DIFFERENTIAL DIAGNOSES

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LETHARGY

Differentials:

1. Anaemia: breathless on exertion, weakness, palpitations. See below for causes
2. Endocrine: hypothyroidism (constipation, cold intolerance and weight gain) or diabetes (polydipsia, polyuria, weight loss and visual disturbance)
3. Depression: low mood, anhedonia, poor sleep, lack of energy, hopelessness or suicidal thoughts
4. Malignancy
5. Infection: Chronic (TB) or acute (EBV, gastroenteritis)

Questions:

- Assess sleeping: could be anything from PND to a cough keeping them awake or insomnia
- Depression screen important
- PMHx or FMHx of diabetes
- Systemic review important:
    - Constitutional symptoms: weight loss, night sweats, fever
    - Head: headaches, dizziness/lighted/passed out/recent falls/weakness
    - Chest: chest pain, palpitations, SOB (orthopnea and PND), cough, haemoptysis, wheezing. PMHx of cardiac or respiratory disease – chronic disease
    - Abdomen: pain, changes in bowel or urinary habits (colour, frequency) + PMHx for any chronic disease

Investigations:

- FBC (anaemia), Thyroid function tests, blood glucose
- Depending on pathology
- Depression assessment

CARDIOVASCULAR

CHEST PAIN

Differentials:

1. Acute Coronary Syndrome: central crushing chest pain radiating to left arm and/or jaw, not relieved by GTN spray. Associated with PMHx of ACS. Important to ask re risk factors
2. Aortic Dissection: tearing central pain of sudden onset radiating to back. PMHx of hypertension and connective tissue disease (Marfan's)
3. Stable Angina: Coronary Artery Disease most common cause. Tight/heavy pain that onsets w/ exertion and relieved by rest and nitrates. Not affected by respiration. No sweating, anxiety or associated symptoms.
4. Pulmonary Embolism: **Pleuritic** chest pain associated with breathlessness, collapse and cyanosis. Sudden onset with risk factors for DVT and possibly DVT
5. Pericarditis/Pleurisy: pleuritic chest pain, sharp/stabbing and severe pain, non-exertional, unaffected by nitrates. Fever or recent viral illness. Causes include inflammatory disorders (SLE, RA), trauma
6. GORD/peptic ulcer disease/gastritis: dysphagia, acid reflux, weight loss and melena. Epigastric pain with retrosternal radiation and associated with meals.
7. Infection: Pneumonia (associated with cough productive with green/blood-stained phlegm)
8. Trauma: broken rib, spontaneous pneumothorax (severe dysnea)
9. Psychological: panic attacks (preceded by anxiety and associated with breathlessness and hypoventilation)

Questions:

- SOCRATES
- Differentiate between pleuritic (worse on inspiration) and non-pleuritic chest pain
- PMHx important for GORD, ACS and psychological
- Risk factors for DVT/coronary artery disease. Immobility, travel, OCP, malignancy, pregnancy, menopause. Diet, exercise, diabetes and hypertension
- Recent infection

Investigations:

- ECG and Echo
- Chest Xray
- Bloods: troponin and CK

PALPITATIONS

Differentials:

1. Atrial fibrillation: elderly patient, PMHx of IHD, hypertension, CCF, CAD or mitral valve disease. Fast and completely irregular.
2. Supraventricular tachycardia: Causes include COPD, hyperthyroidism, CCF. Associated with symptoms of compromise (chest pain, SOB, pre-syncope), previous episodes terminated by vagal manoeuvres. Sensation of pounding in neck, very fast but regular
3. Ventricular tachycardia: caused by cardiomyopathy, IHD, myocardial damage (previous MI), CCF. Other causes include medications, caffeine excess and excessive alcohol or intense exercise. Associated with dizziness, faiting, fatigue, chest pain and SOB.
4. Thyrotoxicosis: weight loss, increased appetite, heat intolerance, diarrhea, tremor, mood disturbance. Most common cause is Graves disease (autoimmune disorder – antibodies stimulate thyroid to secrete excess thyroid hormone), benign tumours of thyroid/pituitary gland, inflammation of thyroid or malignancy.
5. Excess caffeine or other drugs
6. Anxiety
7. Metabolic disturbances: Hypoglycaemia (sweating, anxiety, hunger, tremor, dizziness, hypoglycemic medications and PMHx of diabetes), Hypokalemia (fatal arrhythmias), hypocalcaemia and hypomagnesemia (ventricular tachycardia)

Questions:

- Tap out the rhythm
- Ask about associated symptoms
- Red flags: PMHx of cardiac disease, FMHx of sudden death/cardiac disease/arrhythmias, LOC, SOB and weight loss

Investigations:

