)

- Mantoux, loss of weight (LOW), cachexia, complication: lymph nodes

- fever, cough, haemoptysis

c. Pneumonia (collapse consolidation)

- complication: lymph nodes

- fever/cough/haemoptysis

d. Treatment

- radiotherapy: hyperpigmentation

- chemotherapy: alopecia, phlebitis of veins, oral ulcers

5. Wish list

- temperature

- sputum

6. Summary

Consolidation

1. Diagnosis

2. Evidence

- reduced chest expansion of hemithorax
- percussion note: dull
- bronchial breath sounds and crepitations
- increased vocal resonance
- location and extent
- trachea
- apex beat

3. Complications

- respiratory distress
- respiratory failure
- radiotherapy on chest
- chemotherapy: alopecia, oral ulcers

4. Aetiology

a. Infection (toxic, productive cough with purulent sputum)

- pneumonia
- abscess

- tuberculosis (TB): Mantoux test

- aspergilloma, cryptococcoma, hydatid cyst

b. Neoplastic/mass (carcinoma, lymphoma)

- cachexia, clubbing, HPOA, lymph nodes, pallor/jaundice, nicotine staining

- pleural effusion

- raised hemidiaphragm

- SVCO

- Horner

- wasting of intrinsic muscles of hand

- hoarseness of voice (left)

- fever/cough/haemoptysis

- thrombophlebitis (Trosseau sign)

- pericardial effusion: soft heart sounds

c. Deep vein thrombosis (DVT)

- swelling and tender calves

5. Wish list

- temperature

- sputum

- blood pressure

6. Summary

Chronic obstructive pulmonary disease (COPD)

1. Diagnosis

2. Evidence

- hyperinflated chest
- reduced chest expansion bilaterally
- percussion note: resonant, loss of liver and cardiac dullness
- prolonged expiratory phase with expiratory rhonchi
- vocal resonance normal
- trachea central
- apex beat: not displaced
- treatment: steroid MDI, bronchodilators

3. Complications

- respiratory distress
- respiratory failure, CO_2 retention
- pulmonary hypertension + cor pulmonale
- polycythaemia
- treatment: hoarse voice, oral thrush (chronic systemic steroid)

4. Aetiology

- nicotine stain: smoking

- clubbing

- cachexia

- enlarged cervical lymph nodes

5. Wish list

- forced expiratory time

- temperature

- sputum

6. Summary

Interstitial lung disease

1. Diagnosis

2. Evidence

a. Findings

- location (upper lobes vs. lower lobes)

- fine Velcro-like late inspiratory crepitations

- heard best: extent

- clubbing

- non-productive cough

b. Peripheries

- chest excursion reduced bilaterally

- percussion: normal

- vocal resonance: normal

- trachea central

- apex beat not displaced

3. Complications

a. respiratory rate/distress

b. respiratory failure

c. pulmonary hypertension + cor pulmonale

d. polycythaemia

e. cachexia: wasting of temporalis

f. treatment-related

- chronic steroid use: Cushingoid, papery thin skin, steroid purpura

- scar: open lung biopsy

4. Aetiology

a. nicotine staining

b. rheumatoid arthritis

c. cutaneous: systemic lupus erythematosus, dermatomyositis, scleroderma

5. Wish list

- drug history

- occupational history

6. Summary

Pleural effusion

1. Diagnosis

2. Evidence

- location, extent

- reduced chest excursion of hemithorax

- percussion: stony dull

- reduced/absent vesicular breath sounds

- reduced/absent vocal resonance

- apex beat

- trachea

- scars: chest tube, thoracotomy

3. Complications

- respiratory distress

- respiratory failure

- treatment: lung carcinoma – radiation marks, chemo (alopecia, oral ulcers)

4. Aetiology

a. Transudates

- congestive cardiac failure: jugular venous pressure, S3, pedal oedema

- nephrotic syndrome: generalised oedema, renal biopsy scar

- chronic liver disease: stigmata

- hypothyroidism

b. Exudative

- lung carcinoma: as previous

- pneumonia: bronchial breathing above effusion, toxic

- tuberculosis: Mantoux

- rheumatoid arthritis

- deep vein thrombosis: calf swelling, tenderness

5. Wish list

- temperature

- sputum

- female: breasts

6. Summary

Approach to lateral thoracotomy scar

1. Asymmetrical chest wall with absent ribs

- thoracoplasty for tuberculosis (TB)

2. Symmetrical or no chest wall deformity

a. Normal underlying lung

- lung transplant

- pleurectomy (eg recurrent pneumothorax in Ehler Danlos)

- bullectomy

b. Abnormal underlying lung

- reduced breath sounds: lobectomy, pneumonectomy

- chronic obstructive pulmonary disease (COPD) with lung volume reduction surgery

- lung transplant with complications

Lobectomy/Pneumonectomy

1. Diagnosis

2. Evidence

- thoracotomy scar

- asymmetrical deformity of chest

- reduced chest expansion

- dull percussion note

a. Pneumonectomy

- absent breath sounds and vocal resonance

- trachea and apex deviation

- hyperinflation with hyper-resonant percussion note and loss of liver dullness (right side)

b. Lobectomy

- decreased breath sounds and vocal resonance

3. Complications

- respiratory failure

- respiratory distress

4. Aetiology

- bronchiectasis: coarse inspiratory crepitations

- chronic obstructive pulmonary disease/allergic bronchopulmonary aspergillosis: rhonchi, prolonged expiratory phase

- mitotic lesion/tuberculosis: nicotine staining, clubbing, cervical lymph nodes, cachexia

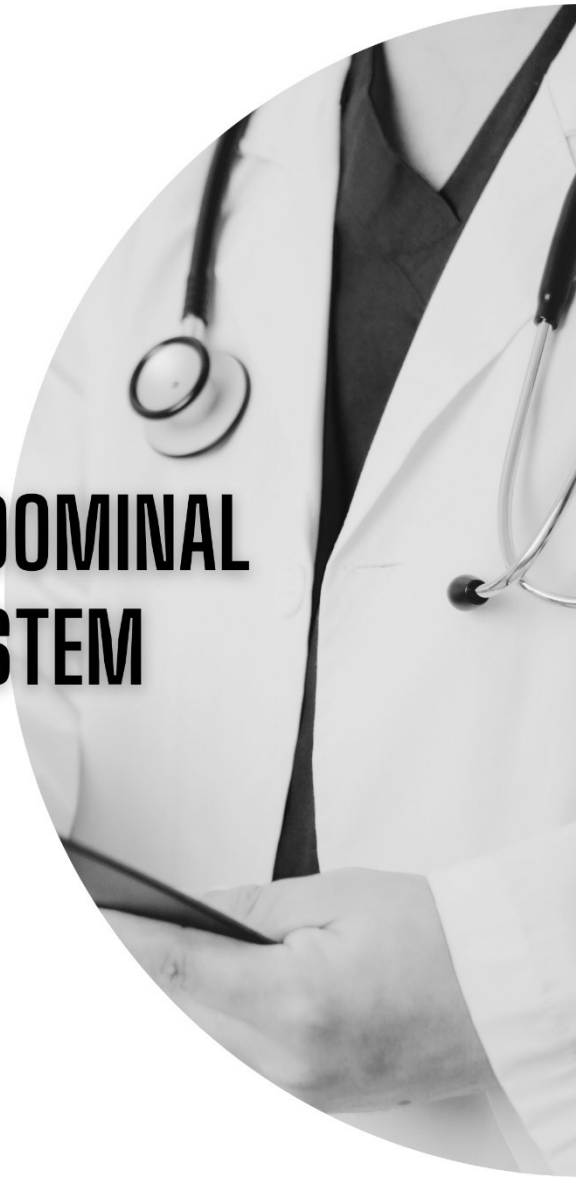
5. Wish list

- temperature chart

- sputum

6. Summary

ABDOMINAL SYSTEM



Ascites

1. Diagnosis

2. Evidence

a. Findings

- abdominal distension
- everted umbilicus
- fluid thrill, shifting dullness
- abdominal tenderness
- lie flat
- scar: abdominal tap

b. Peripheries

- liver/spleen/kidney/masses
- cachexia, pallor
- palpable cervical lymph nodes
- toxic looking

3. Complications

a. Decompensated liver failure

- A: albumin (oedema)
- B: bilirubin (jaundice)

- C: coagulopathy

- D: distension - ascites

- E: encephalopathy – hepatic flap, hepatic fetor

4. Aetiology

a. Chronic liver disease

- leukonychia, clubbing, palmar erythema

- spider naevi

- gynaecomastia

- loss of axillary hair

- fetor/flap

b. Renal failure – sallow, uraemic fetor

c. Hypothyroidism – peaches and cream, macroglossia, hoarse voice, bradycardia

5. Wish list

a. Cardiovascular: constrictive pericarditis (jugular venous pressure, JVP with steep x and y descent, early S3)

b. Urine dipstick for proteinuria

c. Temperature: tuberculosis

d. Per rectal examination: rectal mass

6. Summary

Chronic liver disease

1. Diagnosis

2. Findings

a. Abdomen

- spleen
- liver
- kidneys
- ascites
- tender

b. Stigmata of chronic liver disease

- leukonychia, clubbing, palmar erythema
- spider naevi
- gynaecomastia
- loss of axillary hair
- fetor/flap

c. Treatment

- abdominal tap marks
- sinus bradycardia (beta blockers)

3. Complications

a. Decompensated liver failure

- A: albumin (oedema)
- B: bilirubin (jaundice)
- C: coagulopathy
- D: distension - ascites
- E: Encephalopathy – hepatic flap, hepatic fetor

b. Malignancy

- enlarged cervical lymph nodes
- cachexia
- pallor

4. Aetiology

a. Alcohol: parotidomegaly, Dupuytren's contractures

b. Tattoos

c. Surgical scars (possible previous transfusions)

d. Thrombosed veins

5. Wish list

- temperature
- per rectal: hard impacted stools, melaena

6. Summary

- decompensated chronic liver disease (CLD)
- portal hypertension, splenomegaly, ascites
- complications

Hepatomegaly

1. Diagnosis

2. Evidence

a. Findings

- moderate/massive
- size
- edge
- surface
- consistency
- tender
- pulsatile
- bruit

b. Abdomen

- spleen: palpable, percussible
- kidneys
- ascites

3. Complications

a. Decompensated liver failure

- A: albumin (oedema)

- B: bilirubin (jaundice)

- C: coagulopathy

- D: distension - ascites

- E: Encephalopathy – hepatic flap, hepatic fetor

4. Aetiology

- malignancy: cachexia, cervical lymphadenopathy, conjunctival pallor

- alcohol: Dupuytren, parotidomegaly

- infectious: toxic, rashes, injected throat, enlarged tonsils

- congestive cardiac failure: raised jugular venous pressure (JVP)

5. Wish list

- temperature (infective)

- per rectal: mass (secondaries)

6. Summary

Hepatosplenomegaly

1. Diagnosis

2. Evidence

- liver: size, edge, surface, consistency, tender, bruit, pulsatile
- spleen: size, edge, surface, consistency, tender, bruit
- kidneys
- ascites

3. Complications

a. Decompensated liver failure

- A: albumin (oedema)
- B: bilirubin (jaundice)
- C: coagulopathy
- D: distension - ascites
- E: Encephalopathy – hepatic flap, hepatic fetor

4. Aetiology

a. Chronic liver disease

- leukonychia, clubbing, palmar erythema
- spider naevi
- gynaecomastia

- loss of axillary hair

- fetor/flap

b. Others

- pallor, cachexia, cervical lymph nodes, polycythaemia rubra vera

- toxic, rashes, tonsils

- alcohol

- subacute bacterial endocarditis (SBE), systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), haemolytic anaemia

5. Wish list

6. Summary

Splenomegaly

1. Diagnosis

2. Evidence

a. Findings

- size from left costal margin

- mild/mod/massive

- palpable notch

- edge

- surface

- consistency

- tender

- splenic rub

- percussion: dull from left 9th rib in mid-axillary line → infero-medial in axis of 10th rib

- moves infero-medially with inspiration

b. Abdomen

- liver

- kidneys

- ascites

3. Complications

a. jaundice

b. bruises/petechiae

4. Aetiology

a. Chronic liver disease

- leukonychia, clubbing, palmar erythema

- spider naevi

- gynaecomastia

- loss of axillary hair

- fetor/flap

b. Others

- pallor, cachexia, cervical lymph nodes, polycythaemia

- toxic, rashes, tonsils

- infective endocarditis (IE), splinter haemorrhages

- systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), haemolytic anaemia

5. Wish list

- temperature

- history: night sweats, loss of weight, travel history

6. Summary

Enlarged kidneys

A. Bilateral

1. Diagnosis

2. Evidence

a. Kidneys

- bilateral masses in flanks
- bimanually palpable and ballotable
- nodular
- able to get above both masses
- percussion resonant over both kidneys
- move inferiorly with respiration
- tender/not
- bruit

b. Abdomen

- scars
- liver
- spleen
- ascites
- bladder

3. Complications

a. Chronic kidney disease (CKD)/uraemia

- sallow, cachexia
- Kussmaul
- uraemic fetor
- pruritic scratch marks
- leukonychia, Terry's nails
- flapping tremor
- bruising
- polycythaemia vs pallor
- fluid overload

b. Treatment

- AV fistula: thrill, recent injection marks, aneurysms
- Tenchkoff catheter
- transplanted kidney

4. Aetiology

- acromegaly
- diabetic dermopathy
- tuberous sclerosis: adenoma sebaceum

5. Wish list

- temperature
- blood pressure: hypertension
- fundus: hypertension
- urine dipstick: haematuria, proteinuria, pyuria
- cardiovascular: mitral valve prolapse, aortic regurgitation
- neurology: cranial nerve III palsy (berry aneurysm), stroke
- family history of aneurysm/stroke

6. Summary

B. Unilateral

1. Diagnosis

2. Evidence

a. Kidney

- unilateral mass in flank
- bimanually palpable and ballotable
- nodular
- able to get above
- percussion resonant
- move inferiorly with respiration

- does not cross midline

- tender/not

- bruit

b. Abdomen

- scars

- liver

- spleen

- ascites

- bladder

3. Complications

a. Chronic kidney disease (CKD)/uraemia

- sallow, cachexia

- Kussmaul

- uraemic fetor

- pruritic scratch marks

- leukonychia, Terry's nails

- flapping tremor

- bruising

- polycythaemia vs. pallor

- fluid overload

b. Treatment

- AV fistula: thrill, recent injection marks, aneurysms
- Tenchkoff catheter
- transplanted kidney

4. Aetiology

- acromegaly
- diabetic dermopathy
- tuberous sclerosis: adenoma sebaceum

5. Wish list

- temperature
- blood pressure: hypertension
- fundus: hypertension
- urine dipstick: haematuria, proteinuria, pyuria
- cardiovascular: mitral valve prolapse, aortic regurgitation
- neurology: cranial nerve III palsy (berry aneurysm), stroke
- family history of aneurysm/stroke

6. Summary

Transplanted kidney

Comment on function – uraemic

1. Diagnosis

2. Evidence

a. Findings

- location: iliac fossa
- rounded palpable mass
- overlying scar
- tender
- kidneys
- ascites
- renal bruit
- liver, spleen

3. Complications

a. Renal impairment (function)

- sallow, thin
- bruises
- pruritic scratch marks
- leukonychia, Terry's nails

- pallor
- polycythaemia: plethoric facies, conj effusion
- fluid overload: pedal oedema, lie flat, O2
- Kussmaul breathing
- uraemia fetor
- flapping tremor

b. Treatment

- AV fistula: location, thrill, recent puncture marks, aneurysm

c. Complications of transplant

- hepatitis B/C: jaundice, stigmata of chronic liver disease
- cyclosporine: hypertrichosis, gum hypertrophy
- steroid: Cushingoid, steroid purpura, thin skin

4. Aetiology

- diabetic dermopathy

5. Wish list

- Temperature chart: fever
- blood pressure: hypertension
- fundus: hypertension

- urinalysis: haematuria, proteinuria, pyuria

- cardiovascular: mitral valve prolapse, aortic regurgitation

- neurology: cranial nerve III palsy, history of stroke

6. Summary

NEUROLOGY

Speech

1. Shake right hand

- weakness of right upper limb (dysphasia)

- ataxia of upper limb (cerebellar)

- tremors (Parkinsonism)

2. Dysphonia

a. Name, age, how came to hospital and what he did this morning

b. Recurrent laryngeal nerve, laryngitis

c. Wish list

- examine left chest

- radiation marks

- enlarged cervical lymph nodes

- Horner

- wasting T1

3. Dysarthria

a. British constitution and count 1-20

- cerebellar: slow, slurred, explosive, irregular

- Parkinsonism: monotonous, low volume

- proceed with cerebellar or Parkinson exam if detected

b. Ba Ba Ba –VII nerve palsy

c. La La La – pseudobulbar palsy

d. Ke Ke Ke – bulbar palsy

4. Dysphasia

a. Expressive (Broca)

- favourite colour, breakfast

b. Receptive (Wernicke – posterior part of first temporal gyrus)

- close eyes → stick out tongue → lift both hands

c. Conductive (Arcuate fasciculus)

- no if and or but

d. Nominal (Angular gyrus – temporal-parietal)

- shirt, sleeve, button, watch, straps face

e. Global = expressive + receptive

5. Further steps

a. Gerstmann's syndrome

- acalculia: serial 7s

- agraphia

- left-right disorientation

- finger agnosia

b. Cortical signs

- visual fields

- sensory inattention

- graphaesthesia

- asteroegnosis

c. Upper motor neurone lesion (UMN) of cranial nerve VII and hemiparesis

d. Aetiology

- pulse, carotid bruit, murmur, hyperlipidaemia, diabetic dermopathy, tar stains

- wish list: blood pressure, urinalysis for diabetes mellitus, fundoscopy (papilloedema)

e. Complications

- deep vein thrombosis, sacral sore, bedside swallow test, aspiration pneumonia

Bilateral ptosis

A. Causes

1. Muscular (usually no wrinkling of forehead)

- dystrophia myotonica

- ocular myopathy

- oculopharyngeal dystrophy

- chronic progressive external ophthalmoplegia (mitochondrial Kearnes Sayre)

2. Neuromuscular

- myasthenia gravis

3. Nerve

- bilateral cranial nerve III (rare)

- bilateral Horner's (syringomyelia)

- tabes dorsalis

- Miller Fisher syndrome

B. Examination

1. General screen

- dystrophia myotonica

- facioscapular dystrophy

- myasthenia gravis

2. Cranial nerves

- Cranial nerve III, Horner's

- Argyll-Robertson pupils (tabes)

- ophthalmoplegia (Kearnes Sayre)

- bulbar palsy (syringomyelia)

3. Neck

4. Upper limbs

a. Ataxia (Kearnes Sayre, Miller Fisher)

b. Syringomyelia

- flaccid and wasted upper limbs

- dissociated sensory loss

- spastic paraparesis

c. Areflexia (Miller Fisher)

5. Fundoscopy: retinitis pigmentosa (chronic progressive external ophthalmoplegia, CPEO)

C. Presentation

1. Bilateral ptosis

2. Evidence

- dystrophia myotonica, myasthenia gravis

- Horner's, syringomyelia

- Cranial nerve III

- Argyll-Robertson

- Miller Fisher

- ocular myopathy, oculopharyngeal myopathy, CPEO, congenital ptosis

Cranial nerves

A. Conforming

1. Superior orbital syndrome

a. Ophthalmoplegia, cranial nerve VI, Horner's, proptosis, chemosis, pain and optic nerve

b. Causes

- meningiomas

- haemangiomas

- thyroid eye disease

- Tolosa Hunt syndrome

2. Cavernous sinus syndrome

a. Ophthalmoplegia, cranial nerve VI, Horner’s, proptosis, chemosis, pain

b. Causes

- carotid aneurysm

- carotid-cavernous fistula

- tumour

- thrombosis

- Tolosa Hunt syndrome

3. Cerebellar pontine angle (CPA) syndrome

a. Involvement of cranial nerves

- V1-3 (earliest symptom: tinnitus and deafness → vertigo, earliest sign: loss of corneal reflex)

- VI

- VII

- VIII

- IX

- cerebellar

b. Causes

- tumour: primary

o acoustic neuromas – schwannomas of the vestibular

o meningiomas, haemangioblastoma, medulloblastomas

o cholesteatoma

- tumour: secondaries

o nasopharyngeal carcinoma (loss of corneal reflex and V2 early)

o lymphoma

- aneurysm

- bilateral: bilateral acoustic neuromas in neurofibromatosis type 2 (NF2)

c. Examination

- Cranial nerves

- Upper limbs: cerebellar signs

- Neck: lymph nodes

- Neurofibromatosis features: cafe au lait spots, neurofibroma, freckling and Lisch nodules

d. Presentation

- Right/left CPA lesion as evidenced by ….