- ECG/Holter monitor/exercise ECG (arrhythmias precipitated by IHD)
- FBC, Mg and Ca, UECs, blood glucose and thyroid function tests
- Echo

PERIPHERAL OEDEMA

Differentials:

1. Right sided cardiac failure: bilateral and symmetrical, not red or painful (non-inflammatory), worse in evenings but improves overnight, ascends as heart failure progresses
2. Hepatic Cirrhosis: oedema due to severe hypoalbuminemia, salt and water retention. Associated with ascites
3. Renal disease: nephrotic syndrome, acute renal failure and end-stage renal failure
4. Medications: Vasodilators, Calcium channel blockers, NSAIDs, oestrogens and progesterone
5. Pregnancy
6. Pretibial Myxoedema: Hypothyroidism (non-pitting oedema)
7. DVT/venous incompetence: often asymmetrical peripheral oedema
8. Dermatitis (history of allergy or previous dermatitis) or Cellulitis (localised trauma, pain, tenderness)

Questions:

- Previous episodes
- PMHx: cardiac disease, hypertension, hepatic/renal disease, diabetes, thyroid disease, connective tissue disease, venous incompetence
- Risk factors for DVT
- Alcohol history and medications
- JVP important – if elevated then most likely RHF (or other cardiac path)

Investigations:

- ECG, ECHO
- Venous ultrasound/doppler if suspecting DVT/venous incompetence
- LFTs and Renal function tests

SYNCOPE

Differentials:

1. Cardiac causes (resulting in decreased CO): Cardiac disease including AS, CCF, atrial fibrillation and acute coronary syndrome. Associated with palpitations/chest pain, light-headedness, SOB. Turns pale and cold during episode and rapid, complete recovery. Pre-syncope comes before syncope (dizziness, blurry or narrowed vision, nausea, sweating, palpitations)
2. Neurocardiogenic (vasovagal): associated with feeling hot and sweaty, panicked, lightheaded and nausea before. Lasting light-headedness and nausea.
3. Postural hypotension: dehydration, anaemia, medications (Beta blockers and other hypertensive medications, psychiatric medications)
4. Metabolic disturbances: hypoglycaemia (palpitations, sweating, anxiety, hunger, tremor, dizziness, hypoglycemic medications and PMHx of diabetes) dehydration
5. Other: Epilepsy (move around and bites tongue during episode with incontinence, afterwards prolonged state of confusion and exhaustion with headache/focal neurological signs), Anxiety/panic attack, PE, Cough syncope, micturition syncope

Questions:

- Before, during and after important to differentiate between syncope, mechanical blackouts or epilepsy ← important to mention wanting to talk to a witness
- PMHx
- FHx of sudden death (arrhythmias)

Investigations:

- ECG (arrhythmias)
- Bloods: FBC, U&Cs and glucose
- Could also do an Echo or CT/MRI of brain

RESPIRATORY

COUGH

Differentials acute cough: (<3 weeks)

1. Upper Respiratory Tract infection – common cold/sinusitis (Congestion, runny nose, cough, sore throat, body aches, fatigue)
    - Viral: rhinovirus, adenovirus, parainfluenza
    - Bacterial: GAS pharyngitis (erythema/swelling/exudate on tonsils or pharynx, fever)
2. Lower respiratory tract infection – pneumonia, bronchitis, exacerbation of COPD (wheeze). Possibly irritation (inhalation of bronchial irritant – smoke or fumes)
    - Pneumonia = inflammation of air sacs with fluid or pus → cough with phlegm, chest pain, fatigue, fever, shakes and chills (cough is dry then productive)
        - Typical: Bacterial – Streptococcus pneumonia
        - Atypical: Bacterial – Mycoplasma pneumoniae, Chlamydia pneumoniae or Legionella → appear different on chest Xray or respond to different Ab
        - Viruses – most common cause in children under 5yo

Differentials for chronic cough: (>3 weeks)

1. COPD (smoking history, nocturnal, productive, worse in the morning)
2. Interstitial lung disease (pulmonary fibrosis) – irritating, dry, persistent
3. Asthma (w/ wheeze, intermittent, sometimes productive, worse at night (nocturnal) and other atopic sx (exzema and hayfever))
4. GORD (dry chronic coughing from acid irritation)
5. Bronchiectasis (very productive cough)
6. Cardiac failure (dysnea + PND + worse lying down and sometimes with frothy sputum → pulmonary oedema)
7. Infection – pertussis, TB (weight loss, night sweats, cough) or post-viral

Also drugs – ACE inhibitors (dry, chronic coughing)

Important to ask

- Dry cough or productive
    - Dry: drugs, GORD, post-viral, interstitial lung disease
    - Productive:
        - Purulent: Bacterial infection, bronchiectasis (large volume)
        - COPD
        - Viral infection
- Red flags: haemoptysis, weight loss, night sweats, hoarseness

HAEMOPTYSIS

Differentials:

1. Lung cancer (weight loss, change in voice, bone pain, night sweats, important in smokers and white sputum, occupation with asbestos)
2. TB (weight loss, night sweats, travel history important, swollen neck glands)
3. Chest infection, e.g. pneumonia (rusty/green sputum, fever, SOB with bacterial pneumonia), bronchiectasis (recurrent chest infections, wheezing, croup during childhood), lung abscess, bronchitis
4. Pulmonary – embolism (DVT/risk factors for DVT) or oedema (ankle swelling, pink frothy sputum, mitral valve disease)

Questions:

- Travel
- Malignancy features – weight loss, night sweats, bone pain, history of malignancy
    - Haemoptysis with >20 pack year hx is lung cancer until proven otherwise
- Mixed with sputum:
    - No → PE (acute-onset with pleuritic chest pain and/or dysnea), trauma or bleeding into lung cavity
- Cardio failure + other DVT risk factors
- Infection – anybody else around you been sick, recurrent chest infections, wheezing
- AS: wheezing, chest pain, dysnea

Top 5 investigations:

- Chest X-ray (neoplasm, consolidation, TB)
- Ventilation/perfusion scan (PE)
- Sputum microbiology (pneumonia)
- ECG (right heart failure)
- Manntoux test or blood test for TB

Bronchiectasis: lung disease when the walls of the airways widen due to chronic inflammation and/or infection (recurrent) → irreversible damage to lungs → mucus pools in damaged airways (can't be cleared properly) → mucus build up can become infected – Characterised by recurrent chest infections

- Symptoms: sinusitis, fatigue, SOB or wheezing, chest pain

Differentials:

1. Lung
    - Airways disease: COPD (chronic, history of smoking, wheeze, increased resp rate, cyanosis, tracheal tug, Hoover's sign, tripoding and pursed lips breathing), asthma (subacute), Bronchiectasis
    - Parenchymal disease: Interstitial lung disease (pulmonary fibrosis, sarcoidosis, connective tissue disease)
    - Pulmonary embolism (acute)
    - Pneumothorax (acute)
2. Cardiac failure (chronic): IHD, cardiomyopathy, LVF or CCF, aortic stenosis, volume overload (aortic regur., mitral regurg.) Associated with orthopnoea, PND, ankle oedema, lung crepitations and raised JVP)
3. Anatomical: Diseases of chest wall and pleura: massive ascites, ankylosing spondylitis, fractured ribs
4. Neuromuscular conditions: GBS, motor neuron disease, myasthenia gravis
5. Other: compensatory respiratory alkalosis, anaemia, psychological: anxiety (dysnea at rest unassociated with exertion, struggle getting a satisfying breath)

In children – foreign body important to consider

Key Investigations:

- Blood tests – FBC for anaemia, UEC + LFTS for fluid overload or pleural effusions in renal/heaptic failure
- ECG or echo for heart failure
- Chest Xray for pneumonias, lung cancer, cardiomegaly and pleural effusions
- Spirometry – asthma and COPD
- CT pulmonary angiogram – PE

Important Questions:

- Onset and duration (exertional, emotional/stress trigger)
    - Very short onset – asthma, PE, pneumothorax, anaphylaxis (ASK ALLERGIES)
    - Hours-days: Cardiac failure, exacerbation of COPD, asthma, pleural effusion or infection, metabolic acidosis (diabetes, renal failure)
    - Weeks+: Pulmonary fibrosis, COPD, interstitial lung disease, Pleural effusion or anaemia
- Diurnal variation
- Associated symptoms: cough and wheeze (asthma, COPD), pleuritic chest pain (pneumothorax, pneumonia, PE), tiredness, eczema or rhinitis, PND and ORTHOPNEA, tightness (angina)
- Smoking
- History of cardiac failure or MIs

PLEURITIC CHEST PAIN

Differentials:

1. Pneumothorax (sudden onset, associated with SOB)
2. Pulmonary embolism (DVT risk factors, family hx, red/swollen/painful leg)
3. Pneumonia (recent URTI, productive cough w/ green/blood stained phlegm)
4. Pericarditis (radiation to left shoulder and neck, pain. Improved by sitting forward, recent fever or viral illness, recent MI, past med hx of RA, SLE)
    - Can be caused by a viral illness or MI

Questions:

- SOCRATES
    - Worse on inspiration = pleuritic

Investigations:

- Chest Xray for pneumonias, lung cancer, cardiomegaly and pleural effusions
- Spirometry – asthma and COPD
- CT pulmonary angiogram – PE

WHEEZE

Caused by air expired through narrowed airways

Differentials:

- Obstructive lung disease: asthma, COPD → polyphonic wheeze (multiple notes = widepresad narrowing of different calibres)
- Partial obstruction: tumour → monophonic

GASTROINTESTINAL

DIARRHOEA

Differentials:

1. Bacterial/viral Gastroenteritis (acute diarrhoea w/ N & V, can have blood in stools, weight loss/loss of appetite) – secretory diarrhea (high volume, persists in fasting)
    - Viral: Noroviruses, Rotaviruses (most common cause of viral gastroenteritis in children)
    - Bacterial: Staphylococcus Aureus (dairy, meat, eggs), Shigella (water), Salmonella (meat, dairy, eggs), Campylobacter (meat), E. Coli (salads)
2. Clostridium difficile (antibiotic use, green foul-smelling diarrhea)
3. Parasitic infection – Giardia (travel, exposure to children)
4. IBS (fluctuate between diarrhea and constipation, associated with stress, abdominal cramps and flatulence)
5. IBD (young, lose weight, may have blood/mucus in stools, small volume but frequent, systemic symptoms of IBD, e.g. arthralgia, back pain, oral ulcers, eye pain)
6. Celiac disease (osmotic diarrhea, steatorrhea, anaemia + abdo discomfort)
7. Thyrotoxicosis (heat intolerance + irritability/restlessness, amenorrhea/oligomenorrhea)
8. Bowel cancer (Malena, rectal bleeding, weight loss/loss of appetite, small volume but frequent)
9. Lactose intolerance (osmotic diarrhea)
10. Chronic pancreatitis (steatorrhea)
11. Other: Laxative overuse/excess alcohol, recent change to diet, partial bowel obstruction

To ask:

- Associated symptoms (work down): dysphagia, nausea and vomiting, indigestion/heartburn, abdominal pain, blood/mucus in stools
- Consistency
- Timing important
- Systemic features – fevers, rigors or chills (infection)
- For infection ask about any recent weird foods, travel abroad, other contacts with diarrhea
- Ask about laxatives and alcohol

Investigations:

- Colonoscopy with histological biopsy, FBC and iron studies, possibly CT abdomen/CT colon

NAUSEA AND VOMITING

Nausea = sensation of wanting to vomit

Differential Diagnoses:

1. Gastrointestinal tract infections: Staphylococcus aureus
2. Small bowel obstruction (acute symptoms, vomiting >1 hour after the meal)
3. Pregnancy and drugs (chronic, early morning vomiting): alcoholism
4. Psychogenic vomiting: Bulimia
5. Raised ICP (ask re headaches, vomiting in the morning)

Questions:

- Contents of the vomitus: Bile (duodenum to stomach), old food (obstruction), blood (ulceration)
- Timing of the vomiting
- Have you been losing weight
- For haematemesis ask about peptic ulcers, alcohol, liver disease,

Haematemesis:

1. Peptic ulcer haemorrhage (previous gastritis symptoms)
2. Oesophageal varices (history of liver disease/alcoholism)
3. Mallory-Weiss tear (multiple vomits before haematemesis onset, commonly after binge drinking)
4. Haemorrhagic gastritis/oesophagitis (previous gastritis symptoms, risk factors: NSAIDs, alcohol, spicy foods)

ABDOMINAL SWELLING

Differential Diagnoses:

1. Small bowel obstruction (adhesions 70%, but malignancy important; colicky abdominal pain peri-umbilical, constipation and vomiting)
2. Large bowel obstruction (malignancy 60%; vomiting, constant abdominal pain, constipation)
3. Ascites (ankle oedema)
4. Malignancy: Cancer mass (family hx, age, smoker and generalised symptoms)
5. Irritable bowel syndrome (flatulus, abdominal pain, related to mood/stress)
6. Abdominal aortic aneurysm (pulsatile, expansile, abdominal/back pain)
7. Organomegaly

Don't forget the 6F's: Fat, fluid (ascites), flatus (IBS), feces (obstruction), filthy big tumour (cancer), fetus (pregnancy)

Questions:

- SHx: occupation (hepatitis exposure), travel, alcohol, jaundice contact, sexual history and injections (IVDU, plasma, tattooing)
- Cardiac failure

CONSTIPATION

Differential Diagnoses:

1. Drugs (codeine, antidepressants, antacids, etc.)
2. Hypothyroidism or other metabolic disease (hypokalemia, diabetes)
3. Obstruction from carcinoma or adhesions
4. Pregnancy
5. IBS

Questions:

- Other symptoms of hypothyroidism (intolerance to cold, lethargy/tiredness)
- Associated symptoms: pain, diarrhea, nausea and vomiting, bleeding
- Onset (recent indicates malignancy)