- Enlarged cervical lymph nodes to suggest secondaries

- Evidence of neurofibromatosis

- Possible aetiologies

4. Lateral medullary syndrome

a. Vessels involved

= wedge-shaped infarct of lateral aspect of medulla and inferior surface of cerebellum

- Posterior Inferior Cerebellar Artery (PICA)

- Vertebral artery (most common)

- Lateral medullary artery, LMA (superior, middle, inferior)

b. Areas affected

- Ipsilateral Horner (descending sympathetic fibres) – ptosis, meiosis, anhidrosis

- Ipsilateral loss of pain and temperature of face (descending tract and nucleus of V)

- Ipsilateral cerebellar (restiform body of inferior cerebellar peduncle) – ataxia, gait ataxia

- Contralateral loss of pain and temperature (spinothalamic tract)

- Hoarse voice, dysphagia, hiccups (nucleus ambiguus X and IX)

- Nystagmus, vertigo, nausea (vestibular nuclei)

c. Examination

- Cranial nerves

- Upper limb: loss of pain and temperature, cerebellar

- Aetiology: atrial fibrillation, diabetic dermopathy

- Visual fields: homonymous hemianopia (posterior circulation)

d. Presentation

- Findings

- Complication: nasogastric (NG) feeding

- Aetiology: infarction affecting vertebral artery/PICA/LMA

- Xanthelasma/diabetic dermopathy/atrial fibrillation

- Wish list: blood pressure, symptoms of dysphagia

5. Medial medullary syndrome

a. Triad of cranial nerve XII, medial lemniscus and pyramidal tract

b. Findings

- ipsilateral wasted tongue

- contralateral loss of vibration and proprioception

- contralateral hemiparesis

c. Aetiology: vertebral artery/lower basilar

6. Bulbar palsy

a. Bilateral involvement: lower motor neurone (LMN) lesions of cranial nerves IX, X, XI, XII

b. Examination

- cranial nerves

- jaw jerk

- speech

- gag reflex

- upper limbs: fasciculations, dissociated sensory loss

c. Presentation

- weakness of soft palate

- wasted tongue with fasciculations

- nasal voice

- normal/absent jaw jerk

d. Causes (MGS, NNNP)

- motor neurone disease

- Guillain-Barre syndrome

- syringomyelia

- poliomyelitis, nasopharyngeal carcinoma, neurosyphilis, neurosarcoidosis

7. Pseudobulbar palsy (PNP)

a. Bilateral UMN lesions of cranial nerves IX, X, XII, V and VII

b. Examination

- cranial nerves

- jaw jerk

- speech, gag reflex, emotional lability

- Aetiology: atrial fibrillation, diabetic dermopathy, xanthelasma

- upper limb: upper motor neurone lesions

c. Presentation

- PBP as evidenced by

o sluggish palatal movement

o small, stiff and spastic tongue

o brisk jaw jerk

o Donald Duck speech: slow, thick, indistinct

- atrial fibrillation, diabetes mellitus, xanthelasma

- motor neurone disease: mix of UMN and LMN

- multiple sclerosis: relative afferent pupillary defect (RAPD), internuclear opthalmoplegia (INO)

d. Causes (BMM)

- bilateral stroke

- MND

- multiple sclerosis

8. Syringobulbia

- see syringomyelia

- extension of syrinx to involve brainstem

- cranial nerves V (descending tract), VII, IX, X, XI, XII, Horner syndrome

- usually unilateral

9. Jugular foramen syndrome

a. Involvement of cranial nerves IX, X, XI

- cranial nerve XII may be affected due to proximity

b. Unilateral

c. Examination

- cranial nerves

- enlarged cervical lymph nodes

- speech: husky voice, bovine cough

d. Presentation

- Right/left jugular foramen syndrome as evidenced by

- nasogastric (NG) tube

- no enlarged cervical lymph nodes

- causes:

o carcinoma of the pharynx, tumour, neurofibroma

o basal meningitis

o Paget's disease, trauma

o thrombosis of jugular vein

B. Non-conforming

- myasthenia gravis

- Miller Fisher syndrome (ophthalmoplegia, ataxia, areflexia)

- Guillain-Barre syndrome

- Mononeuritis multiplex

- Migraine (paralytic)

- Paget's

- Base of skull (trauma)

- Basal meningitis

- brainstem strokes, multiple sclerosis

Higher cortical function

1. Obvious gaze preference or hemiparesis

2. Side of sensory inattention (**either parietal** - opposite to lesion)

a. Visual inattention (check visual acuity, VA first)

b. Tactile inattention

c. Line bisection test (**either parietal**)

d. Digit span (attention for **frontal** lobe): ask pt to repeat some number that examiner gives him.

Start with 3 or 4 numbers and increase until the pt makes mistakes. Now repeat the test by asking him to repeat the numbers backwards. (normal: seven forward, five backwards)

3. Determine side (opposite to lesion side)

a. Astereognosis (**either parietal**)

b. Agraphaesthesia (5 numbers on each palm) (**either parietal**)

c. Visual field for hemianopia/homonymous quadrantopia (**parietal vs temporal**)

4. **Dominant likely left**

a. Dysphasia assessment

- Broca for **frontal**

- Wernicke for **temporal**

- Conductive for **arcuate fasciculus**

- Nominal for **angular**

b. Gerstmann's syndrome (**parietal**)

- Acalculia

- Agraphia

- Left-right disorientation

o demonstrate where right and left is

o use right hand to touch left ear and vice versa.

- Finger agnosia

5. **Non-dominant parietal likely right**

a. Constructional apraxia

- copy a cube

b. Dressing apraxia

c. Spatial neglect

- right lesion: fill in numbers on left only

6. Specifics

a. Parietal lobe functions

i. Dominant lobe signs (ALF)

o Acalculia

o Agraphia

o Left-right disorientation – Ask the pt to demonstrate where his right hand is and then his left. If

this is correctly performed, ask him to touch his left ear with his right hand and vice versa.

o Finger agnosia

Gerstmann's syndrome – acalculia, agraphia, left-right disorientation and finger agnosia.

o Ideomotor and ideational apraxia

ii. Non-dominant lobe

o Dressing apraxia – Ask pt to put on a pyjama with one sleeve pulled inside out.

o Constructional apraxia – copy object you have drawn

o Spatial neglect (anosognosia)

iii. Either (dominant or non-dominant lobe)

o Sensory inattention – when sensory of both limbs are tested simultaneously the sensation is appreciated only on the normal side.

o Visual inattention – with confrontation, when the fingers are moved on both sides simultaneously, the sensation is appreciated only on the normal side.

o Visual field defect (lower homonymous quadrantopia)

o Astereognosis

o Agraphaesthesia

o Loss of two-point discrimination

b. Temporal lobe function

o Short and long-term memory loss

o Visual field defect – superior quadrantonopia

o Confabulation – ask pt if he has met you before

o Wernicke's (receptive) dysphasia (dominant lobe)

o Korsakoff's psychosis

c. Frontal lobe function

o Broca's (expressive) dysphasia (dominant lobe)

o Ideomotor apraxia (dominant lobe)

o Monoplegia or hemiplegia

o Conjugate gaze palsy

o Urine and faecal incontinence: urine catheter

o Change of personality, labile emotion

o Primitive reflexes – grasp reflex, rooting reflex, snout reflexes (and sucking reflex) and palmomental

reflexes, glabellar tap

o Gait apraxia

o Anosmia

o Interpret a proverb – patient gives concrete explanation

o Fundi – optic atrophy (ipsilateral space occupying lesion, SOL) or contralateral papilloedema (secondarily raised intracranial pressure, ICP)

d. Occipital lobe

- cortical blindness

- hemianopia with macular sparing

7. Contralateral UMN VII or ipsilateral XII

8. Pronator drift

9. Aetiology

- pulse, carotid bruit, murmur, hyperlipidaemia, diabetic dermopathy, tar stains

- wish list: blood pressure, urinalysis for diabetes mellitus, fundoscopy (papilloedema)

10. Complications

- deep vein thrombosis, sacral sore, bedside swallow test, aspiration pneumonia

Gaze palsies

1. Internuclear ophthalmoplegia (INO)

Ipsilateral medial longitudinal fasciculus, MLF (connects ipsilateral third nerve innervations to right medial rectus to left gaze centre i.e. paramedian pontine reticular formation, PPRF)

a. Findings (e.g. right INO)

- abduction of left eye with nystagmus associated with failure of adduction of right eye on leftward gaze

- right eye able to independently adduct

- saccadic eye movement: horizontal saccade abnormal with right eye lagging behind left eye

b. Lesion

- pons: convergence intact

- midbrain: convergence lost

c. Other cranial nerves

- multiple sclerosis (relative afferent pupillary defect, RAPD)

- myasthenia gravis

d. Limbs

- multiple sclerosis: cerebellar signs

- stroke: diabetic dermopathy, xanthelasma, atrial fibrillation

e. Wish list

- fundoscopy: optic atrophy

f. Presentation

- Right INO as evidenced by findings
- Lesion in midbrain (anterior INO) or pons (posterior INO)
- Evidence for

o myasthenia gravis

o multiple sclerosis

o stroke

2. WEBINO (Walled-eye bilateral INO)

a. Bilateral INO with exotropia and failure of convergence

b. lesions in pons and midbrain

c. Causes

- multiple sclerosis
- vascular
- gliomas
- Wernicke's

3. Fisher's one and a half syndrome

a. INO + ipsilateral gaze palsy

b. Lesion in MLF and adjacent gaze centre

4. Conjugate upward vertical gaze palsy

a. Midbrain lesion

b. Causes

- multiple sclerosis

- vascular

- tumour

5. Conjugate downward vertical gaze palsy

a. Midbrain or

b. Foramen magnum

- Arnold-Chiari, Dandy Walker

- acquired: tumour, vascular, demyelination, abscess

6. Supranuclear gaze palsy

a. Progressive supranuclear gaze palsies (see Parkinson's disease)

- loss of saccadic (frontal lobe) and pursuit movements (occipital lobe)

- loss of downward gaze □ upward gaze □ horizontal gaze

- can be overcome by Doll's reflex

b. Parinaud's syndrome

- loss of vertical gaze + nystagmus on convergence + pseudo Argyll-Robertson pupils

- Causes: multiple sclerosis, vascular, pinealoma

Isolated third nerve palsy

A. Examination

1. Cranial nerves/eyes

- routine

- intorsion

- rule out:

o thyroid, myasthenia gravis

o superior orbital syndrome

o cavernous sinus syndrome

2. Extras

- neck: lymph nodes

- upper limb: cerebellar, hemiplegia, extrapyramidal side effects (EPSE), areflexia

- diabetic dermopathy

3. Wish list

- corneal reflex (reduced/absent)

- visual fields: bitemporal hemianopia

- fundus: optic atrophy (multiple sclerosis), diabetes mellitus, hypertensive changes

- visual acuity

- blood pressure

- urine dipstick

- temperature chart

- headache/pain

B. Presentation

1. Diagnosis

2. Evidence

a. Findings

- divergent strabismus: orbit in down and out position

- complete/partial ptosis

- dilated pupil, not reactive to direct light and to accommodation

- cranial nerve III nuclear lesion: ptosis, superior rectus palsy of opposite eye

b. Other cranial nerves (CNs)

- associated CN palsies: superior orbital fissure syndrome/cavernous sinus syndrome

- associated CN 4 palsy: intorsion on asking pt to adduct right eye and look downwards

- associated CN 6 palsy

- paraesthasia of ophthalmic division of CN 5

- gross visual acuity (VA)

c. Aetiology

- Graves' ophthalmopathy: conjunctival suffusion, proptosis, lid oedema

- myasthenia gravis: fatiguability

- enlarged cervical lymph nodes

- upper limb: hemiparesis, cerebellar signs, areflexia, tremors, chorea

- diabetic dermopathy

d. Wish list

- corneal reflex (reduced/absent)

- visual fields (bitemporal hemianopia)

- fundus: optic atrophy (multiple sclerosis, MS), diabetes mellitus, hypertensive changes

- visual acuity

- blood pressure

- urine dipstick

- temperature chart

- headache/pain

e. Summary

Causes

i. Brainstem

- infarct, haemorrhage, tumour, abscess, multiple sclerosis

- nuclear lesions

o also contralateral ptosis and elevation palsy

o may have bilateral CN3 palsies (+/- INO)

ii. Fascicular midbrain lesions

- Weber (+ contralateral hemiplegia) – base of midbrain

- Northangel (+ contralateral cerbellar) – tectum of midbrain

- Benedikt's (+contralateral hemiplegia + contralateral cerebellar + contralateral tremor/athetosis/chorea) – tegmentum of midbrain, red nucleus

iii. Peripheral

- Subarachnoid portion

o posterior cerebral artery (PCA) aneurysm

o meningitis

o infiltrative

o others e.g. sarcoidosis

- Cavernous sinus lesions

o tumour (pituitary adenoma, meningioma, craniopharyngioma)

o cavernous sinus thrombosis

o inflammatory (Tolosa Hunt syndrome)

o ischaemia from microvascular disease affecting vasa vasorum

- Orbital

o tumour (meningioma, hemangioma)

o endocrine (thyroid)

o inflammatory (orbital inflammatory pseudotumour i.e. Tolosa Hunt)

- Mononeuritis multiplex, myasthenia gravis, Miller Fisher syndrome

Isolated Sixth Nerve Palsy

A. Examination

1. Eye

2. Myasthenic gravis, thyroid

3. Clubs/syndromes

a. Cavernous sinus syndrome

b. Superior orbital fissure syndrome

c. CPA tumour: CN V, VII, VIII

d. Base of skull lesion: CN IX, X, XI, XII

4. Upper limbs

a. Hemiplegia

- long tract signs suggesting brainstem

b. Cerebellar

- CPA lesion

- Miller Fisher usually truncal and gait

c. Areflexia

- Miller Fisher

5. Others

- Neck: lymph nodes

- Mastoid tenderness: Gradenigo

6. Wish list

- fundus: papilloedema (raised intracranial pressure, ICP), optic atrophy (multiple sclerosis)

- field testing: bitemporal hemianopia

- acuity: reduced in orbital lesions

- corneal testing: reduced sensation from V1 involvement

- blood pressure

- urine dipstick

- temperature (meningitis)

- ask: retrobulbar pain

B. Presentation

1. Diagnosis

2. Evidence

a. Findings

- convergent strabismus at primary gaze

- failure of abduction of right eye

- with diplopia where image is side by side and furthest apart on ipsilateral gaze, with disappearance

of outer image on covering eye. Suggests right lateral rectus weakness

b. Clubs/syndromes

- Cavernous sinus/superior orbital syndrome: CN III, IV, VI

- CPA lesion: CN VII, VIII, cerebellar

- CN IX – XII

3. Aetiology

- enlarged lymph nodes

- tender mastoid

- myasthenia gravis: fatiguibility

- thyroid eye signs

- hemiparesis, cerebellar, reflexes

4. Wish list

- fundus: papilloedema (raised intracranial pressure, ICP), optic atrophy (multiple sclerosis), diabetes mellitus, hypertension

- field testing: bitemporal hemianopia

- acuity: reduced in orbital lesions

- corneal testing (reduced sensation from V1 involvement)

- blood pressure

- urine dipstick

- temperature chart for fever (meningitis)

- ask: retrobulbar pain

5. Summary

a. Unilateral causes

i. Brainstem (pons)

- infarct

- haemorrhage

- abscess

- demyelinating (CN VI, VII palsies due to close proximity)

ii. Aneurysm

- ecstatic basilar artery

iii. Meningitis

- infective: tuberculosis, fungal, HIV, syphilis, Lyme

- mitotic: leptomeningeal carcinomatosis, secondaries (nasopharyngeal carcinoma, NPC), lymphoma, radiotherapy

- sarcoidosis

- trauma

iv. CPA lesions

v. Petrous temporal bone (Gradenigo syndrome)

vi. Cavernous sinus syndrome

vii. Superior orbital syndrome

viii. Miller Fisher syndrome

ix. Mononueritis multiplex

x. Diabetes mellitus, hypertension

xi. Myasthenia gravis

xii. Raised intracranial pressure

b. Bilateral causes

- Leptomeningeal causes

- Miller Fisher syndrome

- Mononeuritis multiplex

- Myasthenia gravis

- Raised intracranial pressure

- Wernicke's encephalopathy

(ophthalmoplegia, confusion and ataxia associated with Korsakoff's psychosis from thiamine deficiency)

c. Syndromes

i. Central

- Raymond's: ipsilateral CN VI with contralateral hemiparesis

- Millard-Gubler: ipsilateral CN VI and VII with contralateral hemiparesis

ii. Peripheral

- Gradenigo: inflammation of tip of petrous bone from mastoiditis, CNs VI and V (gasserian ganglion therefore ipsilateral pain) and VII

- CPA

- cavernous sinus

- superior orbital

iii. Congenital

- Mobius: CN VI with facial diplegia

- Duane's: congenital absence of VI nuclei with III nuclei innervating lateral recti; orbit retraction on adduction and protrusion on abducting

Approach to Unilateral Ptosis

1. Rule out pseudoptosis: lift up any droopy eyelids
2. Muscle: Dystrophia myotonica
3. Neuromuscular: Myasthenia gravis
4. Nerve: CN III palsy, Horner's syndrome

Unilateral Horner's syndrome

1. Diagnosis

2. Evidence

- partial ptosis right eyelid (upper tarsal/Muller)
- miosis of right pupil with intact light reflex (pupil dilator)
- enophthalmos (Muller)
- slight elevation right lower eyelid (lower tarsal)

3. Aetiology and associations

a. Other cranial nerves

- cavernous sinus syndrome
- superior orbital syndrome
- lateral medullary syndrome
- syringobulbia (CNs V, VII, IX-XII)
- multiple sclerosis: INO, cerebellar, RAPD

b. Neck

- scars: trauma, surgery
- neoplasia
- carotid aneurysm
- cervical rib

c. Upper limbs

i. Pronator drift → cerebellar signs (lateral medullary syndrome)

ii. Wasting of ipsilateral small muscles of hands (T1)

iii. Clubbing

iv. Sensation

- sensory loss T1

- dissociated sensory loss (syringomyelia)

- contralateral loss to pain and temperature (lateral medullary syndrome)

v. Axilla: trauma to brachial plexus

d. Chest

i. Pancoast tumour

- inspection, dullness, auscultation

- trachea deviation

e. Diabetic dermopathy, xanthelasma

4. Wish list

- ask: loss of sweating and level

5. Summary

Causes

a. Hypothalamus/brainstem

- stroke

- pontine glioma

- coning of temporal lobe

b. Cervical cord (C8-T2: intermediolateral column)

- syringomyelia

- multiple sclerosis

- tumour

c. Superior mediastinum (2nd order exits spinal cord and synapses at superior cervical ganglion)

- Pancoast lesion (squamous cell carcinoma, SCC lung)

- Trauma to brachial plexus

d. Neck (carotid sympathetic plexus and superior cervical ganglion)

- neoplasia

- trauma

- surgery (cervical sympathectomy)

- carotid aneurysm

- carotid dissection (pain + ipsilateral Horner + cerebral/retinal ischaemia)

e. Idiopathic

f. Congenital – heterochromia of iris (grey-blue on affected side)

g. Migraine – intermittent Horner's syndrome

How to delineate site

1. Loss of sweating

a. Central lesion: loss in head, upper trunk and arm (1st order)

b. Neck

- proximal to superior cervical ganglion – loss in face (2nd order)

- distal to superior cervical ganglion – no loss (3rd order)

2. Adrenaline 1:1000 in both eyes (denervation hypersensitivity)

- above superior cervical ganglion (peripheral) = dilates

- below/proximal to superior cervical ganglion = no effect

3. Cocaine 4%

- dilates normal eyes

- no effect on affected side if above/distal to superior cervical ganglion

Cranial nerve VII palsy

A. Examination

1. CN7 nerve

a. Function

- look up and attempt to push folds down (frontalis)

- close eyes and attempt to force open (orbicularis oculi)

- frown (corrugator superficialis)

- nasolabial fold, show teeth and blow against closed lips

b. Complications

- exposure keratitis, tarsorrhaphy

- drooling of saliva

2. Unilateral

a. UMN

- upper limb: ipsilateral hemiparesis

- xanthelasma, DM signs, BP

b. LMN

i. Other cranial nerves (CNs)

- CN VI nerve and contralateral weakness in brainstem lesions

- CPA lesion (CN V, VI, VII and VIII with cerebellar)

- Non-conforming

o basal meningitis

o mononeuritis multiplex, myasthenia gravis

ii. Palate for vesicles

iii. Parotids, surgical scars

iv. Mastoid tenderness

v. Neck and cervical lymph nodes

vi. Upper limbs

- contralateral hemiparesis

- ipsilateral cerebellar

vii. Wish list

- otoscopy: vesicles in external auditory canal and otitis media

- hyperacusis

- loss of taste in anterior 2/3 of tongue

- urine dipstick: glucose, blood pressure

3. If facial diplegia

a. Rule out

- myasthenia gravis (bilateral ptosis)

- dystrophia myotonica

- fascio-scapular humeral dystrophy

b. Bilateral LMN CN VII

- test frontalis, corrugator, orbicularis oculi

- show teeth, blow against closed lips

- look for CNs V, VI, VIII

- parotids: sarcoidosis, amyloidosis

- tongue: scrotal tongue for Melkersson-Rosenthal syndrome

- upper limb: Guillain Barre syndrome, motor neurone disease, leprosy, Lyme's (radiculopathy)

- bilateral cerebellar signs: bilateral CPA tumours

- rare: Melkersson-Rosenthal syndrome, Mobius syndrome

B. Presentation

1. Diagnosis

2. Evidence

- paralysis of both upper and lower facial muscles on right

- loss of wrinkling of right side of forehead (or no loss in UMN)

- inability to fully close right eye shut with Bell's phenomenon

- loss of right nasolabial fold, drooping of right angle of mouth

3. Complications

- exposure keratitis, tarsorrhaphy

- drooling of saliva

4. Aetiology

a. LMN

- Other CNs

o CN VI: brainstem

o CPA lesion: CNs V, VI, VIII, cerebellar

- parotid: swelling, surgical scar

- vesicles on palate

- mastoid tenderness

- enlarged cervical lymph nodes

- Melkersson-Rosenthal syndrome: right facial oedema, plication of tongue

- contralateral hemiparesis/cerebellar signs

b. UMN

- upper limb: ipsilateral hemiparesis

- xanthelasma, diabetic signs, blood pressure

5. Wish list

- otoscopy: vesicles in external auditory canal, otitis media

- hyperacusis: sensitive to high-pitched/loud sounds

- loss of taste in anterior 2/3 tongue

- urine dipstick for glucose and blood pressure (mononeuritis multiplex)

6. Summary

Causes

a. Unilateral LMN

- brainstem: infarct/haemorrhage, multiple sclerosis, abscess and tumour, syringobulbia

- base of skull lesions: infective, tumour, infiltrative

- CPA lesions: acoustic neuroma, meningioma, neurofibroma

- petrous temporal bone: Bell's palsy, Ramsay Hunt, osteomyelitis

- parotid: tumour, sarcoidosis, surgery

- mononeuritis multiplex

b. Bilateral LMN

- myasthenia gravis, myopathies

- Bilateral CPA tumour e.g. neurofibromatosis (NF) type 2

- Bilateral Bell's palsy

- Bilateral parotid enlargement (sarcoidosis – uveoparotid fever/Heerfordt's fever)

- GBS, MND, leprosy, Lyme disease

- Rare

o Rosenthal Melkersson syndrome: CN7 palsy + facial oedema + plication of tongue

o Mobius syndrome: congenital facial diplegia + oculoparalysis from CN III and VI + infantile nuclear hypoplasia

Myasthenia gravis

1. Eyes

- ptosis with fatiguability

- variable strabismus and diplopia (after some time)

- associations

o hyperthyroid, thyroid eye disease

o anaemia

o systemic lupus erythematosus: malar rash

2. Face

- CN VII: show teeth → snarls

- mask-like facies with ptosis

- furrowing of forehead

- bilateral facial muscle weakness

- speech: count 1-20, nasal voice (bulbar), reduction of speech

- masseter weakness but pterygoids normal

- complication: nasogastric tube

3. Neck

- goitre

- scars

4. Upper limbs

a. Fatigability with weakness

b. Deep tendon reflexes normal (c.f. reduced in Eaton Lambert and Miller Fisher)

c. Sensation normal

d. Assoc

- Rheumatoid arthritis, RA (symmetrical deforming polyarthropathy)

- Systemic lupus erythematosus (SLE) features

5. Thymectomy scar, plasmapheresis line

6. Associations

a. Endocrine

- thyroid

- diabetic dermopathy

- pernicious anaemia

b. Connective tissue diseases

- rheumatoid arthritis

- systemic lupus erythematosus

- polymyositis

7. Wish list

a. Drug

- antibiotics: aminoglycosides, tetracyclines, macrolides, fluoroquinolones

- cardiovascular: beta blockers, calcium channel blockers (verapamil)

- etc: chloroquine, quinidine, procainamide, lithium, magnesium, prednisolone, quinine, penicillamine (RA, Wilson's)

b. Temperature chart: fever (infection)

c. Negative inspiratory force

Dystrophia myotonica

1. Diagnosis

2. Evidence

a. Hands

- difficulty opening hands after shaking

- repeatedly open and close hands

- percussion myotonia of thenar eminence

- hand exam with function assessment

- weakness in forearms (especially) and hands, proximal myopathy, wasting

- no sensory loss

- loss of reflexes

- pulse: dysrhythmias, small volume pulse

- function

b. Face

- myopathic facies

- expressionless

- triangular facies

- wasting of temporalis and masseter – palpate when clench teeth

- frontal balding

- bilateral ptosis

- close and open eyes – difficulty opening

- tongue: percussion myotonia

- swan neck appearance

o wasting of sternocleidomastoid

o weakness of sternocleidomastoid

o weakness of flexion of neck

- nodular thyroid enlargement

3. Complications

a. Dilated cardiomyopathy: regular pulse, small volume

b. Gum hypertrophy: chronic phenytoin use

c. Nodular thyroid enlargement

4. Wish list

a. Face

- cataracts: post subcapsular, stellate

- speech: slurring (myotonia of tongue, pharyngeal muscles)

b. Chest

- gynaecomastia

- cardiovascular: dilated cardiomyopathy – split S1, mitral murmur, low blood pressure and pulse volume

c. Testicular atrophy

d. Urine dipstick: diabetes mellitus

e. Lower limb: footdrop with high steppage gait (tibial nerves affected early)

Parkinsonism

A. Examination

1. General

- mask like facies

- monotonous speech

- dyskinesias

2. Upper limbs

- resting tremor (disappear with use)

- bradykinesia

o thumb to finger

o rotate wrist

o twinkle stars

- leadpipe rigidity, cogwheeling

- acute dystonia

- alien limb syndrome

- pronator drift

- cerebellar

- reflex: palmomental, grasp

3. Face

- eye movements + vertical Doll if vertical gaze impaired

- close eyes: blepharospasm

- seborrhoea

- Kayser-Fleisher (KF) rings

- count 1-20

4. Function

- comb hair

- unbutton shirt

- write

- cap a pen

5. Gait

- typical Parkinsonian gait

- rule out gait apraxia

6. Wish list

a. Speech

b. Swallowing

c. Handwriting

d. Postural blood pressure

e. Abbreviated Mental Test, AMT (<6)

- age

- DOB

- address: 42 West Street

- time (hour)

- year

- recognise 2 persons

- place

- PM

- 1st year of WW I (1914-1918)

- count backwards 20 to 1

B. Presentation

1. Diagnosis

2. Evidence

a. Findings

- mask like, expressionless facies

- asymmetrical resting tremor with pill-rolling movements of thumb – disappear with use of hand

- bradykinesia with lead pipe rigidity

- cogwheeling

- movement of contralateral upper limb accentuates

- seborrhoea

- glabellar tap/Myerson sign +

- gait: difficulty initiating, stooped, shuffling, festination, lack of normal arm swing, turning en bloc

- gait: not apraxic, no urinary catheter (normal pressure hydrocephalus)

3. Complications

a. Function

- walk: aided/not

- key turning movement etc

- unbutton

b. Treatment

- dyskinesia secondary to L-dopa

4. Aetiology: Features of Parkinson Plus syndromes

a. Progressive supranuclear palsy

- vertical gaze palsy

o downgaze affected first → upgaze → horizontal

o can be overcome by vertical Doll's

o blepharospasm, slow pursuit, saccadic eye movements

- postural instability, axial rigidity with falls early

- frontal lobe signs

b. Multiple system atrophy (MSA)

- cerebellar

- autonomic: orthostatic hypotension, urinary dysfunction, erectile dysfunction

- corticospinal: hyperreflexia, extensor plantar

c. Corticobasalganglionic degeneration (frontoparietal lobe)

- limb apraxia/alien limb syndrome

- dystonia

d. Parkinsonism-dementia-ALS complex

e. Diffuse Lewy body disease

- Parkinsonism

- dementia

- neuropsychiatry

5. Wish list

- postural hypotension (dysautonomia – MSA)

- family history of neurological/liver disorder (Wilson's disease)

- neuroleptics

6. Summary

- Parkinsons

- aetiology

- function

- side effects from treatment i.e. dyskinesia

Cerebellar

Unilateral

A. Examination

1. Upper limbs

a. pronator drift

b. tone: cogwheel rigidity, leadpipe rigidity

c. power: ataxic hemiparesis

d. sensory: temperature/pain loss in syringomyelia and lateral medullary syndrome (LMS)

e. cerebellar signs

- dysmetria with intention tremor

- dysdiadochokinesia

- dyschronometria

f. skin: neurofibromas

g. pulse: atrial fibrillation

2. Face

a. gaze evoked nystagmus (in direction of gaze), INO, RAPD

b. speech

- count 1-20, British Constitution, West Register Street

- jerky, explosive and loud, irregular syllables

c. Cranial nerves

- cerebellopontine angle (CPA)

- lateral medullary syndrome (LMS)

- CN III palsy in Benedikt's syndrome

d. xanthelasma

3. Lower limbs

a. Cerebellar signs

- dysmetria and intention tremor for toe to finger test

- dyssynergia for heel-shin test

- dysdiadochokinesia for foot tapping test

b. Diabetic dermopathy

4. Sit up with hands folded and tests for pendular jerks

5. Gait

- broad based gait with veering towards side of lesion

6. Request to test visual fields: hemianopia

B. Presentation

1. Diagnosis

2. Evidence

a. Upper limb

- unilateral dysmetria, dysdiadochokinesia, dyschronometria

b. Lower limbs

- right dyssynergia on heel shin test

- right dysmetria and intention tremor on toe-finger test

- dysdiadochokinesia

c. Gazed evoked nystagmus on ipsilateral gaze

d. Broad based gait with veering towards same side

e. No cerebellar speech/truncal ataxia

3. Aetiology

a. Neuro

- Cranial neuropathies

- CPA lesion (CNs V, VI, VII, VIII)

- lateral medullary syndrome

- CN III palsy – Benedikt's syndrome

- Pronator drift – ataxic hemiparesis (same side)

- Neurofibromatosis (NF)

- Parkinsonism – multiple system atrophy

- Multiple sclerosis – RAPD, INO

b. Others

- atrial fibrillation

- xanthelasma

- diabetic dermopathy

- bruises: overanticoagulation

4. Wish list

- temperature chart for fever: abscess in posterior fossa

- visual fields for contralateral hemianopia: posterior circulation stroke

- funduscopy: papilloedema (SOL in CPA), optic atrophy (demyelinating disease)

5. Summary

Bilateral

A. Examination

1. Upper limbs

- Cs of cerebellar (dysmetria, dysdiadochokinesia, dyschronometria)

- Sensory: loss of temperature/pain for syringomyelia

- Parkinsonism

- Neurofibromatosis (NF) features

- alcoholic features: Dupuytren's contracture, stigmata of chronic liver disease

2. Face

a. Cranial nerves

- bilateral CPA tumour

- multiple sclerosis

b. Eyes

- gaze evoked nystagmus

- KF rings

- INO, RAPD

c. Mouth

- gingival hypertrophy

- macroglossia

- telangiectasia

d. Parotidomegaly

e. Goitre

f. Speech

- cerebellar speech

- hoarseness of voice

3. Lower limbs

- cerebellar signs

- clawing of toes (Friedrich's ataxia)

4. Sit – truncal ataxia and pendular jerks

5. Gait – cerebellar gait

B. Presentation

1. Diagnosis

2. Evidence

a. Findings

- dysmetria with intention tremor bilaterally

- associated with dysdiadochokinesia

- also present on examination of lower limbs

- multi-directional gaze evoked nystagmus

- cerebellar speech

- truncal ataxia

- broad based gait

3. Aetiology

a. Bilateral CPA lesion – V, VI, VII,VIII

b. Atrial fibrillation, xanthelasma, diabetic dermopathy

c. Wilson: KF rings

d. Multiple sclerosis: RAPD, INO

e. Chronic phenytoin use: gingival hypertrophy

f. Hypothyroidism: goitre, peaches and cream complexion, hoarse voice, macroglossia

g. Chronic alcohol ingestion: parotidomegaly, Dupuytren's contracture, chronic liver disease

h. Multiple system atrophy: cog-wheeling, leadpipe rigidity

i. NF2: neurofibromas

j. Underlying malignancy (paraneoplastic): cachexia, clubbing

k. Ataxia telangiectasia: telangiectasia

l. Friedrich's ataxia: pes cavus

4. Wish list

- temperature chart for fever
- neurological examination of lower limb: spastic paraparesis
- fundoscopy for optic atrophy (demyelinating disease)

5. Summary

Notes

1. Midline lesion (cerebellar vermis)

- signs: truncal ataxia, abnormal heel-toe walk, cerebellar speech
- causes: midline tumour, paraneoplastic

2. Cerebellar signs with spastic paraparesis

- Friedrich's ataxia
- spinocerebellar ataxia
- Arnold-Chiari malformation
- lesions at craniospinal junction e.g. meningioma
- syringomyelia
- multiple sclerosis
- syphilitic meningomyelitis

3. Location

- limb ataxia: cerebellar lobes

- gait ataxia: anterior vermis

- truncal ataxia: posterior vermis

Syringomyelia

A. Examination

1. Upper limbs

2. Neck

- scars of previous surgeries

- scoliosis

3. Cranial nerves

- Horner's syndrome

- ataxia and nystagmus

- bulbar palsy (syringobulbia)

- loss of temperature and pain sensation from outer part of face progressing towards the centre

4. Lower limbs

- spastic paraparesis

B. Presentation

1. Diagnosis

2. Evidence/complications

a. Lower motor neurone (LMN) pattern of weakness of both upper limbs

- wasting and weakness of small muscles of hands and forearms

- reduced tone and reflexes

b. Dissociated sensory loss

- loss of pinprick in upper limbs and upper chest

- intact vibration and proprioception

c. Presence of complications

- scars, old burn marks on fingers

- Charcot's joints of upper limbs

- la main succulente – ugly, cold, puffy, cyanosed hands with stumpy fingers and podgy soft palms

d. Face (syringobulbia: medulla)

- bulbar palsy: palatal movements, CN XI, XII

- Horner's syndrome

- ataxia/nystagmus

- loss of sensory to pinprick of face in onion-skin pattern

- CNs V, VII, IX, X

e. Neck

- surgical scars

- kyphoscoliosis

f. Lower limb

- spastic paraparesis

3. Summary

- syringomyelia

- wasting of upper limbs + dissociated sensory loss + spastic paraparesis of lower limbs