Investigations: Colonoscopy

WEIGHT LOSS

Differential Diagnoses:

- Malignancies (anorexia + weight loss)
    - Gastrointestinal cancer (stomach, colorectal, oesophageal, pancreatic)
    - Renal
    - Lung
    - Prostate
    - Lymphoma
- Non-malignant GI disease: Peptic ulcer disease, malabsorption (celiac), IBD
- Psychiatric: depression or eating disorders
- Endocrine: thyrotoxicosis (lose weight but eating more), diabetes (type 1), adrenal insufficiency
- Infectious diseases: HIV (episodic occurring with infections and GI diseases), TB, Hep C (nausea, anorexia, weakness)
- Advanced chronic disease: CCF, chronic lung disease, advanced kidney disease
- Neurological disesases: stroke, dementia, Parkinsons
- Medications/substances: alcohol, cocaine, tobacco, marijuana (withdrawal)

Questions

- Do a good systemic screening:
    - Head: malignancy features (night sweats, lethargy), neurological conditions, drugs (alcohol, smoking, rec. drugs), psychiatric, infection (fever, contact with others who are sick, nausea, vomiting, weakness)
    - Endocrine: thyrotoxicosis symptoms (sweating, heat intolerance, agitation), diabetes
    - Chest: chronic heart or lung disease
    - Abdomen: GI symptoms for other GI disease (cramps, diarrhea, constipation), advanced kidney disease

JAUNDICE

Differential Diagnoses:

1. Intrahepatic:
    - Hepatocellular liver disease: Viral infections (hepatitis), chronic alcohol use or autoimmune disorders
    - Pregnancy
2. Extrahepatic causes:
    - Gallstones
    - Infection (CMV, cripstoporidium)
    - Intrahepatic malignancy
    - Pancreatitis
3. Postheaptic causes:
    - Cholelithiasis or gallstones

Questions:

- Colour of urine (dark) and stools (pale)
- Abdominal pain (gallstones)
- Infectious liver disease: acute onset (Hep A), chronic infection → liver cirrhosis (Hep B and C), associated symptoms (fatigue, nausea, poor appetite and pain with fever), sick contacts
- Fever (cholangitis or Hepatitis)
- Recent travel, IVDU, tatoos, blood transfusion or sexual risk behaviours (hepatitis)
- Immunisations against Hep B

RECTAL BLEEDING

Differential Diagnoses:

1. Malignancy
    - Upper GIT cancer: melena
    - Colorectal: if source of bleeding is after terminal ileum, fresh red blood
    - Distal rectal: fresh red bleeding/blood mixed with stool
2. Haemorrhoids: fresh red blood drips, often separate from stool
3. Anal fissure: severe pain on defecation w/ streaks of blood around stool
4. IBD: young people, blood and mucus in stool, systemic symptoms
5. Bleeding/clotting disorders: haematuria, bleeding gums and bruising

Questions:

- Other colorectal/anal symptoms: pain, tenesmus, change of bowel habit, abdominal pain, fecal incontinence
- Other signs of inflammatory bowel disease: blood, arthralgia, sacroiliitis, oral ulcers, skin problems and eye pain
- Symptoms of anaemia: lethargy, SOB, postural hypotension
- Malignancy symptoms – Weight loss/loss of appetite

Differentials for Acute Abdominal Pain

1. IBD exacerbation (ulcerative colitis)
2. Appendicitis
3. Gynae: Ectopic pregnancy or ruptured ovarian cyst
4. UTI/pyelonephritis
5. Small/large bowel obstruction (colicky pain, periumbilical suggests small bowel but colonic pain can occur anywhere. SBO – more frequent colicky pain cycling 2-3min. LBO cycling 10-15min. Associated with vomiting, constipation and distension)
6. Perforated ulcer: peptic ulcer disease or duodenal ulcer
7. Inflammation: hepatitis, pancreatitis (steady epigastric pain, radiating to back w/ vomiting and slightly relieved by sitting up and leaning forwards), gastroenteritis
8. Renal colic (severe colicky pain w/ constant pain in renal angle, radiation towards groin from kidney stones)

Differentials for Chronic Abdominal Pain

1. Diverticular disease (elderly, LIF pain, pyrexia)
2. Constipation
3. Malignancy
4. Peptic ulcer disease (dull/burning pain in epigastrium relieved by food or antacids. Episodic and make occur at night, waking patient.)
5. IBS
6. Pelvic inflammatory disease or fibroids
7. Pregnancy, endometriosis, dysmenorrhea
8. Gallstones (biliary colic is intermittent RUQ pain exacerbated by fatty food; cholecystitis is continuous RUQ pain; CBD stones presents with jaundice and RUQ pain; cholangitis is jaundice, fever/rigors and RUQ pain)