- complication: repeated trauma of hands

4. Differential diagnoses

a. for dissociated sensory loss

- anterior spinal artery occlusion (affects spinothalamic tract)

- diabetic neuropathy

- leprosy

- hereditary amyloidotic polyneuropathy

b. syringomyelia

- craniovertebral anomalies

- spinal cord injuries

- intramedullary tumours of spinal cord

- arachnoiditis around foramen magnum obstructing cerebrospinal fluid (CSF) flow

- haematomyelia

C. Notes

1. Pathophysiology

a. Level of syrinx

- lower motor neurone (LMN): anterior horn cell

- dissociated sensory loss: decussating fibres of spinothalamic tract

b. Below level of syrinx

- pyramidal corticospinal tract: spastic paraparesis of lower limbs, preservation of sphincters

c. Extension into upper cervical cord and medulla

- Horner

- bulbar palsy (CN IX – XII)

- ataxia and nystagmus (medial longitudinal bundle if lesion from C5 upwards)

- onion skin pattern loss of pain in face (spinal nucleus of V which extends from pons to upper cervical cord)

2. Associated abnormalities

- Arnold-Chiari malformation

- bony defects around foramen magnum

- hydrocephalus

- spina bifida

- spinal cord tumours

Peripheral neuropathy

1. Findings

a. Sensation

- loss of sensation: pinprick, light touch

- impairment: vibration, joint position senses

- distribution e.g. stocking

b. Motor

- wasting/fasciculations of lower limb muscles

- tone and reflexes normal or reduced

- downgoing plantars

- power: normal vs diminished

2. Complications

- loss of hair

- Charcot joints

3. Wish list

a. Gait – high steppage gait (sensory ataxia)

b. Upper limbs – distal sensory impairment, wasting of hands

c. Urine dipstick for glycosuria – diabetes mellitus

d. History

- drug history: isoniazid, nitrofurantoin, phenytoin, chloroquine, penicillamine, vincristine, cyclosporine A

- chronic ethanol ingestion

4. Aetiology

a. Diabetes mellitus – dermopathy

b. Sensorimotor

- leprosy: thickened nerves, hypopigmented patch

- alcohol: parotidomegaly, Dupuytren

- uraemia: sallow

- B12 deficiency: pale

- paraneoplastic: cachexia, clubbing (toes)

- rheumatoid arthritis: symmetrical deforming polyarthropathy

- acromegaly

- hypothyroidism

c. Motor

- drugs: cyclosporine A, gold, penicillamine

- lead, mercury

- metabolic: diabetes mellitus, acute intermittent porphyria (AIP)

- infectious/inflammatory: HIV, Guillain Barre syndrome (GBS), amyloid, sarcoid

- polyarteritis nodosa (PAN)

- hereditary sensorimotor neuropathy (HSMN) type 1

d. Painful

- diabetes mellitus, alcohol, B12 deficiency

- cancer, porphyria, arsenic

Brown Sequard syndrome

1. Diagnosis

2. Evidence

- hemisection of cord at level T10
- ipsilateral monoparesis
- reduced vibration and proprioception on same side
- loss of pain sensation on contralateral limb below level T10
- loss of pain sensation on ipsilateral T10 dermatome

3. Complications

- deep vein thrombosis (DVT)
- pressure sores
- Charcot's
- incontinence
- function: difficulty ambulation, wheelchair

4. Aetiology

5. Wish list

- examine back
- per rectal (PR): lax anal tone

- Multiple sclerosis: INO, optic atrophy with RAPD

6. Summary

Median nerve palsy

1. Diagnosis + level

2. Evidence

a. Motor

- wasted thenar eminence

- thumb externally rotated into plane of thumb rather than perpendicular

- pen touch test: abductor pollicis brevis

- Oschner clasping test (flexor digitorum superficialis)

- flexion of terminal digit of thumb (flexor pollicis longus) – if intact, lesion at wrist

- flexion of terminal digit of index finger (flexor digitorum profundus) – if intact, lesion at wrist

b. Sensory

- reduced sensation in lateral 3 ½ fingers as well as thenar eminence

c. Exclude

- ulnar and brachial neuritis

- ulnar and radial nerve palsy

3. Complications

- Function: fine and coarse motor functions intact

4. Aetiology

- Tinel's sign

- rheumatoid arthritis of the hands

- scars: wrist, forearm, elbow, arm, axilla

- hypothyroidism (myxoedema)

- acromegaly

5. Level of lesion

a. Wrist

- wasting of thenar

- externally rotated thumb

- pen touch thumb positive

- sensory loss of lateral 3 ½ fingers

b. Cubital fossa/arm/axilla

- above, plus

- Oschner clasping test positive and failure of flexing of terminal digits of thumb and index finger

c. Forearm

- depends where lesion is e.g. anterior interosseous nerve (AIN) syndrome affect flexor digitorum profundus and flexor pollicis longus only

6. Summary

Radial nerve palsy

1. Diagnosis + level

- suspect on apparently normal looking upper limbs

2. Evidence, level

- concentrate on median and ulnar nerve, brachial plexopathy

- inspect forearm, elbow, humerus, shoulder

- weakness of extension of fingers at metacarpophalangeal joint (MCPJ) and wrist

- preservation of interphalangeal joint (IPJ) extension (lumbricals, interossei)

- weakness of wrist extension

o extend wrist before testing grip strength

o finger abduction and adduction with hands flat on a surface

- brachioradialis

- triceps: muscle and jerk

- reduced sensation: first dorsal interosseous or anatomical snuffbox

- median screen: thumb abduction, Oschner's clasping test for median screen

- ulnar screen: finger abduction, Froment's sign

a. Axilla e.g. crutch palsy

- all gone including biceps and triceps reflex

b. Humerus

- upper third: all is lost

- middle third

o triceps and triceps reflex preserved

o brachioradialis and below lost

- lower third: triceps and brachioradialis preserved

c. Elbow

- like lower third

- only posterior interosseous nerve (PIN) involved

o extensors of fingers at MCPJ affected only

o no wrist drop (extensor carpi radialis intact)

d. Forearm

- PIN involvement

- superficial radial nerve palsy (Wartenberg syndrome – entrapment syndrome where there is pain and numbness over distribution of first web space dorsally only because of overlap)

3. Complications

- Function: fine and coarse motor functions intact

- Splint for wrist and finger drop

4. Aetiology

- gums for lead poisoning: blue-black line on gingival margin

- scars or deformities over humerus/axilla/lower

6. Summary

Ulnar nerve palsy

1. Diagnosis + level

2.Evidence

- rule out median, radial and brachial neuritis

a. Inspection

- ulnar claw hand

- wasting of muscles of hands, hypothenar eminence, dorsal guttering

- partial clawing of 4th and 5th fingers

- sparing of thenar eminence

- ulnar paradox

b. Motor

- finger abduction

- Froment's sign

- finger flexion of 5th finger for flexor digitorum profudus involvement

- wrist flexion at ulna side, look for tendon of flexor carpi ulnaris (loss = level at wrist)

- median and radial nerve

c. Sensory

- medial 1 ½ fingers

- T1 sensory loss

d. Others

- wrist and elbows: thickened nerve, wide carrying angle

3. Complications

- Function: fine and coarse motor functions intact

4. Aetiology

- leprosy: thickened nerve, hypopigmented patches, finger resorption

- scars

5. Level of lesion

a. Wrist

- hypothenar eminency wasting

- Froment positive

- weakness of finger abduction

- pronounced claw

- loss of sensation

b. Elbow

- less pronounced claw
- loss of terminal flexion of distal interphalangeal joint (DIPJ)
- loss of flexor carpi ulnaris tendon on ulna flexion of wrist

6. Summary

Wasted Hands

A. Unilateral

1. Diagnosis

2. Evidence

- unilateral wasted hand

- neurological hand screen

- ulnar and median nerve

- reflexes: reversed supinator jerk

- sensory

o nerve vs. root (peripheral nerve vs. brachial plexus)

o no loss – anterior horn cell

o ulnar, median, radial

o peripheral neuropathy

o dermatomal sensory

3. Complications

- function

4. Aetiology

- thickened nerves, hypoaesthetic macules

- fasciculations

- scars in axilla and neck

- neck pain and tenderness

- cervical rib

5. Wish list

a. Cervical rib – palpate

b. Pancoast tumour – dullness to percussion, Horner's syndrome, hoarseness of voice

c. Winging of scapula for brachial plexus involvement

- upper vs lower (wasting of muscles of hands) vs complete

- surgical (cervical rib, Pancoast) vs medical causes (brachial neuritis)

- test for proximal involvement

o serratus anterior (winging of scapula on pushing against wall) C5, 6, 7

o supraspinatus (abduction of UL from hands by your side position) C5

o infraspinatus (elbow flexed and push backwards) C5

o rhomboids (hand on hip and push backwards) C4, 5, 6

6. Summary and causes

Causes (no myopathy, got brachial plexus)

- peripheral nerve: median, ulnar, combined

- brachial plexus: trauma, tumour, radiation, cervical rib
- C8-T1 root lesions: cervical spondylosis
- anterior horn cell: poliomyelitis
- cervical cord

B. Bilateral

1. Diagnosis

Rule out obvious (hand screen)

- rheumatoid arthritis (RA), gouty hands
- dystrophia myotonica

2. Evidence

- neurological hand screen
- median and ulnar nerve testing
- wrist drop (weak in C8 root lesions)
- sensory: peripheral nerve vs neuropathy vs root
- reflexes (cervical cord)

3. Complications

- function

4. Aetiology

- elbows: thickened nerves

- fasciculations: peripheral nerve, neuropathy, motor neurone disease (MND)

- hypoaesthetic macules

- face: nasogastric tube (bulbar palsy), lower limb (HSMN)

- inspect neck; neck pain/tender on movement

- cervical cord lesion: reflexes

- dystrophia myotonica: percussion myotonia

- chest, cranial nerves, lower limbs accordingly

5. Wish list

a. lower limbs – spastic paraparesis (cervical cord, motor neurone disease)

b. lower cranial nerve – bulbar palsy (motor neurone disease, syringomyelia)

6. Summary

Causes

a. Obvious (hand screen): rheumatoid arthritis, gouty hands, dystrophia myotonica

b. Distal myopathy (reflexes normal; rare), dystrophia myotonica

c. Peripheral nerve lesions

- combined carpal tunnel syndrome

- combined ulnar and median nerve: leprosy (resorption, hypoaesthetic macule, thickened nerve), HSMN (foot for pes cavus deformities, thickened nerves)

- peripheral motor neuropathy

d. Brachial plexus (bilateral cervical ribs) – unlikely

e. Nerve roots

- cervical spondylosis: inverted supinator jerk, increased jerks for high cervical cord lesions

f. Anterior horn cell: no sensory loss

- motor neurone disease (fasciculations)

- poliomyelitis

- spinal muscular atrophy (SMA)

g. Spinal cord lesions

- intramedullary – syringomyelia: dissociated sensory loss

- extramedullary

C. Notes

1. Levels and causes

a. Disuse atrophy (rheumatoid arthritis of hands)

b. Myopathy

- distal myopathies/dystrophia myotonica – usually forearms more affected

c. Peripheral neuropathy

d. Mononeuropathy

- surgical, trauma, compression

- mononeuritis multiplex, infection, inflammatory, ischaemic

e. Brachial plexus

- surgical, trauma compression (Pancoast, cervical rib)

- brachial neuritis

f. Nerve root (disc prolapsed)

g. Anterior horn cell: MND, poliomyelitis, SMA

h. Spinal cord

- intramedullary

- extramedullary

2. Causes of claw hand

a. Partial claw

- ulnar nerve palsy

b. True claw

i. Non-neurological

- rheumatoid arthritis

- severe Volkmann's ischaemic contracture

ii. Neurological

- combined median and ulnar nerve

- leprosy (reflexes present, pain loss, thickened nerves)

- lower brachial plexus (C7-T1, selective loss of reflexes, pain loss)

- poliomyelitis (reflexes selective, pain intact)
- syringomyelia (reflexes absent, pain loss)

Flaccid paraparesis

A. Examination

1. Lower limb examination

2. Commonly

- hereditary sensorimotor neuropathy (HSMN)

- polio

- infantile hemiplegia

- spina bifida

- cauda equine syndrome

- Guillain-Barre Syndrome (GBS)/chronic inflammatory demyelinating polyneuropathy (CIDP)

- motor neurone disease, MND (see spastic paraparesis)

- diabetic amyotrophy (see proximal myopathy)

3. Concentrate on

a. Areflexia – Miller Fisher variant, tick paralysis

b. Sensory

i. No sensory abnormalities

- myopathies

- neuromuscular

- nerves – certain conditions e.g. GBS in multifocal motor neuropathy

- anterior horn cell

ii. Glove and stocking

- peripheral neuropathy: HSMN, paraneoplastic

iii. Mild and patchy: GBS

iv. Sensory level (acute)

- cord compression

- cord infarction

- transverse myelitis

v. L5 and S1 sensory loss in spina bifida

4. HSMN

a. Pes cavus, clawing of toes, contractures of Achilles' tendon, inverse champagne bottles (wasting of distally and stops abruptly at lower 1/3 thighs, also similar wasting distally in upper limbs)

b. Lower motor neurone lesion

- reduced tone and no clonus

- reduced reflexes and downgoing plantar response

- weakness

- bilateral footdrop

c. Sensory

- no sensory/mild glove and stocking

d. Gait

-high steppage gait of foot drop

e. Marked deformity with minimal disability

f. Others

- feel for thickened nerves (lateral popliteal nerve)
- hands: small muscle wasting and clawing
- spine: scoliosis
- feel for thickened greater auricular nerves
- wheelchair, callipers

5. Examine

a. Back

- kyphoscoliosis
- spine bifida: scars, tuft of hair, dimples, sinus or naevus

b. Per rectal (PR) examination

- saddle anaesthesia and cauda equine syndrome
- incontinence: faecal and urinary
- upper limbs
- cranial nerves (CNs) – fatiguability, GBS (bilateral VII)
- functional aids

B. Presentation

1. Obvious disease

a. HSMN

- bilateral pes cavus with clawing of toes, distal wasting of lower limbs with inverted champagne bottle appearance

- hypotonia with reduced reflexes and downgoing plantar responses

- weakness of lower limbs, power

- bilateral foot drop, high stepping gait

- no associated sensory disturbance

- function: able to walk independently in spite of marked foot deformity, walking aids/wheelchair

- wasting and drawing of upper limbs, no palpable thickened lateral popliteal nerve

- wish list: spine for scoliosis, palpate other sites of thickened nerves

- walking aids/wheelchair

b. Polio

- monoparesis of lower limb

- shortened lower limb associated with wasting

- hypertonic with reduced reflexes, downgoing plantar response

- flaccid with power 3/5

- no sensory weakness

- vs. infantile hemiplegia: upper motor neurone (UMN), shortened wasted ipsilateral upper limb

- examination of back: cutaneous signs of spina bifida

- walking aids/wheelchair

2. Not so obvious

- flaccid paraparesis as evidenced by

- hypotonia with reduced reflexes associated with downgoing plantar responses bilaterally

- no fasciculations

- weakness of lower limbs with power 3/5

- associated cerebellar signs in lower limbs

- complete exam: back, PR, upper limbs (ataxia, flaccid paresis), CN (cranial neuropathies)

C. Causes

1. Acute myopathies

- inflammatory myopathy: polymyositis, dermatomyositis

- rhabdomyolysis: extreme exertion, drugs, viral myositis, crush injury

- acute alcoholic necrotizing myopathy

- periodic paralyses: hypokalaemic, hyperkalaemic

- metabolic derangements: hypophosphataemia, hypokalaemia, hypermagnesaemia

- thyroid or steroid myopathy

2. Neuromuscular

- myasthenia gravis

- botulism

- tick paralysis

- other biotoxins: tetradotoxin, ciguatoxin

- organophosphate toxicity (can also cause neuropathy)

- Lambert-Eaton Myasthenic Syndrome (LEMS)

3. Nerve

- diphtheria

- porphyria

- drugs and toxins: arsenic, thallium, lead, gold, chemotherapy – cisplatin/vincristine

- vasculitis including lupus, polyarteritis

- paraneoplastic, paraproteinaemias

- multifocal motor neuropathy

4. Nerve roots

- Guillain-Barre Syndrome

- Lyme disease

- sarcoidosis

- HIV

- other viruses: cytomegalovirus (CMV), varicella zoster virus (VZV), West Nile

- cauda equina syndrome: lumbar disc, tumour

- plexus lesions: brachial plexitis, lumbosacral plexopathy

5. Anterior horn cell (motor neuron diseases)

- amyotrophic lateral sclerosis (ALS) with UMN findings

- poliomyelitis

- Kennedy's disease: spinobulbar atrophy/androgen receptor gene

- other spinomuscular atrophies (inherited)

- anterior spinal artery syndrome (with gray matter infarction)

6. Spinal cord (corticospinal tract diseases)

- inflammatory: transverse myelitis

- subacute combined degeneration: B12 deficiency

- spinal cord infarction

- other myelopathies: spondylosis, epidural abscess, haematoma

7. Brain

- pontine lesions e.g. central pontine myelinolysis, basis pontis infarct/bleed

- multifocal lesions: multiple metastases, acute disseminated encephalomyelitis (ADEM), multiple infarcts/haemorrhages e.g. disseminated intravascular coagulation (DIC), thrombotic thrombocytopenic purpura (TTP), bacterial endocarditis

Footdrop

1. Bilateral

- Lower motor neurone: peripheral neuropathy

- Upper motor neurone: cord lesion

2. Unilateral

a. Once dorsiflexion impaired

- eversion: common peroneal nerve (dorsiflex, eversion)

- inversion and plantarflex: posterior tibial nerve

- if foot drop and inversion and eversion lost with normal plantarflexion, then L5 nerve root

- if all gone, posterior tibial + common peroneal, sciatic nerve or plexus/roots

b.Knee flexion

i. intact

- sensory: peripheral neuropathy, common peroneal nerve palsy (dorsum of foot) – nerve/deep/superficial branch

ii. Weak → test hip abduction and internal rotation

- intact: sensory for sciatic nerve

c. Hip abduction and internal rotation weak

- sensory nil: anterior horn cell

- L4 and L5 dermatome: plexus/root

3. Cause

a. Common peroneal nerve palsy (L4 and L5)

- sciatic nerve divides at popliteal fossa into tibial and common peroneal nerves

- posterior tibial nerve: plantar flexion, inversion of foot

- common peroneal nerve winds around neck of fibula, covered by subcutaneous tissue and skin, prone to extrinsic compression

- superficial branch: foot evertors, sensation lateral calves and dorsum of foot

- deep branch: toe dorsiflexors, dorsiflexion of ankle, sensation to 1st interdigital web space

Characteristics

- wasting of peroneus and anterior tibialis muscles

- weakness of dorsiflexion of foot and eversion

- foot drop and high steppage gait

- loss of sensory: lateral aspect of calf and dorsum of foot

- all reflexes present

Causes of mononeuropathy

- trauma

- surgical

- compression at neck of fibula: leg crossing, cast, brace

- infection – leprosy

- inflammatory – CIDP

- ischaemic – vasculitis

- mononeuritis multiplex (endo, AI, infection, infiltrative, cancer)

b. Sciatic nerve (L4, L5, S1, S2)

- weakness of knee flexion also

- knee jerk intact

- ankle jerks affected, plantar response absent

c. L5 nerve root

- weakness of hip abduction and internal rotation

- loss of foot inversion

4. Walking aids

Gait

1. Procedure

- stand, Romberg

- walk and turn and return

- heel to toe

- heel walk

- tip toe

- squat

2. Look for obvious

- ankylosing spondylitis

- chorea

- hemiplegic gait

- antalgic gait

3. Small paces

a. Stooped posture, paucity of arm swing

- Parkinsonian

b. Upright gait, normal arm swing

- march a petit pas

- diffuse cerebrovascular disease

4. Feet separation

a. Broad

- cerebellar (unilateral or bilateral)

- + high stepping – sensory ataxia: peripheral neuropathy, dorsal column loss

b. Crossing over

- scissoring gait

- spastic: cerebral palsy, multiple sclerosis, cord compression

5. High stepping with normal feet separation

- footdrop: unilateral or bilateral

6. Pelvis rotating

- waddling gait: proximal myopathy, congenital dislocation of hips

7. Apraxic gait (disjointed)

- frontal lobe: stroke, space-occupying lesion, hydrocephalus

8. Bizarre inconsistent

- functional gait

- Huntington's chorea

Hemiparesis/hemiplegia

1. Diagnosis: left hemiparesis

2. Evidence

- Upper limb

- Lower limb

3. Level of lesion, justify

a. Brainstem

- Weber's syndrome (III and contralateral hemiplegia)

- Mililard Gubler (VI and VII and contralateral hemiplegia; usually associated with contralateral loss of proprioception and light touch as the medial lemniscus damage)

b. Subcortical – lacunar associated with UMN VII

- pure motor (50%)

- pure sensory (5%)

- mixed motor and sensory (35%)

- ataxic hemiparesis (10%)

- dysarthria clumsy hand syndrome (rare)

c. Cortical

- abbreviated version

- gaze preference, sensory and visual neglect, hemianopia and dysphasia if dominant lobe involved

4. Causes

- pulse, carotid bruit, murmur

- dyslipidaemia stigamata (xanthelasma, xanthomas, thickened TA)

- diabetic dermopathy

- tar stains

- bruising, telangiectasia

a. Vascular

i. Ischaemic (80%)

- intracranial thrombosis

- extracranial embolism: heart, extracranial arteries, paradoxical

- lacunar stroke (small vessel disease from diabetes or hypertension as result of lipohyalinosis)

ii. Haemorrhagic: intracerebral, subdural haemorrhage, subarachnoid haemorrhage

b. Space-occupying lesion

c. Infective: abscess, meningoencephalitis

d. Seizures

e. Toxic-metabolic: hypoglycaemia, hyponatraemia

5. Functional status and complications

- upper limbs

- gait

- pressure sores, nasogastric tube, urinary catheter

6. Wish list

- blood pressure

- urine dipstick

- fundoscopy: papillloedema (to rule out space-occupying lesion)

Proximal myopathy

1. Diagnosis

2. Evidence

- weakness, power

- upper and lower limb girdle muscles

- difficulty standing from sitting/squatting position

- sensation: rule out neuropathic weakness

- no fatigability

- waddling gait

NB: if unilateral proximal weakness, think of diabetic amyotrophy (a/w pain and sensory impairment)

3. Causes

a. Upper limb

- acromegaly, Cushing's

- Dupuytren contracture (alcohol)

- dermatomyositis/polymyositis

- proximal weakness

b. Face

- eyes: myasthenia gravis

- Cushing's, acromegaly, thyroid

- parotids

c. Presentation

- dermatomyositis/polymyositis

- acromegaly, Cushing's, thyroid

- chronic ethanol ingestion: Dupuytren, parotidomegaly

- sarcoid: lupus pernio

- cancer: cachexia, clubbing

4. Wish list: Drug history

- cholesterol lowering drugs

- corticosteroids

- cyclosporine A

- chloroquine

5. Summary

Causes

1. Congenital

a. Duchenne's: pseudohypertrophy of cales, Gower's sign, no facial involvement, low IQ, dilated cardiomyopathy

b. Becker

c. Limb girdle

- shoulder and pelvic girdle

- deltoids spared initially – pseudohypertrophy

- biceps and brachioradialis involved late

- hip flexors and glutei weak

- early wasting of medial quadriceps and tibialis anterior with lateral quadriceps

- face never involved, normal IQ and lifespan

- normal muscle enzymes

d. Fascioscapular and oculopharyngeal

2. Acquired

P – polymyositis/dermatomyositis, polymyalgia rheumatic

A – alcohol

C – cancer

H – HIV

E – Endocrine (acromegaly, Cushing's, thyroid), end-stage renal disease (ESRD)

M – mitochondrial myopathy (MERL), McArdle's syndrome (weakness after exercise)

P – periodic paralysis

O – osteomalacia

D – drugs

S – sarcoid

Spastic paraparesis

Think: Cerebellar, sensory level, dorsal column, mixed, upper limbs and others

1. Diagnosis

2. Evidence

- increased tone and clonus

- hyperreflexia with upgoing plantars

- weakness of lower limbs of power grade with wasting

3. Complications

- deep vein thrombosis

- pressure sores

- urinary catheter, diapers

- function: wheelchair, walking aids, orthotic shoes, gait/Romberg

4. Causes and associations

a. Cerebellar signs

i. Features

- dyssynergia: heel shin test

- dysmetria and intention tremor: toe to finger test

- dysdiadochokinesia: foot tapping test

ii. Causes

- spinocerebellar degeneration e.g. Friedreich's ataxia; young, pes cavus, loss of ankle reflexes, dorsal column loss

- multiple sclerosis

- craniospinal junction abnormalities

o congenital: Arnold-Chiari malformation

o acquired: meningioma at craniocervical (CS) junction, syringomyelia

- Lewitic meningomyelitis

iii. Wish list

- Multiple sclerosis: RAPD, INO, optic atrophy

- CS junction: CNs, neck, dissociated sensory loss

- Argyll Robertson pupils: Lewitic disease

b. Sensory level

i. Features

- loss of sensation to pinprick, levels bilaterally

- no cerebellar sign, dorsal column sensory system intact

ii. Causes (spinal cord lesion, level)

(1) Cord compression

- Extramedullary (root pains, localised lower motor neurone, spasticity early, no sacral sparing, abnormal cerebrospinal fluid)

o vertebral: spondylosis, trauma, prolapsed intervertebral disc (PID), tumour, infection

o extradural: abscess, metastases, lymphoma

o intradural: meningioma, neurofibromatosis

- Intramedullary (root pains rare, lower motor neurone signs extend over several segments, late spasticity, may sacral spare, normal CSF)

o syringomyelia

o tumour: glioma, ependymoma

o haematomyelia

(2) Cord infarction

- anterior spinal artery thrombosis

- vasculitis: polyarteritis nodosa, syphilis

- thoracic/abdominal aortic aneurysm and dissection

- causes of cord compression

(3) Myelitis

- infective: mumps, measles, Epstein-Barr virus (EBV), HIV, mycoplasma, syphilis, TB

- neoplastic: carcinomatosis meningitis

- nutritional: B12

- demyelinating: multiple sclerosis

iii. Wish list

- Per rectal (PR): saddle anaesthesia, lax tone (link with urinary catheter or diapers)

- Back: scars, bony tenderness

- Upper limbs: if sensory level at/above upper limbs

c. Dorsal column loss

i. Features

- loss of proprioception, vibration sense and level

- sensation to pinprick intact, no cerebellar signs

ii. Causes

- spinocerebellar degeneration

- multiple sclerosis

- subacute combined degeneration of cord (SACD)

- taboparesis

iii. Wish list

- features of multiple sclerosis

- features of SACD: pallor, splenomegaly

- Argyll Robertson pupils

d. Upper limbs

i. Features

- intact cerebellar and sensation to pinprick, proprioception and vibration

- sensation may be lost

ii. Wish list

- Lower motor neurone signs, wasted hands: syringomyelia, cervical myelopathy, motor neurone disease

- Inverted supinator jerks: C5-6 lesions

- Upper motor neurone signs: bilateral strokes, high cervical myelopathy

e. Absent ankle jerks +/- knee jerks

- fasciculations: motor neurone disease

- cerebellar: spinocerebellar degeneration (Friedreich's ataxia)

- dorsal column loss: SACD, taboparesis

- conus medullaris lesion

- combined pathologies

o cord compression and pre-existing peripheral neuropathy e.g. diabetes mellitus and cervical myelopathy, alcohol and cord compression

o cervical and lumbar myelopathies

f. Others – cerebral palsy, parasagittal falx meningioma

ENDOCRINOLOGY

Cushing syndrome

1. Diagnosis

2. Evidence

a. Face

- round/moon facies, plethora, telangiectasia
- cataracts
- anaemia
- oral thrush
- buccal pigmentation
- hirsutism, acne

b. Neck

- supraclavicular and intrascapular fat pads

c. Upper limbs

- hands: hyperpigmentation
- bruising
- papery thin skin (2 fingers in a circular fashion)
- peripheral wasting of upper limbs
- proximal myopathy
- acanthosis nigricans

d. Abdomen

- truncal obesity
- purple striae

e. Lower limb

- oedema
- bruising
- proximal myopathy: squat then stand

f. Back (stand up)

- kyphoscoliosis
- spinal tenderness/step: osteoporosis and vertebral collapse

3. Aetiology

- clubbing, nicotine staining
- rheumatoid arthritis
- systemic lupus erythematosus

4. Wish list

- blood pressure
- urine dipstick
- lungs: asthma, pulmonary fibrosis

- visual field

- panhypopituirism

- multiple endocrine neoplasia (MEN) type 1

- history: exogenous steroid

- virilisation: deepening of voice, breast atrophy, clitoromegaly

Goitre

A. Examination

1. General inspection

- thin, fidgety

- choreoathetoid movements

2. Upper limbs

a. Dorsum upwards

- tremors

- acropachy (thyroid clubbing)

- onycholysis (Plummer's nails especially ring finger)

- skin: vitiligo

b. Palms upwards

- sweaty palms

- palmar erythema

c. Proximal weakness

d. Pemberton's sign

e. Pulse: sinus tachycardia, atrial fibrillation

f. Reflexes

3. Eyes

a. Look

- chemosis, keratitis, prominent caruncle and tarsorraphy

- lid oedema, periorbital oedema

- exophthalmos and lid retraction (Dalrymple's sign)

b. Move

- lid lag (von Graefe's sign)

- opthalmoplegia (inferior → medial → superior → lateral recti)

4. Neck

a. Front

- goitre: swallow water

- scar: hypothyroid, hypoparathyroid

- distended neck veins

b. Back

- proptosis

- palpate goitre (soft, smooth vs nodular, large, tender)

- cervical lymph nodes

- carotid pulsations

c. Bruit

d. Tracheal deviation

e. Sternocleidomastoid weakness on multinodular goitres

f. Percussion of sternum

5. Lower limbs

- pretibial myxoedema

6. Complete examination

a. hyperreflexia

b. cardiovascular examination

- wide pulse pressure (if clinically hyperthyroid) and systolic hypertension

- ejection systolic murmur, congestive cardiac failure

- gynaecomastia

c. if scar

- hyperparathyroidism: Trosseau's sign and Chvostek's sign

- hoarseness of voice

d. Hepatosplenomegaly in Grave's disease

B. Presentation

1. Grave's disease

a. Diagnosis

- clinical thyroid status
- complications

b. Evidence

i. Findings

- goitre: diffusely enlarged, smooth, firm, bruit, non-tender
- no palpable lymph nodes
- trachea central, no dullness to percussion of sternum
- Pemberton negative
- pretibial myxoedema

c. Complications

i. Hyperthyroidism

- thin looking, anxious, fidgety
- fine tremors of outstretched hands
- sweaty palms
- palmar erythema
- resting sinus tachycardia
- thyroid acropachy, onycholysis
- proximal upper limb weakness

ii. Eyes

- lid retraction, staring appearance

- no chemosis, keratitis, tarsorrhaphy

- exophthalmos, proptosis, ophthalmoplegia

d. Associations

- diabetes mellitus

- vitilgo

- pernicious anaemia

- Addison's disease

- myasthenia gravis

- alopecia areata

2. Multinodular goitre

a. Diagnosis

- thyroid status

- complications e.g. atrial fibrillation

b. Evidence

i. Goitre

- enlarged with multiple nodules bilaterally +/- dominant nodule

- non tender

- no associated cervical lymph nodes

- carotid artery palpable

c. Complications

i. Compression

- stridor

- Pemberton

- dullness to percussion of sternum

ii. Hyperthyroidism

iii. Atrial fibrillation

- easy bruisability

- obvious hemiplegia

Panhypopituitarism (Simmond's disease)

1. Diagnosis

2. Evidence

- pale soft skin

- loss of axillary hair

- breast atrophy, hypogonadism, gynaceomastia, galactorrhoea (hyperprolactinaemia)

- pallor and hairlessness (alabaster skin)

- hypothyroidism

- postural hypotension

3. Aetiology

a. Visual fields: bitemporal hemianopia (chromophobe adenoma)

b. Funduscopy: papilloedema

c. Radiation marks/signs

d. Surgical scar marks

e. Others

- postpartum necrosis (Sheehan's syndrome)

- pit apoplexy (spont infarct/haemorrhage)

- craniopharyngioma

- TB, sarcoid, metastatic

Addison's disease

1. Evidence

- weakness, loss of appetite, loss of weight

- hyperpigmentation: palmar crease, mouth, lips, nipples, belt, straps, rings

- sparse axillary hair, pubic hair, postural hypotension

2. Associations

- vitiligo

- polyglandular (hypoparathyroidism, diabetes mellitus, thyroid)

- differential diagoses: Nelson's syndrome (abdominal scar, visual field, liver, renal)

3. Investigations

a. Confirm diagnosis with synacthen test

b. Level

- ACTH

- prolonged ACTH test: will respond if suppression by exogenous steroids or ACTH deficiency

- imaging

c. If adrenals

- Abdominal X-ray (calcification)

- CT adrenals

- Chest X-ray: TB

- adrenal antibodies

4. Notes

a. Causes of hyperpigmentation

- Addison's, Nelson's, ectopic ACTH

- liver: primary biliary cirrhosis, haemochromatosis

- uraemia

- race, suntan

- porphyria cutanea tarda

b. Causes of Addison's

- Autoimmune (21 hydroxylase)

- TB

- metastases

- HIV

c. Associations

- Grave's, Hashimoto, pernicious anaemia

- Autoimmune polyglandular syndromes

o type 1: Addison's, hypoparathyroidism, chronic mucocutaneous candidiasis

o type 2: Addison's, hypothyroidism, diabetes mellitus

Acromegaly

1. Diagnosis

2. Evidence

a. Hands

i. Palm downwards – large, doughy, spade shaped, osteoarthritis, double pinch test

ii. Palm upwards – sweatiness, carpal tunnel syndrome (Tinel), wasting of thenar eminence, numbness

b. Elbows – ulnar nerve thickening

c. Proximal myopathy

d. Face

- transfrontal scar
- prominent supraorbital rides
- greasy skin
- broad nose
- hirsute
- thickened lips
- macroglossia, teeth indention marks on side of tongue
- prognathism

- splaying of teeth, malocclusion of teeth

e. Neck

- goitre

f. Lower limbs

- bowing of tibia

- osteoarthritis

- pitting oedema from congestive cardiac failure/calcium channel blockers

- heel pad thickened

g. Trunk and axillae (remove shirt)

- skin tags

- coarse body hair

- acanthosis nigricans

- gynaecomastia, galactorrhoea

- kyphosis

3. Complications

a. Metabolic and endocrine: diabetes mellitus, hypertriglyceridaemia

b. Cardiovascular: hypertension, cardiomyopathy, and congestive cardiac failure

c. Respiratory: acute dyspnoea and stridor, obstructive sleep apnoea

d. Abdomen: colonic polyps and malignancies (colon cancer), organomegaly, testicular atrophy

e. Neuromuscular: proximal myopathy, nerve root compression – carpal tunnel syndrome/radiculopathy, spinal stenosis

f. Calcium and bone metabolism: hypercalciuria, hyperphosphatemia, urolithiasis

4. Wish list

a. Trunk and axillae (remove shirt)

- skin tags

- coarse body hair

- acanthosis nigricans

- gynaecomastia, galactorrhoea

- kyphosis

b. Visual fields: bitemporal hemianopia, fundoscopy for angioid streaks

c. Cardiovascular: cardiomegaly

d. Abdomen: organomegaly, testicular atrophy, per rectal bleed for colon carcinoma

e. Blood pressure: hypertension

f. Urine dipstick: glycosuria (screen for diabetes mellitus)

g. Ask for symptoms: headache, increased sweatiness, recent increase in shoe or glove size

Paget's disease

A. Examination

1. Head

- enlargement of skull especially frontal and parietal

- measure circumference (>55 cm = abnormal)

- prominent scalp veins

- palpate skull for warmth

- auscultate skull for bruit

- face

o RAPD, visual acuity and visual fields

o hearing aids, tests for deafness (conduction vs. sensorineural hearing loss)

o other cranial nerves

2. Neck

- platybasia (basilar invagination) – short neck, low hairline

- jugular venous pressure (JVP)

3. Back

- kyphosis, tenderness, warmth and systolic bruits

4. Upper limbs

- obvious bowing of the long bones

- cerebellar signs from platybasia

5. Lower limbs

- lateral bowing of femur

- anterior bowing of tibia

- warmth

- osteoarthritis of knees

- obvious paraplegia

- bilateral pedal oedema

6. Request for

- fundoscopy: optic atrophy, angioid streaks

- neurological examination of lower limbs and upper limbs for cord compression or nerve root compression signs

- urinalysis: haematuria from urolithiasis

B. Presentation

1. Evidence

a. Bony features

- enlarged skull, >55 cm, short neck and low hairline, back, upper limb and lower limb bowing