Right Hypochondriac - Cholecystitis - Gallstones - Acute hepatitis - Liver abscess - Duodenal perforated ulcer	**Epigastric** - GORD - Peptic ulcer disease - Acute pancreatitis - Gastritis	**Left Hypochondriac** - Splenomegaly/splenic rupture - Peptic ulcer
Right Lumbar - Pyelonephritis - Colitis/malignancy - Ureter stone	**Umbilical** - Appendicitis (early) - Small bowel obstruction - Large bowel obstruction - IBD - IBS	**Left Lumbar** - Pyelonephritis - Colitis/malignancy - Ureter stone

	- Gastroenteritis - AAA	
Right Iliac - Appendicitis - IBD/IBS - Ectopic pregnancy - PID - Ovarian cyst - Inguinal hernia	**Hypogastric** - Cystitis - IBD - Acute urinary retention	**Left Iliac** - Diverticulitis - IBD/IBS - Inguinal hernia - Ectopic pregnancy - PID - Ovarian cyst

Questions:

- SOCRATES
- Make sure to ask about waking up from sleep + features of malignancy
- If it's happened before – Kidney stones

Investigations:

- FBC (anaemia in GI malignancy or perforated ulcer)
- UECs (pyelonephritis or other renal tract pathology), C-reactive protein (IBD), LFTS (hepatitis, cholecystitis), amylase (pancreatitis), arterial blood gasses (metabolic acidosis in pancreatitis)
- Urine: pregnancy and haematuria (renal colic), nitrates (UTI/pyelnophritis)
- Abdominal X-ray: loops of dilated bowel
- Ultrasound/CT: gynaecological pathologies
- Colonoscopy or gastroscopy

GENITO/URINARY

HAEMATURIA

Differential Diagnoses:

1. UTI: Pyelonephritis (moderate flank/back pain, fever, dysuria), prostatitis (fever), cystitis (suprapubic pain). Associated with frequency/dysuria/urgency
2. Renal Calculi (severe loin to groin pain) aka Kidney stones
3. Renal cell carcinoma (haematuria, flank pain, abdominal mass)
4. Bladder cancer (painless haematuria, history of aromatic amine exposure, e.g. painter)
5. Trauma: recent indwelling urinary cateheter or procedure, recent back or abdominal injury
6. Bleeding disorder (anticoagulant drugs)
7. Glomerulonephritis, polycystic kidney disease
    - Acute glomerulonephritis: Streptococcus infection (Strep throat) or viral infection (HIV, Hep B and C), lupus
    - Chronic glomerulonephritis: hypertension, diabetes, cancer, NSAIDs, vasculitis

Questions:

- When it started and acute/gradual onset
- Duration, progression, intermittent or continuous
- Quantify bleeding (thick blood or discoloured urine)
- Catheter use
- Anaemia symptoms: tiredness, SOB on exertion
- General review: fever, sweats, rashes, joint pain/swelling
- Urological: dysuria, problems voiding (hesitancy, poor flow/dribbling, feeling of incomplete emptying), frequency, urgency and nocturia

Investigations:

- Urinalysis, urine culture and microscopy

DYSURIA

= Painful or difficult micturition

Differentials:

1. Cystitis (burning pain on urination w/ frequency and urgency): E. Coli, drugs or radiation, foreign body (catheter) or chemical cystitis.
2. Urethritis (purulent urethral discharge, frequency, pain in the genital area,
    - Bacterial: Gonorrhoea and Chlamydia
    - Parasite: Trichomoniasis (genital itching and foul-smelling vaginal discharge)
    - Viruses: HPV (warts), HSV (ulcers and scabs that are painful and itchy, recurring?) and CMV (glandular fever so fatigue, fever, enlarged lymph nodes, muscle aches, chills/sweats)
3. Pyelonephritis (loin pain, fevers/chills/rigors, vomiting): E. Coli
4. Benign prostatic hyperplasia (poor flow and dribbling, hesitancy, overflow incontinence, elderly male)
5. Others: Anxiety, pregnancy, drugs (diuretics)

Questions:

- Sexual history, birth control (diaphragms in UTI, not using condoms), pregnancy, post-menopause
- Interference with flow of urine (can result in UTI), e.g. bladder stone or enlarged prostate
- Catheter use (UTI)

Investigations:

- Urine culture, urine dipstick
- Testing renal function: serum creatinine and eGFR for glomerular function and electrolytes and urine dipstick for tubular function
- Blood tests: Causes of renal disease (Hepatitis, autoimmune disease) and assessing effects of renal disease (electrolytes, FBC, serum glucose, uric acid)
- Ultrasound imaging of kidneys and renal biopsy to diagnose glomerulonephritis

POLYURIA

Differentials:

1. Increased total urine production → Diabetes mellitus (polydipsia, polyuria, weight loss and tiredness, visual disturbance)
2. Chronic kidney disease (non-specific symptoms: fatigue, weakness, dysnea)
3. Other: Cushing's syndrome or drugs
4. Bladder outflow obstruction: BPH, prostate cancer, renal calculi (frequent, small volume voids, difficulty starting micturition, terminal dribbling, overflow incontinence)
5. Other bladder storage disorders: Urinary retention, bladder cancer (all causing frequent, small volume voids)

Questions: ask about polydipsia and hunger and family hx of diabetes + diabetes risk factors (diet, exercise, obesity)

NOCTURIA

Differentials:

1. Oedematous states – CCF, renal or hepatic failure
2. Overactive bladder: excess urine output, restricted mobility, muscle atrophy, infection or delirium
3. Diabetes
4. Benign prostatic hyperplasia
5. Alcohol/caffeine
6. Excessive night time fluid intake
7. Medications (diuretics)

Questions: usually associated with daytime symptoms so ask about frequency, polyuria, urinary retention

- Ask about medications, are they taking their diuretic at night?
- Ask about other drugs, are they drinking tea right before bed?
- Anything that affects sleep make sure to ask about impact on their life

URINARY RETENTION

Differentials:

1. Prostatic hypertrophy (history of hesitancy, poor flow and terminal dribbling, elderly male)
2. Urethral stricture (history of trauma or recurrent catheterisation)
3. Bladder neck obstruction (may have haematuria: tumour, calculus
4. UTI (associated with dysuria)
5. Constipation

Questions:

- Associated symptoms: hesitancy, poor flow, incontinence, dribbling
- UTI features and risk factors: sexual history, systemic symptoms, dysuria/polyuria/haematuria

Stress incontinence differentials:

1. Incompetent sphincter (small losses with effort, e.g. coughing, bending, exertion; risk factors are multiple pregnancies, post-menopause)
2. Pregnancy
3. Pelvic floor weakness (elderly women)

Urgency Incontinence differentials:

1. Detrusor instability: idiopathic, cystitis or a stone (urge to pass urine followed quickly by uncontrollable bladder emptying)
2. Hyperreflexia: MS, CVA, spinal cord injury

Overflow incontinence:

1. Prostatic hypertrophy (dribbling and poor stream, hesitancy, elderly male, hx of obstruction)
2. Scripture or stone

Questions:

- Also good to ask when they were incontinent, e.g. couldn't get to the bathroom (weakness) or had no control because it came on so fast
- Good to ask about falls – did it cause them to fall or were they incontinent because of a fall
- Good to ask about medications, e.g. diuretics
- Don't forget to ask about impact on life – can have a significant social impact

Differential Diagnoses:

Primary:

1. Migraine: (POUND: Pulsatile, 4-72hOurs, Unilateral, N+V, Disabling. May be aura and photophobia)
2. Cluster headache: (severe painful attacks around one eye, lasting 30min-3 hours, occur once/twice a day and persist for a few weeks then stop for a few months)
3. Tension headache: (bilateral band sensation over occipital, frontal and temporal areas. Feels 'tight' and is recurrent, occurs late in the day, associated with stress.)
4. Trigeminal neuralgia: (2 second periods of stabbing pain in unilateral trigeminal nerve distribution. Pain is in the face/front of ear, feels like an 'electric shock'). Causes – ageing, MS/damage to myelin sheath, tumour, surgical injuries, stroke or facial trauma

Secondary-intracranial:

1. Meningitis: (fever, photophobia, neck stiffness, gradual onset, rash ← febrile illness)
    - Bacterial: Streptococcus pneumonia (most common bacterial meningitis) also Neisseria meningitidis (URTI w/ meningitis), Haemophilus influenzae (vaccinations) and Listeria monocytogenes (immunocompromised most at risk). BACTERIAL MORE SERIOUS
    - Viral: Herpes simplex virus, HIV, EBV, mumps, etc. (if suspected meningitis sexual history may be relevant and vaccinations)
2. Temporal arteritis: (unilateral throbbing pain over temporal area, scalp tenderness, jaw claudication, visual disturbance (blurring/diplopia), >55yo)
3. Subarachnoid Haemorrhage: (sudden onset with EXTREME pain, initially localised then spreads generally over occipital area. AS neck stiffness). Caused by aneurysm
4. Raised Intracranial Pressure: tumour, benign intracranial hypertension (N+V, worse when coughing/straining/exertion, worse in morning, AS of drowsiness)

Secondary-extracranial:

1. Glaucoma: (pain around one eye, swollen red eye, visual blurring and halos)
2. Sinusitis: (facial pain exacerbated by leaning forward, rhinorrhea associate)