- warmth, tenderness, systolic bruits

- osteoarthritis of knees

b. Neurological

- VIII nerve (hearing aid), CNs

- cerebellar

- obvious paraplegia

c. Cardiovascular – no raised JVP or bilateral pedal oedema

2. Complications

a. Bony and immobilisation

- pathological fractures

- sarcomatous change in 1%

- osteoarthritis

- protrusion acetabuli

b. Neurological

i. Obstructive hydrocephalus

ii. CNs

- hearing loss: conductive (otosclerosis of ossicles), sensorineural (auditory nerve compression)

- optic atrophy

iii. Spinal cord compression (basilar invagination) or nerve root compression

c. High output cardiac failure

d. Metabolic

- gout: hyperuricaemia from rapid bone resorption during prolonged immobilisation

- urolithiasis from hypercalciuria

- hypercalcaemia from immobilisation

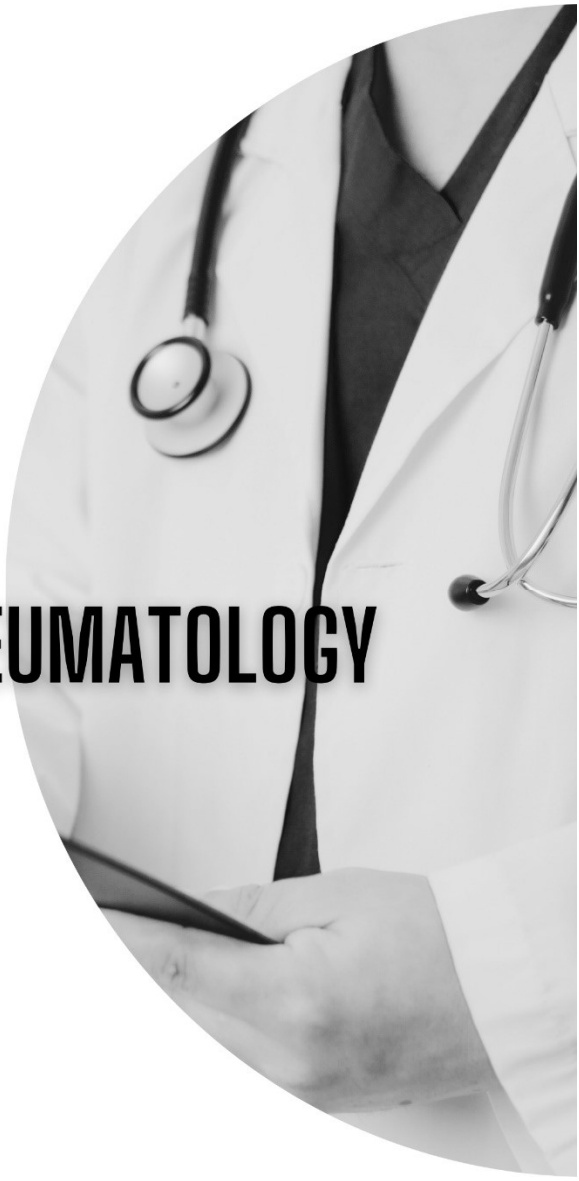
3. Wish list

- fundoscopy: optic atrophy, angioid streaks

- neurological examination of LLs and ULs for cord compression or nerve root compression signs

- urinalysis: haematuria from urolithiasis

- history of increase in hat size



RHEUMATOLOGY

Charcot's joint

A. Examination

1. Inspection

a. Skin

- Diabetic dermopathy, callus, ulcer, amputations, loss of concavity of foot arch, loss of leg hair, shiny skin

- Leprosy skin changes ie hypopigmented macules

b. Muscle

- wasting

c. Bone

- joint involvement

- stage of Charcot's

d. Nearby foot orthoses

2. Palpate

- joint: tenderness, osteophytes, crepitations, passive range of movement for hypermobility

- feel for thickened nerves

- feel pulses

3. Sensory testing

- pinprick, temperature, vibration, proprioception

4. Motor testing

B. Presentation

1. Diagnosis

2. Evidence

- joint enlarged and deformed with crepitus and involvement of joint

- not warm/tender

- loss of sensation, modalities involved, distribution

3. Complications

a. Function

- ankle foot orthoses

b. Disuse atrophy

- muscle wasting

4. Aetiology

a. Diabetes mellitus

- diabetic dermopathy, callus formation over pressure points of feet, loss of concavity of foot arch

- loss of skin hair on lower limbs

- skin: shiny appearance

b. Leprosy

- hypoaesthetic, hypopigmented macules

- palpable thickened nerves

5. Wish list

- Romberg

- walk for functional assessment

- back: meningocele

- eyes: Argyll-Robertson pupils

- urine dipstick for glycosuria

- signs of chronic ethanol ingestion

6. Summary

Ankylosing spondylitis

A. Examination

1. Introduce

2. Ask if there is pain

3. Stand → walk → turn around → return to original position

4. Touch toes with fingers

5. Look left and look right

6. Touch chest with chin

B. Presentation

1. Diagnosis

2. Evidence

- stooped, question-mark posture

- loss of lumbar lordosis and fixed kyphosis with extension of cervical spine in attempt to maintain horizontal visual gaze

- protruberant abdomen

- spinal movements restricted as evidenced by finger-to-toe test with limited flexion and lateral movements of cervical spine

3. Wish list

a. Heels, hips and occiput test and measure occiput-to-wall distance

b. Modified Schoeber's test

c. Chest expansion

d. Others

- shoulder and knee joint involvement

- extra-articular involvement and complications

4. Differential diagnoses

- skin: psoriasis

- inflammatory bowel disease (enteropathic arthritis): abdomen

- Reiter's syndrome

Gouty hands

A. Examination

1. Hands

a. inspection: tophi, joint deformity, palmar erythema

b. palpation

- feel joints for active arthritis

- Dupuytren's contracture (alcohol), finger pulps for tophi

c. function

- coarse and fine

- pincer and grip

2. Others

a. Olecranon bursae: extensor surface and elbows

b. Renal failure: sallow appearance, dialysis

c. Pinna/helix of ear

d. plethoric, parotidomegaly, bleeding and hypertrophic gums

e. Feet: joints, deformity, active arthritis, diabetic dermopathy

f. Feel: Achilles tendon, infrapatellar region

3. Wish list

- walk patient if feet involved

- blood pressure

- urine dipstick for glycosuria and haematuria (stones)

B. Presentation

1. Diagnosis, extent, complications

2. Evidence

a. Hands

- asymmetrical swelling affecting small joints of hands with tophi
- deformity
- wasting of intrinsic muscles of hands
- exuding chalky material
- palpation: no tenderness, joint warmth (active arthritis)

b. Tophi

- extensor aspects of forearms
- olecranon bursae
- helix/pinna of ear
- Achilles tendon, infrapatellar region
- small joints of feet

3. Function

- pincer, handgrip

- hand function and examples

4. Aetiology and associations

a. Obesity, diabetic dermopathy, xanthelasma

b. Chronic ethanol ingestion: palmar erythema, Dupuytren's contracture, parotidomegaly

c. Chronic kidney disease: sallow appearance

d. Lymphoproliferative disease/polycythaemia

- conjunctival pallor/suffusion

- hypertrophic or bleeding gums

- plethora

e. Psoriasis

5. Wish list

- walk

- blood pressure

- urinalysis: glucosuria, haematuria (stones), proteinuria (UA nephropathy)

- drug, dietary and alcohol history

6. Summary

Osteoarthritis of hands

A. Examination

1. Hands

a. Evidence

- Heberden's nodes, Bouchard's nodes
- squaring of thumb
- presence of active arthritis
- no muscle wasting
- Tinel's sign

b. Function

- range of movement
- coarse function
- fine function

c. Cause

- primary
- secondary to acromegaly, haemochromatosis

2. Wish list (other joints)

a. Knee

- varus/valgus deformity

- crepitus

- wasting of quadriceps

b. Hips

c. Cervical spondylosis, lumbar spondylosis

d. Gait: Trendelenburg's sign – downward tilting of pelvis on affected side

B. Presentation

1. Diagnosis

2. Evidence

- Heberden's nodes, Bouchard's nodes (bony swellings)

- Squaring of both hands (subluxation of first metacarpal joint)

- muscle wasting

- Tinel's sign

3. Function

- coarse function: turning door knob

- fine function: transferring coins

4. Aetiology

- acromegaly

- haemochromatosis

5. Wish list

- knees

- hips

- gait: Trendelenburg's sign

- cervical and lumbar spondylosis

6. Summary

Types of OA

a. primary generalised/nodal osteoarthritis

- DIPJ and deformity, carpometacarpal joint of thumb, knees and hips

b. secondary

- trauma

- inflammatory arthropathies: rheumatoid arthritis, septic arthritis, gout

- endocrine: acromegaly, hyperparathyroidism

- metabolic: chondrocalcinosis, haemochromatosis

- neuropathic joints: diabetes mellitus, tabes, syringomyelia

Rheumatoid arthritis

1. Diagnosis, extent

2. Evidence

a. Hands

- symmetrical deforming polyarthopathy
- proximal interphalangeal/metacarpophalangeal joint
- swan neck, Boutonniere's, Z-thumb, ulnar deviation
- active arthritis quiescent
- intrinsic muscle wasting
- carpal tunnel syndrome
- dropped fingers from tendon rupture
- synovial thickening

b. Skin

- vasculitic lesions, nail fold infarcts
- palmar erythema
- systemic lupus erythematosus changes
- no nail changes and skin lesions of psoriasis

c. Elbows

- rheumatoid nodules

3. Complications

a. Function

- preserved vs impaired

- coarse and fine function

b. Treatment

- steroid: atrophied skin, bruisability

- surgical intervention: carpal tunnel syndrome decompression, tendon release

4. Wish list

a. Other joint involvement (metatarsophalangeal joints, knees)

b. Extra-articular features of rheumatoid arthritis

i. Eye

- conjunctiva: keratoconjunctivitis sicca, pallor

- sclera: episcleritis, scleritis, scleromalacia perforans

- lens: cataracts (chronic steroid use)

- retina: vasculitis, drug-induced (gold, hydroxychloroquine)

- extra-ocular muscles: mononeuritis multiplex, myasthenia secondary to penicillamine

ii. Respiratory

- upper airways: cricoarytenoid

- pleura: pleurisy, effusion

- airway: bronchiolitis obliterans organizing pneumonia (BOOP, now known as cryptogenic organizing pneumonia)

- parenchyma: pulmonary fibrosis, pneumonitis, pulmonary hypertension (rheumatoid arthritis or methotrexate)

- Caplan's, nodules

iii. Neurological

- peripheral neuropathy

- mononeuritis multiplex

- nerve entrapment

- cervical antlanto-axial subluxation +/- cervical myelopathy

- muscle atrophy, proximal myopathy sec to steroids, penicillamine-induced myasthenia

iv. Abdomen

- splenomegaly in Felty's syndrome

v. Anaemia

- iron deficiency: gastrointestinal bleed from non-steroidal anti-inflammatory drugs (NSAIDs)

- megaloblastic anaemia: pernicious anaemia

- anaemia of chronic disease

- hypersplenism from Felty's syndrome

- aplasia: gold, penicillamine

5. Summary

Scleroderma

1. Diagnosis

2. Evidence

a. Hands

- evidence of sclerodactyly, smooth/shiny/tight/taut shiny skin of hands which extends proximal to the metacarpophalangeal jointe (double pinch test)

- digital tip pitting, finger pulp atrophy, acroosteolysis

- presence of Raynaud's phenomenon

- beaking of nails (pseudoclubbing)

- atrophic nails

- nail fold telangiectasia (especially 4th digit via magnifying glass)

- vasculitis rash at finger tips

- calcinosis and subcutaneous calcification: fingers, elbows, extensors of forearms

- wasting of intrinsic muscles of hands

- vitiligo/hyperpigmentation (salt and pepper appearances)

b. Proximal myopathy (myositis)

c. Face

- bird-like facies

- smooth/shiny/tight/taut skin of face

- difficulty closing her eyes

- blotchy telangiectasia

- pinched nose

- microstomia

- perioral tethering with pseudorhagades

- cachexia

- pallor

d. Legs

- scleroderma

- vasculitis

- telangiectasia

- ulcerations

- vitiligo

3. Complications

a. Function

- pincer

- hand grip, power

- limitation of finger extension with flexion contractures

- button, door knob

b. Treatment

- steroids

c. Notes

i. Lung

- pulmonary fibrosis

- reflux pneumonitis

- pleural effusion

- alveolar cell carcinoma

ii. Cardiovascular

- primary pulmonary hypertension

- cor pulmonale from pericardial effusion

- pericarditis, pericardial effusion

- myocardial fibrosis

iii. Abdomen

- oesophageal dysmotility

- malabsorption with steatorrhoea from dilated 2nd part of duodenum resulting in bacterial overgrowth

- ischaemic bowel (vasculitic)

- kidneys – renal failure (malignant hypertension, responsive to ACE inhibitors)

- primary biliary cirrhosis (woman – rare)

iv. Anaemia

- anaemia of chronic disease

- Fe deficiency anaemia from oesophagitis

- B12 and folate deficient anaemia from malabsorption

- microangiopathic haemolytic anaemia (MAHA)

- aplasia from meds e.g. methotrexate

4. Types of scleroderma

- CREST (associated with anticentromere antibodies)

- limited cutaneous (extremities)

- diffuse cutaneous (involvement of skin of trunk)

- scleroderma sine scleroderma (systemic complications without skin)

5. Wish list

- blood pressure

- urine dipstick

- cardiovascular examination

- respiratory examination

- abdominal examination

- dysphagia (examine stools for steatorrhoea)

- Raynaud's phenomenon

- dry eyes, mouth

Paget's disease

Spot diagnosis: large head with hearing aid and it's not acromegaly

A. Examination

1. Head

- enlargement of skull, especially in frontal and parietal

- measure circumference (>55cm: abnormal)

- prominent scalp veins

- palpate scalp for warmth

- auscultate skull for bruit

- face:

o RAPD, visual acuity, visual fields

o hearing aids, tests for deafness (conduction vs. sensorineural hearing loss)

o other CNs

2. Neck

- platybasilar (basilar invagination): short neck, low hairline

- JVP

3. Back

- kyphosis

- tenderness

- warmth

- systolic bruit

4. Upper limbs

- obvious bowing of long bones

- cerebellar signs from platybasia

5. Lower limbs

- lateral bowing of femur

- anterior bowing of tibia

- warmth

- osteoarthritis knees

- obvious paraplegia

- bilateral pedal oedema

6. Wish list

- fundoscopy: optic atrophy, angioid streaks

- neurological examination of LLs and ULs for cord compression/nerve root compression signs

- urinalysis: haematuria from urolithiasis

B. Presentation

1. Diagnosis

- metabolic disease: excessive and abnormal remodelling of bone

- increased osteoclastic activity with increased bone resoprtion and increased osteoblastic activity

- excessive bone resorption with compensatory disorganised deposition of new bone

- males 2x more common, increasing with age, associated with paramyxovirus

- stages: lytic, mixed intermediate (lytic and blastic), sclerotic

2. Evidence

a. Bony features

- enlarged skull >55 cm, short neck and low hairline, back

- upper and lower limb LL bowing

- warmth, tenderness, systolic bruits

- OA knees

b. Neurological

- VIII nerve (hearing aid), CNs

- cerebellar

- obvious paraplegia

c. Cardiovascular

- no raised JVP or bilateral pedal oedema

3. Complications

a. Bony and immobilisation

- pathological fractures

- sarcomatous change (1%)

- osteoarthritis

- protrusion acetabuli

b. Neurological

i. Obstructive hydrocephalus

ii. Cranial nerves

- conductive hearing loss: otosclerosis of ossicles

- sensorineural hearing loss: auditory nerve compression

- optic atrophy

iii. Spinal cord compression (basilar invagination) or nerve root compression

c. High output cardiac failure

d. Metabolic

- gout: hyperuricaemia from rapid bone resorption during prolonged immobilisation

- urolithiasis: hypercalciuria

- hypercalcaemia: immobilisation

DERMATOLOGY

Dermatomyositis

A. Examination

1. Face

- heliotrope rash

- neck and shoulder: shawl sign

- weakness of neck flexion

- conjunctival pallor: associated myeloproliferative or gastrointestinal malignancies

- systemic lupus erythematosus or systemic sclerosis (overlap syndrome)

2. Hands

- Gottron's sign

- vasculitis, capillary loops at base of fingernails

- Raynaud's phenomenon

- calcinosis (usually in children)

- systemic lupus erythematosus, systemic sclerosis, rheumatoid arthritis (overlap syndrome)

3. Upper limbs

- elbows (rashes)

- tenderness of muscles

- power (proximal weakness)

- loss of reflexes

- no loss of sensation

4. Knees (rash)

5. Wish list

a. Screen for underlying mitotic lesions

- breast

- respiratory

- abdominal examination

b. Screen for interstitial fibrosis

B. Presentation

1. Diagnosis

= idiopathic inflammatory myopathy with characteristic cutaneous findings

2. Evidence

a. Erythematous rash

- heliotrope rash: eyelids, periorbital, dorsum of hands

- shawl distribution: neck and shoulders

- involvement of extensor surfaces of elbows and knees

- periorbital oedema

b. Hands

- Gottron’s papules
- erythematous rash spares phalanges
- nailfold vasculitis, telangiectasia
- cuticles irregular, thickened and distorted
- hyperkeratosis of palms (mechanic's hands)
- Raynaud's phenomenon
- calcinosis

c. Others

- tenderness of muscles with proximal weakness
- no sensory loss
- weakness of neck flexion

3. Complications

- features of chronic steroid use

4. Associations/aetiology

a. Overlap syndrome

- systemic sclerosis
- systemic lupus erythematosus
- rheumatoid arthritis

b. Screen for underlying mitotic lesion

Lichen planus

1. Diagnosis

2. Evidence

a. Rash

i. Characteristics

- grouped and confluent
- flat-topped, polygonal, sharply defined papules
- violaceous
- Wickham's striae
- Koebnerisation
- pruritic scratch marks
- post-lesional hyperpigmented macules

ii. Distribution

- flexor areas of upper limbs: wrists and forearms
- sacral area, groin
- palms and soles

b. Nails

- dystrophy of nail plates
- longitudinal ridging
- longitudinal melanonychia

- subungual hyperkeratosis

- onycholysis

- pterygium (cuticle invades nail beds)

- complete loss of nail bed

c. Scalp

- scarring/cicatrial alopecia

d. Mucosal

- white, lacy-like lesions, asymptomatic

- ulcers for erosive form

3. Associations

a. Hepatitis C

- surgical scars

- jaundice

- stigmata of chronic liver disease

4. Wish list

a. Drug history

- antihypertensives: beta-blockers, thiazides, methyldopa

- antimalarials: quinine

- antidiabetic: tolbutamide

- phenothiazines, gold

b. Occupational history

- colour film developer

5. Summary

- diagnosis

- distribution

- pruritus

Neurofibromatosis

A. Examination

1. Spot diagnosis

2. Arms

- cafe au lait spots

- axillary freckling

3. Face

- Eyes: Lisch nodules

- Ears: deafness

4. Lower limbs

- bowed legs

- pseudoarthrosis

5. Request

- chest: cafe au lait spots, axillary freckling, kyphoscoliosis

- fundi: optic gliomas, retinal hamartomas

- abdomen: auscultate for renal bruits

- pulses: coarctation

- blood pressure: hypertension in renal artery stenosis, coarctation, phaeochromocytoma

- family history

B. Presentation

1. Diagnosis

2. Evidence

a. Neurofibromas

- subcutaneous nodules
- pedunculated
- generalised distribution
- cafe au lait spots: upper limbs, chest
- axillary freckling

b. Head

- Eye: Lisch nodules
- Deafness (acoustic neuroma)

c. Lower limb

- bowed legs
- pseudoarthrosis

3. Aetiology

a. Type 1: 2 or more of

- cafe au lait spots (6 or more, each >15mm diameter)

- neurofibroma (2 or more) or plexiform

- freckles in axillae or inguinal (Crowe's sign)

- bone lesions: sphenoid dysplasia

- Lisch nodules

- family history: 1 or more 1st degree relative

b. Type 2: Either

- bilateral eighth nerve palsy (CT/MRI)

- first degree relative with unilateral eighth nerve mass or 2 or more: neurofibroma, glioma,

schwannoma, meningioma, juvenile posterior subcapsular lenticular opacity

4. Complications

a. Childhood leukaemia

b. Central nervous system

- mental retardation

- epilepsy

- obstructive hydrocephalus secondary to stenosis of aqueduct of Sylvius

- optic gliomas, acoustic neuromas, meningiomas

- cord compression from spinal nerve root involvement

c. Sarcomatous changes

d. Bony complications

- intraosseous bony cysts

- bowed legs secondary to thinning of cortices of long bones

- pseudoarthrosis of tibia

- rib notching

- sphenoidal dysplasia

e. Lung cysts

f. Hypertension

- coarctation

- renal artery stenosis

- phaeochromocytoma (5%)

5. Wish list

a. Chest: cafe-au-lait spots, axillary freckling, kyphoscoliosis, lung fibrosis

b. Abdominal examination

c. Pulses

d. Fundi: optic gliomas, retinal hamartomas

e. Cranial nerves: V, VI, VII, VIII, cerebellar

f. Blood pressure – hypertension in renal artery stenosis, coarctation, phaeochromocytoma

g. Family history

6. Summary

Psoriasis

1. Diagnosis

2. Evidence

a. Psoriatic arthropathy

- arthritis mutilans: bilateral deforming arthropathy, telescoping of digits

- rheumatoid arthritis (RA) type: symmetrical joint involvement

- osteoarthritis (OA) type: asymmetrical terminal joint involvement

- mono/oligoarticular type

- ankylosing spondylitis (AS) type: sacroilitis, syndesmophytes from lateral and anterior surface (AS: margins)

b. Associations

- bilateral deforming polyarthropathy, joint deformities, tender (activity)

- sausage shaped fingers, tenosynovitis

- wasting, dorsal guttering

- wasting of thenar and hypothenar eminence

- nails: pitting, onycholysis, subungual hyperkeratosis, discoloration of nails (80% involvement with arthropathy)

- skin patches: well circumscribed plaques on extensor surfaces of elbows and scalp, with salmon pink hue and silvery scales

- surgical scars

c. Skin lesions

- plaque

- guttate: numerous small popular

- pustular: localised/generalised

- erythrodermic

- inverse psoriasis: plaques evolving in intertriginous areas without typical silvery scales due to moisture and maceration

3. Complications

a. Joint function

- impaired/preserved

- grip, pincer movement

- coarse function: turn doorknob

- fine function: cap pen, transfer coins, unbutton clothes

- able to abduct and internally rotate shoulders (activities of daily living, ADLs)

b. Treatment

- steroids (topical)

4. Associations

a. Gout (hyperproliferation)

5. Wish list

a. examining for other joint involvement

b. skin: scalp, knees, natal cleft, intragluteal folds, submammary folds, Koebner's phenomenon

c. aggravating factors

- emotional stress

- alcohol

- drugs: beta blockers, ACE inhibitors, indocid, lithium, antimalarials

- streptococcal infection (associated with guttate type)

- injury to skin: mechanical, sunburn

6. Summary

Purpura

A. Examination

1. Introduction

- ask for pain, request to undress

- nasal speech (Wegener)

2. General inspection

- age

- Cushingoid

- renal failure, chronic liver disease

- extent: upper limbs, lower limbs, trunk

3. Individual lesions in upper limbs or lower limbs

- palpable – vasculitis

- central haemorrhagic necrosis – Henoch Schonlein purpura (HSP)

- petechiae, ecchymosis

- corkscrew hair, perifollicular haemorrhages

- thin skin

4. Upper limbs

a. Hands

- rheumatoid arthritis/systemic lupus erythematosus/scleroderma

- infective endocarditis signs: Osler's nodes, splinter, clubbing

- nails involvement

- chronic liver disease stigmata

b. Elbows

- rheumatoid nodules

- thickened nerves (leprosy)

5. Face

- jaundice

- conjunctival pallor (haematological disease)

- malar rash

- mouth: ulcers, rashes, bleeding gums (scurvy in elderly)

6. Chest

a. Chronic liver disease stigmata

7. Lower limbs

- arthritis of knees and ankles

- examine feet

8. Wish list

- lymph nodes

- abdominal examination – hepatosplenomegaly

- peripheral neuropathy

- temperature chart

- urine dipstick – haematuria in vasculitis with renal involvement

- drug history

B. Presentation

1. Diagnosis

2. Evidence

a. Purpura – non-blanchable, well-demarcated, reddish-purplish patches

b. Petechiae, ecchymosis

c. Distribution and extent

d. Anaemia and mouth ulcers (neutropenia)

3. Complications

- Cushingoid: cause of purpura or treatment for vasculitic rash

4. Causes

a. Purpura

- age (if elderly, perifollicular haemorrhages and corkscrew hair)

- Cushingoid

- renal failure

- liver failure

- chest scars: anticoagulation

- obvious haemarthrosis (haemophilia)

- Ehler Danlos

b. Palpable purpura (vasculitis)

- autoimmune conditions

- infections

- malignancy

- drugs

5. Wish list

- lymph nodes

- abdominal examination – hepatosplenomegaly

- peripheral neuropathy

- temperature chart

- urine dipstick – haematuria in vasculitis with renal involvement

- drug history

6. Summary


EYE

Central and branch retinal vein occlusion, (CRVO) and (BRVO)

A. Central retinal vein occlusion (occlusion behind cribriform plate)

1. Diagnosis

Presentation

- diminished visual acuity – to counting fingers (incomplete loss)

- reduced visual fields

- floaters

- acute secondary glaucoma 3 months later from rubeosis iridis from an ischaemic retina

- although retinal changes may improve in weeks, VA fails to be restored

2. Evidence

- grossly tortuous and engorged retinal veins especially near disc

- numerous haemorrhages scattered over retina of varying shapes and sizes

- cotton wool spots (blood and thunder appearance)

- papilloedema

3. Complications

- rubeosis iridis

4. Causes

a. Other eye

- hypertensive retinopathy

- diabetic retinopathy

5. Wish list

- visual acuity and visual fields

- blood pressure

- urine dipstick for glycosuria

- urine for Bence Jones protein for multiple myeloma

- lymph nodes and hepatosplenomegaly, bruising and purpura for macroglobulinaemia

- history of glaucoma or oral contraceptive pills

6. Summary

B. Branch retinal vein occlusion (in front on cribiform plate)

1. Diagnosis

2. Evidence

a. Distribution

- most common: superior temporal retinal vein

- inferior temporal retinal vein

- nasal retinal veins

b. Findings

- fan-shaped distribution of retinal flame-shaped haemorrhages with cotton wool spots which radiate from arteriovenous (AV) crossing

- changes affect macula

- hypertensive/diabetic changes

- exudates, disc margins

3. Wish list

- checking visual acuity (normal unless affecting macula) and visual fields (normal or presence of quadrantonopic field loss)

- blood pressure

- urine dipstick for glycosuria

4. Summary

Central retinal artery occlusion (CRAO)

1. Diagnosis

Presentation

- sudden, painless visual loss (counting fingers to light perception)

- amaurosis fugax (10%)

- significant cardiovascular risk factors

2. Evidence

- RAPD

- pale retina

- foveola cherry red spot

- attenuated retinal vessels

- intra-arterial emboli (10-20%)

3. Complications

- laser scar (panretinal photocoagulation)

- rubeosis iridis

4. Causes

- emboli (Hollenhorst plaque: cholesterol embolus within arteriole)

- arteritis [giant cell arteritis (GCA), systemic lupus erythematosus (SLE), polyarteritis nodosa (PAN)]

5. Wish list

- visual acuity

- pulse (atrial fibrillation), diabetic dermopathy, xanthelasma, blood pressure

- palpate temporal area for tenderness in GCA

6. Summary

Diabetic retinopathy

1. Diagnosis

Presentation

a. Non-proliferative diabetic retinopathy (NPDR)

- asymptomatic

b. Proliferative diabetic retinopathy (PDR)

- asymptomatic

- reduced visual acuity or blindness as result of complications

c. Clinically significant macular edema (CSME)

- asymptomatic

- reduced visual acuity

- paracentral scotoma

- decrease in central vision

2. Evidence

(1) NPDR

(a) Mild NPDR

- at least 1 microaneurysm

(b) Moderate NPDR

- haemorrhages, microaneurysms, hard exudates

- soft exudates, venous beading and IRMA less than that of severe NPDR

(c) Severe NPDR (4-2-1)

- haemorrhages and microaneurysms in 4 quadrants

- venous beading in at least 2 quadrants

- IRMA in at least 1 quadrant

(2) PDR

(a) Early PDR

- presence of new vessels but not meeting criteria for high-risk PDR

(b) High-risk proliferative diabetic retinopathy

- neovascularisation at the disc (NVD) ≥ 1/3 to ½ disc area (DA)

- any amount of NVD with vitreous or preretinal haemorrhage

- neovascularisation elsewhere (NVE) ≥ ½ DA with preretinal or vitreous haemorrhage

(3) Macular oedema

c. CSME

- thickening of retina at or within 500 microns of centre of macula

- areas of thickening 1 disc area or larger, any part of which is within 1 disc diameter of the centre of the macula

- hard exudates at or within 500 microns of centre of macula, if associated with thickening of adjacent retina

3. Complications

a. Complications for proliferative

- vitreous haemorrhages

- fibrosis with traction retinal detachment

- optic atrophy (for all)

b. Treatment for PDR and diabetic maculopathy

- focal photocoagulation scars

- panretinal or scatter photocoaculation scars

- macular photocoagulation scars

4. Association

- xanthelasma

- cataracts

- hypertensive changes

- rubeosis iridis

5. Summary

Hypertensive retinopathy

1. Diagnosis

2. Evidence

a. Keith Wagner classification

- Grade 1: arteriolar narrowing, tortuosity, irregular calibre with copper/silver wiring

- Grade 2: arteriovenous nipping

- Grade 3: flame-shaped and blot haemorrhages, cotton wool spots and hard exudates +/- macular star

- Grade 4: papilloedema

3. Associations

- diabetic retinopathy, xanthelasma

- chronic renal failure e.g. sallow appearance

- Cushingoid

- acromegaly

- polycythaemic

4. Wish list

a. Cardiovascular

- radio-radial/radio-femoral delay: coarctation of aorta (state if young)

- left ventricular hypertrophy

- S4 if BP>180/110 (state if grade 3/4 changes noted)

b. Abdomen

- renal bruit: renal artery stenosis

- ballotable kidneys: polycystic kidney disease

- palpable adrenal masses

c. Urine dipstick: proteinuria, casts, glycosuria

d. Central nervous system for signs of previous stroke

5. Summary

Optic atrophy

1. Diagnosis

2. Evidence

a. Fundus

- pale optic disc

- papilloedema

- optic cup (glaucoma)

- diabetic changes

- retinitis pigmentosa

- CRAO: attenuated arterioles and veins

3. Complications

- visual acuity: reduction

- visual field: central scotoma

4. Aetiology

i. Eye:

- Pupils

O Multiple sclerosis: RAPD, INO, nystagmus

o Argyll-Robertson pupil

- Nystagmus (MS and FA)

ii. Head

- tender temporal arteritis

- lead in gums

- Paget's facies

iii. Hands

- multiple sclerosis: cerebellar

- atrial fibrillation

5. Summary

Differential diagnosis

a. Unilateral

- demyelinating

- compression: tumour, aneurysm, Paget's

- glaucoma

- ischaemic: thromboembolic, vasculitis (temporal arteritis, tertiary syphilis)

b. Bilateral

i. Toxic

- nicotine, alcohol

- drugs: ethambutol, chloroquine, methanol, Pb, arsenic

ii. Metabolic

- B12 deficiency, B1 and B6

- Diabetes mellitus

ii. Hereditary

- Freidreich’s ataxia

- Leber's (mitochondrial disease with point mutations)

- DIDMOAD (diabetes insipidus, diabetes mellitus, optic atrophy, deafness) - rare recessive

iv. Others

- secondary to papilloedema

- secondary to retinitis pigmentosa

Other eye conditions

1. Visual acuity

a. Examination

i. Examine each eye with finger counting

- if unable to do so, proceed with finger movement and then light perception

- if able to do so, proceed with Snellen chart

ii. Unilateral/bilateral

iii. Acute/chronic

b. Causes

i. Bilateral acute

- front: methyl alcohol poisoning

- back: occipital lobe infarction trauma

ii. Bilateral chronic

- glaucoma

- cataracts

- diabetes mellitus

- bilateral nerve damage/compression

iii. Unilateral acute

- CRVO, CRAO, arteritis, non-arteritic ischaemic optic neuritis

- retinal detachment

- vitreous haemorrhage

2. Cataracts

a. Systemic

- senile cataracts

- diabetes mellitus (young type 1 DM: snowflakes cataracts)

- hypoparathyroidism

- drugs: steroids (>10mg prednisolone >1 yr), chloroquine, chlorpromazine

b. Local

- trauma to eye

- glaucoma

- radiation

c. Hereditary

- dystrophia myotonica (stellate)

- Wilson's disease (sunflower cataracts)

- Refsum's disease

3. Nystagmus

a. Physiological: at extremes of gaze

b. Obvious types of nystagmus

i. Pendular: congenital, macular

ii. Rotatory only: central causes

iii. Upbeat nystagmus (fast phase upwards): upper brainstem

- multiple sclerosis

- stroke

- Wernicke's (triad of confusion, opthlamoplegia, nystagmus, ataxia associated with Korsakoff's psychosis)

iv. Downbeat nystagmus: cervicomedullary junction

- Arnold-Chiari malformation

- syringobulbia

- multiple sclerosis

v. Ocular bobbing: pontine lesions

c. Jerky nystagmus

i. Primary gaze (central)

- cerebellar

- vestibular: multiple sclerosis or stroke

ii. Horizontal gaze

- multidirectional gaze evoked nystagmus: central (cerebellar or vestibular)

- right or left horizontal gaze evoked nystagmus: central or peripheral (vestibular neuronitis, Meniere's)

iii. Ataxic gaze e.g. INO

NB: To differentiate between central and peripheral, central is sustained and peripheral can be fatigued and often associated with severe vertigo

4. Pupillary defects

a. Large pupil

- RAPD

- III nerve palsy

- Holmes-Adies pupil

o unilateral

o slow reaction to bright light and incomplete constriction to convergence

o young women

o reduced or absent reflexes

o degeneration of ciliary ganglion

- Mydriatic drugs

- Sympathetic overdrive (drugs)

b. Small pupil

i. Argyll Robertson (AR) pupil

- characteristics

o small (<2mm), irregular pupils

o absent light reflex

o intact accommodation reflex

o does not dilate with mydriatics

- sign of tertiary syphilis

- begins unilaterally and involves both pupils with time (months to years)

- pathophysiology unknown

- differential diagnosis for light-near dissociation

o syphilis

o diabetes mellitus

o pituitary tumours

o midbrain lesions

o Adie's tonic pupil

o dystrophia myotonica

o aberrant regeneration of CN III

o familial amyloidosis

ii. Horner's syndrome

iii. Long standing Adie's tonic pupil (initially large pupil)

iv. diabetes mellitus

v. encephalitis

vi. sarcoidosis

vii. Lyme's disease

viii. Parinaud's

- triad of pseudo-AR pupil, vertical gaze palsy and nystagmus on convergence

- causes: multiple sclerosis, vascular, pinealoma

Papilloedema

1. Diagnosis

2. Evidence

Stage 1 - increase in venous calibre and tortuosity with loss of venous pulsation

Stage 2 - optic cup pinker with disappearance of vessels over disc

Stage 3 - blurring of disc on nasal side

Stage 4 - disc is suffused and slightly elevated with blurring of margins; optic cup filled and presence of haemorrhages around disc

3. Aetiology

a. Hypertensive retinopathy

- silver wiring of blood vessels

- arteriovenous (AV) nipping

- flame shaped haemorrhages or exudates

b. Haemorrhages on retina

- severe anaemia

- CRVO

c. Conjunctival pallor

- severe anaemia

d. Proptosis

- Grave's ophthalmopathy

- cavernous sinus thrombosis

e. Spectacles: hypermetropia

4. Complications

a. Examine other eye (wish list)

- bilateral papilloedema

- Foster Kennedy syndrome (optic atrophy)

5. Wish list

- other eye

- visual acuity

- visual field

- colour testing

- pupillary reflex, RAPD

- eye movements: pain on movement, VI nerve palsy

- palpate temporal region if elderly for tenderness: temporal arteritis

- blood pressure

6. Summary

a. Causes

i. Space-occupying lesion (SOL)

- malignancy: SOL tumour

- abscess

- haematoma

ii. Hydrocephalus

- Obstructive: ventricle, aqueduct, outlet to 4th ventricle

- Communicative

o increased cerebrospinal fluid (CSF) formation: choroid plexus papilloma (rare)

o reduced CSF absorption: meningitis, subarachnoid haemorrhage

iii. Idiopathic intracranial hypertension

- idiopathic

- Addison's disease

- drugs: nitrofurantoin, tetracycline, vitamin A, steroids, oral contraceptive pills

iv. Hypertension

v. CRVO

vi. Others

- metabolic: hypoparathyroidism, CO_2 retention, Grave's congestive ophthalmopathy

- haematological: severe anaemia, polycythaemia rubra vera/leukaemia/multiple myeloma

- sagittal/cavernous sinus thrombosis

vii. Sarcoid

viii. Guillain-Barre syndrome: impaired CSF absorption due to elevated protein content

ix. Paget's disease, Hurler's syndrome

b. Differential diagnoses of optic nerve swelling

i. papilloedema

ii. papillitis

iii. ischaemic optic neuropathy

iv. pseudopapilloedema

- hypermetropia: margins blurred

- drusen: yellowish white deposits at optic disc

- myelinated nerve fibres

- Bergmeister's papilla: whitish elevation of centre of disc, common, seen in all ages/races/equal sex distribution

7. Idiopathic intracranial hypertension

a. Dandy's diagnostic criteria

- alert

- clinical features of raised intracranial pressure (ICP)

- no localising signs except CN VI palsy

- lumbar puncture (LP) opening pressure >20cm H20 and cerebrospinal fluid (CSF) composition normal

- normal ventricle size and normal CT head

Retinitis pigmentosa (RP)

1. Diagnosis

= dystrophy of photoreceptors and pigment epithelium with incidence 1/4000, childhood/young adults with progressive course

Clinical features

a. Rod-cone type (commoner)

- ring scotoma

- peripheral visual field loss, tunnel vision

- night blindness

b. Cone-rod type

- visual acuity loss

- loss of colour discrimination

- day vision problems

2. Evidence

- bony speculated pigmentation on peripheries of retina bilaterally

3. Associations

a. Eyes

- macular oedema

- bull's eye maculopathy

- attenuated arterioles

- waxy pallor of optic disc

- cataracts

- ptosis

- visual field, visual acuity

- eye movements: external ophthalmoplegia

b. General

- sallow

- short stature

c. Other cranial nerves

- deafness

- hands: polydactyly

4. Wish list

- history of night blindness

- limbs: spinocerebellar degeneration

5. Summary

Causes of RP

a. Primary: no known cause

b. Secondary to inflammatory retinitis

c. Syndrome

- Usher: RP with hearing loss

- Alport: RP with hearing loss and nephritis

- Refsum disease: RP with deafness, hypertrophic peripheral neuropathy and cerebellar ataxia (phytanic acid storage disease)

- abetalipoproteinaemia (RP with fat malabsorption and spinocerebellar degeneration)

- Friedrich's ataxia

- Kearnes Sayre: RP with external ophthalmoplegia, ptosis and heart block

- Laurence-Moon-Biedl: RP with short stature, polydactyly, renal dysfunction

Associated ocular abnormalities

- posterior subcapsular cataracts

- myopia

- keratoconus

- open angle glaucoma

Visual field defects

A. Examination

1. General

- acromegaly
- hemiparesis
- dysphasia

2. Eyes

- sit about an arm's length
- can you see my whole face
- gross visual acuity: counting fingers
- gross visual field (finger movements, visual inattention)

a. If single eye defect, proceed with fundsocopy

- BRAO, haemorrhages, choriodoretinitis

i. Constricted field

- chronic papilloedema
- chronic glaucoma
- retinitis pigmentosa
- chorioretinitis
- hysteria

ii. Scotoma

- retinal haemorrhage/infarct: paracentral or peripheral scotoma, does not cross midline

- optic nerve (pale in atrophy, normal in retrobulbar neuritis, pink and swollen in papillitis): central scotoma

o compression – tumour, aneurysm, Paget

o glaucoma

o neuritis: multiple sclerosis, ischaemia (C/BRAO, syphilis, temporal arteritis, idiopathic)

o toxic: methanol, tobacco, lead, arsenic

o B12 deficiency

o hereditary: Friedrich's ataxia, Leber hereditary optic neuropathy (LHON)

o secondary to retinitis pigmentosa

iii. Altitudinal defects

- retina infarcts

- ischaemic optic neuropathy

iv. Totally blind in one eye

- retina

- optic nerve

b. If bilateral peripheral field loss

- bilateral retinal lesion

- bilateral optic nerve lesion

c. If bitemporal defect

i. Upper>lower = inferior chiasmal

- pituitary tumour

- suprasellar meningioma

ii. Lower>upper

- craniopharyngioma

iii. Other causes

- aneurysm

- metastasis

- glioma

d. Homonymous hemianopia (infarcts, haemorrhages, tumour)

i. Left or right homonymous hemianopia – right or left lesion respectively

ii. Incongruous

- optic tract

iii. Congruous

- upper quadrantonopia: temporal lobe

- lower quadrantonopia: parietal lobe

- macula sparing (test with red hat pin): occipital cortex

- no macula sparing: optic radiation

3. Aetiology

- diabetic dermopathy

- xanthelasma

- atrial fibrillation

- hemiparesis

B. Presentation

1. Left/right eye blindness

- unable to perceive light

- scotoma

- constricted visual field defect

- upper/lower temporal/nasal field

2. Bitemporal hemianopia

a. Evidence

- acromegaly

- screen for hypopituitarism

- causes as above

b. Investigation

- lateral skull X-ray: enlarged sella turcica, calcification for craniopharyngioma

- CT/MRI head

- formal field perimetry

- serum prolactin

3. Left/right, upper/lower homonymous quadrantonopia

4. Left or right homonymous hemianopia, incongruous/congruous, macula sparing

a. Obvious signs

- hemiparesis

- dysphasia: right homonymous hemianopia

- visual inattention

- cachexia

b. Wish list

- neuro exam for stroke and tumour

- stroke risk factors: diabetic dermopathy, xanthelasma, atrial fibrillation

- tumour: cachexia, cachexia, clubbing for metastatic disease

c. Investigations

- CT head

- formal field testing, perimetry

HISTORY TAKING

General

1. Cardiology

- chest pain
- exertional dyspnoea
- exercise tolerance and change
- paroxysmal nocturnal dyspnoea (PND), orthopnoea and quantify
- oedema
- palpitations (awareness of heartbeats)

2. Respiratory

- cough
- sputum
- haemoptysis (coughing up blood)
- wheeze

3. Gut

a. Abdominal pain

- constant or colicky
- sharp or dull
- site
- radiation
- duration

- onset

- severity

- relationship to eating and bowel action

- alleviating or exacerbating

- associated features

b. Other questions

- swallowing

- indigestion

- nausea/vomiting - haematemesis

- bowel habit

c. Stool

- colour, consistency, blood, slime

- difficulty flushing away

- tenesmus or urgency

- melaena

4. Genitourinary

a. Urine

- incontinence: stress or urge

- dysuria

- haematuria

- nocturia

- frequency, polyuria

- hesitancy

- terminal dribbling

b. O&G

- vaginal discharge

- menses: frequency, regularity, heavy or light, duration, painful

- first day of last menstrual period (LMP)

- menarche, menopause

- any chance of pregnancy now

5. Neurological

a. Special senses

- sight, hearing, smell, taste

- seizures, faints, funny turns

- headache

- pins and needles (paraesthesia) or numbness

- limb weakness

- poor balance

- speech problems

- sphincter disturbance

- higher mental function, psychiatric

b. Function

6. Musculoskeletal

- pain

- stiffness

- swelling of joints

- diurnal variation

- functional deficit

7. Thyroid

a. Hyperthyroidism

- prefers cold weather

- bad tempered

- sweaty

- diarrhoea

- oligomenorrhoea

- loss of weight, LOW (often increased appetite)

- tremor

- palpitations

- visual problems

b. Hypothyroidism

- depressed, slow, tired
- thin hair
- croaky voice
- heavy periods
- constipation
- dry skin
- prefers warm weather

Chest pain

1. Nature

- constricting: angina, oesophageal spasm, anxiety

- sharp: pleura, pericardium

- myocardial ischaemia, MI: prolonged (>30min), dull central crushing pain/pressure

2. Radiation

- cardiac: shoulder, either/both arms, neck/jaw, epigastric

- aortic dissection: instantaneous, tearing, interscapular/retrosternal

3. Precipitants

a. Cardiac/Anxiety

- cold

- exercise

- palpitations

- emotion

b. Oesophageal spasm

- food

- lying flat

- hot drinks

- alcohol

c. Inspiration

- pleuritic: pulmonary infection, inflammation, infarction

- musculoskeletal

- fractured rib (+ gentle pressure on sternum)

- subdiaphragmatic pathology e.g. gallstones

4. Relieving

- rest/GTN: angina (minutes), oesophageal spasm (slow)

- antacids: gastrointestinal (GI)

- leaning forward: pleuritic pain

5. Associations

- dyspnoea (cardiac, pulmonary embolism [PE], pleurisy, anxiety)

- nausea, vomiting, sweating (myocardial ischaemia, MI)

- anaemia: angina

- tenderness (Tietze's syndrome)

- aortic stenosis (AS), hypertrophic obstructive cardiomyopathy (HOCM), paroxysmal supraventricular tachycardia (pSVT): angina

Dyspnoea

1. Severity

- at rest

- exertion, exercise tolerance

- daily tasks

- e.g. not associated with exertion, at rest: psychogenic e.g. prolonged hyperventilation causing respiratory alkalosis and apparent hypocalcaemia

2. Associations

- heart failure: orthopnoea, paroxysmal nocturnal dyspnoea (PND), peripheral oedema

- pulmonary embolism (PE): acute onset, pleuritic chest pain, risk factors for deep vein thrombosis (DVT)

- ascites

- metabolic acidosis with respiratory compensation eg ketoacidosis, aspirin poisoning

- symptoms and signs of apparent hypocalcaemia: peripheral and perioral paraesthesia +/- carpopedal spasm

3. Precipitating factors

- occupational allergen

- anaemia

Palpitations

1. Nature

- irregular fast: paroxysmal atrial fibrillation (AF), atrial flutter with variable block

- regular fast: paroxysmal supraventricular tachycardia(SVT)/ ventricular tachycardia (VT)

- dropped or missed beats (related to rest, recumbency, eating): atrial/ventricular ectopics

- regular pounding: anxiety

- slow palpitations: drugs e.g. beta blockers, bigeminus

2. Previous episodes

3. Precipitating/relieving factors

- worse at night: anxiety

4. Duration of symptoms

5.Associated

- chest pain

- dyspnoea

- dizziness

- faints

Syncope

1. Prodromal

- cardiac: chest pain, palpitations, dyspnoea

- central nervous system (CNS)s: aura, headache, dysarthria, limb weakness

2. During episode

- pulse (e.g. vasovagal: pulse reduced, pupils dilated)

- limb jerking

- tongue biting

- urinary incontinence

3. Recovery

- rapid: arrhythmia

- prolonged, with drowsiness: seizure

Cough

1. Timing

- chronic: pertussis, TB, foreign body, asthma (eg nocturnal)
- dry chronic: oesophageal reflux, ACE inhibitors
- nocturnal (asthma)

2. Character

- loud, brassy: pressure on trachea eg by tumour
- hollow, bovine: recurrent laryngeal nerve palsy
- barking: acute epiglottitis

3. Exacerbating factors

4. Sputum/haemoptysis

- black carbon specks: smoking
- yellow/green: infection e.g. bronchiectasis, pneumonia
- pink frothy: pulmonary oedema
- haemoptysis: malignancy, TB, infection, trauma

Dysphagia

1. Nature

- solids and liquids from start: motility disorder (achalasia, neurological) or pharyngeal causes

- solids then liquids: stricture (benign or malignant)

2. Difficulty making swallowing movement

- bulbar palsy (especially if coughs on swallowing)

3. Odynophagia

- cancer, severe oesophagitis, achalasia, oesophageal spasm

4. Timing

- intermittent: oesophageal spasm

- constant and worsening: malignant stricture

5, Neck bulge or gurgle on drinking

- pharyngeal pouch

Nausea and vomiting

1. Timing

- relationship to meals

2. Amount

3. Content

- liquid, solid, bile, blood, coffee grounds

4. Others

- associated symptoms

- past medical history

Dyspepsia

1. Non-specific symptoms

- epigastric pain related to hunger
- eating specific foods
- time of day
- bloating +/- fullness after meals
- heartburn (retrosternal pain with demonstrable acid reflux)

2. Alarm symptoms

- anaemia (iron deficiency)
- loss of weight
- anorexia
- recent onset of progressive symptoms
- melaena/haematemesis
- swallowing difficulty

Diarrhoea

1. Onset

a. Acute: gastroenteritis

- travel

- change in diet

- contact history

b. Chronic diarrhoea alternating with constipation

- irritable bowel syndrome (IBS)

2. Organic cause

- anorexia

- weight loss

- nocturnal diarrhoea

- anaemia

3. Bleeding

- bloody diarrhpea

- Mucus: IBS, colorectal cancer, polyps

- Pus: inflammatory bowel disease (IBD), diverticulitis, fistula/abscess

4. Large bowel symptoms

- watery stool +/- blood or mucus
- pelvic pain relieved by defecation
- tenesmus
- urgency

5. Small bowel symptoms

- periumbilical or right iliac fossa pain not relieved by defecation
- watery stool or steatorrhoea

6. Non-gastrointestinal causes

a. Drugs

- antibiotics
- proton pump inhibitor (PPI)
- cimetidine
- propranolol
- cytotoxics
- NSAIDs
- digoxin
- alcohol
- laxative abuse

b. Medical conditions

- thyrotoxicosis
- autoimmune neuropathy
- Addison's disease
- carcinoid syndrome

Constipation

1. Stool

- frequency

- nature

- consistency

- blood/mucus in/on

- diarrhoea alternating with constipation

- recent change in bowel habit

- diet

- drugs

Upper gastrointestinal (GI) bleeding

- previous GI bleeds, dyspepsia, known ulcers

- known liver disease/oesophageal varices

- dysphagia

- vomiting

- weight loss

- drugs, alcohol

- serious co-morbidity (bad for prognosis): cardiovascular disease, respiratory disease, hepatic or renal impairment, malignancy

Anaemia

- underlying cause
- fatigue
- dyspnoea
- faintness
- palpitations
- headache
- tinnitus
- anorexia
- angina (existing coronary artery disease)

Headache

1. Acute single episode

- meningitis: fever, photophobia, stiff neck, rash, coma

- encephalitis: fever, odd behaviour, fits, reduced consciousness

- tropical illness: malaria, +ve travel history, flu like illness

- subarachnoid: haemorrhage – sudden headache +/- stiff neck

- sinusitis: tender face + coryza + post-nasal drip

- head injury: cuts, bruises, reduced consciousness, lucid interval, amnesia

2. Acute recurrent attacks

- migraine: pre-attack aura, visual aura, vomiting, sensitivity to light/noise/movement

- cluster headache: nightly pain in one eye for 8 weeks then ok for next few months, intermittently repeated

- glaucoma: red eye, sees haloes, fixed big oval pupil, reduced acuity

- recurrent (Mollaret's meningitis): fever, access to subarachnoid space via skull fracture, recurring cause of aseptic meningitis (systemic lupus erythematosus, Behcet's, sarcoid)

3. Subacute

- giant cell arteritis: tender scalp, >/= 50 years old, threat to vision

4. Chronic

- tension headache: tight band round head, stress at work/home, low mood

- chronically high intracranial pressure (ICP): worse on waking, focal signs, blood pressure high, pulse low

- medication misuse headache

Blackouts

1. Meaning

- loss of consciousness (LOC)

- fall to ground without loss of consciousness

- clouding of vision, diplopia or vertigo

2. Before attack

- warning: typical epileptic aura, pre-syncope

- in what circumstances (e.g. TV – epilepsy)

- can prevent attacks?

3. During attack

- lose consciousness

- injure self

- move: floppy or stiff (epilepsy)

- incontinence (epilepsy: faeces)

- complexion change (white/red: arrhythmia, temporal lobe epilepsy)

- bite tongue (epilepsy)

- pulse

- associated symptoms: palpitations, chest pain, dyspnoea

- how long does attack last

- is patient sleepy before attack

4. After attack

- amnesia
- muscle pain: tonic/clonic seizure
- confused/sleepy: post-ictal, narcolepsy

5. Background to attacks

- increasing frequency
- family history, hereditary cardiomyopathy

Dizziness/vertigo

1. Associated symptoms

- difficulty walking/standing

- relief on lying or sitting still

- nausea, vomiting

- pallor

- sweating

- fall suddenly to ground

- associated hearing loss/tinnitus: labyrinth or 8th nerve involvement

Rheumatological history

1. Presenting symptoms

a. Joints

- pain, morning stiffness (e.g. rheumatoid arthritis)
- pattern of distribution
- swelling
- loss of function

b. Extra-articular

- rashes, photosensitivity [e.g. systemic lupus erythematosus (SLE)]
- Raynaud's (SLE, CREST, dermato/polymyositis)
- dry eyes/mouth (Sjogren)
- red eyes (ankylosing spondylitis)
- diarrhoea/urethritis (Reiter's)
- nodules or nodes (rheumatoid arthritis, TB)
- mouth, genital ulcers (Behcet's)
- weight loss (TB, arthritis)

2. Age, occupation, origin

3. Related diseases

- Crohn's disease/ulcerative colitis

- ankylosing spondylitis

- psoriasis

- gonorrhoea

- Reiter's associated arthritis

4. Drugs

- disease-modifying antirheumatic drugs (DMARDs)

- NSAIDs

5. Family history

- arthritis

- psoriasis

- autoimmune disease

6. Social history

- functioning e.g. dressing, writing, walking

- domestic situation

- social support

- home adaptations

- smoking (may worsen rheumatoid arthritis)

Back pain

1. Onset: sudden (related to trauma?), gradual

2. Motor or sensory symptoms

3. Bladder/bowel involvement

4. Sciatica

Red flags

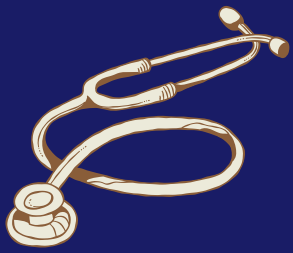
- age <20 or >55 years old
- acute onset in elderly
- constant or progressive pain
- nocturnal pain
- increasing pain on being supine
- morning stiffness
- fever, night sweats, weight loss
- history of malignancy
- thoracic back pain
- bilateral or alternating symptoms
- neurological disturbance
- sphincter disturbance

- leg claudication (spinal stenosis)
- current or recent infection
- immunosuppression e.g. steroid/HIV
- abdominal mass

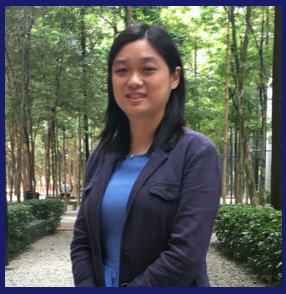
Inflammatory arthritis

- pain
- stiffness (especially early morning >30 min)
- joint inflammation (swelling, redness, warmth)
- loss of function

ACE THE MRCP PACES



Two key elements of success in short cases are the clinical examination and the presentation/discussion. While medical knowledge is important to ensure accurate diagnosis and optimal management, being able to present and discuss is also an essential skill for the doctor-in-training. This book aims to equip junior doctors with templates that can be used to frame the presentation as well as guide history-taking for various common diagnoses and complaints.



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