Questions:

- Site important
- Onset and Timing: sudden = red flag (subarachnoid haemorrhage), continuous/progressive = red flag (raised ICP) Did you have warning it was going to start? (migraine)

- Character: throbbing (migraine), stabbing (subarachnoid haemorrhage), tightness
- Radiation: to neck = red flag (subarachnoid haemorrhage)
- Associated: nausea and vomiting, visual disturbances, fever, photophobia, neck stiffness, rash, jaw claudication, weight loss
- PMHx and FMHx of migrains, aneurysms. Haemorrhages, malignancy
- PMHx: trau,a, recent illness
- Important to check if they're on the OCP if it's migraine (contraindicated)
- SHx: drugs including alcohol, caffeine, smoking and rec drugs (hangover/withdrawal)
- Analgesic use: Chronic analgesic dependent headaches
- Impact on ADLs

Investigations:

- Clinical diagnosis for the primary headaches and analgesic dependent
- CT/MRI for intracerebral haemorrhage (raised ICP features)
- Lumbar puncture and CSF analysis (meningitis and subarachnoid haemorrhage)
- Temporal artery biopsy (temporal arteritis)

LOSS OF CONSCIOUSNESS

Differential Diagnoses:

1. Syncope (see above)
2. Seizure:
    - Partial (don't lose consciousness), e.g. temporal lobe epilepsy (strange actions w/ impaired awareness) or focal motor seizure
    - Generalised: tonic-clonic seizure (sudden LOC, limbs stiff then jerk, may become incontinent, bite tongue, feel awful afterwards with tiredness and confusion)
3. TIA/stroke: Neurological symptoms (limb/face weakness, slurred speech, hemianopia. TIA/stroke in brainstem)
4. Vasovagal: (only in response to simuli, preceding nausea, pallor, sweat and closing visual fields. LOC for ~2min)
5. Mechanical: mechanical fall/postural instability
6. Metabolic disturbances: hypoglycaemia (weakness and confusion before LOC with sweating, anxiety, palpitations and faintness. Usually taking insulin or hypo-glycemic drug and diabetic)
7. Drug withdrawal: alcohol or other addictive substances
8. Other: trauma, delirium

Questions:

- Red flags: headache w/ features of raised ICP
- PMHx/FMHx: diabetes, seizures/epilepsy/convulsions, CVA + cardiovascular (AS, arrhythmias)
- Effect on ADLs, especially driving

SPEECH DISTURBANCES

Differentials:

1. Stroke
    - Broca's Aphasia (expressive): infer-lateral dominant frontal lobe stroke (non-fluent speech with frustration and malformed words and effort. Comprehension intact)
    - Wernicke's aphasia (receptive): posterior dominant temporal lobe (empty, fluent speech oblivious of errors. Comprehension impaired)
2. Dysarthria (difficulty due to incoordination/weakness of speech muscles)
    - Cerebellar disease ataxia (slurring and irregularity in volume, staccato)
    - Extrapyramidal disease: soft, indistinct and monotonous
    - Pseudobulbar palsy: UMN, e.g. Parkinson's (spastic dysarthria) or MND/severe MS (slow, indistinct, nasal and effortful)
    - Bulbar palsy: facial n. palsy (MS, Wernicke's encephalopathy, pontine stroke → lips become weak and check muscle tone lost – difficulty talking), GBS, MND
3. 10th nerve palsy resulting in hoarse voice (laryngeal paralysis): trauma, brainstem lesions or neck tumours

Questions:

- Differentiate if it's dysphagia (impairment of language caused by brain damage) or it's difficulty due to incoordination/weakness of speech muscles

VISION DISTURBANCES

Diplopia Differentials:

1. Palsies of the 3rd, 4th or 6th cranial nerves: Microvascular ischemia – diabetic neuropathy, raised ICP (haemorrhage, etc.), tumour, MS, meningitis
    - Horizontal: CN VI
    - Vertical: CN III, CN IV and
2. Neurological Muscle weakness: NMJ dysfunction/Myasthenia gravis, GBS (muscle weakness)
3. Extraocular muscle injury
4. CNS injury: Wernicke's encephalopathy, MS brain aneurysm/tumour/increased pressure
5. Thyroid-associated ophthalmopathy (Graves' disease → vertical double vision)
6. Astigmatism

<u>Questions:</u>

- Monocular: improved with pinhole (refractory) or not (retinal disease)

- Binocular: is there misalignment (strabismus either from childhood or cranial neuropathy, NMJ disorder or supranuclear disorder). No misalignment? (MS, Myasthenia gravis)
- Ask about trauma and headaches
- Horizontal or vertical: see if they can't abduct or adduct (medial or lateral)

Amblyopia (blurred vision) Differentials:

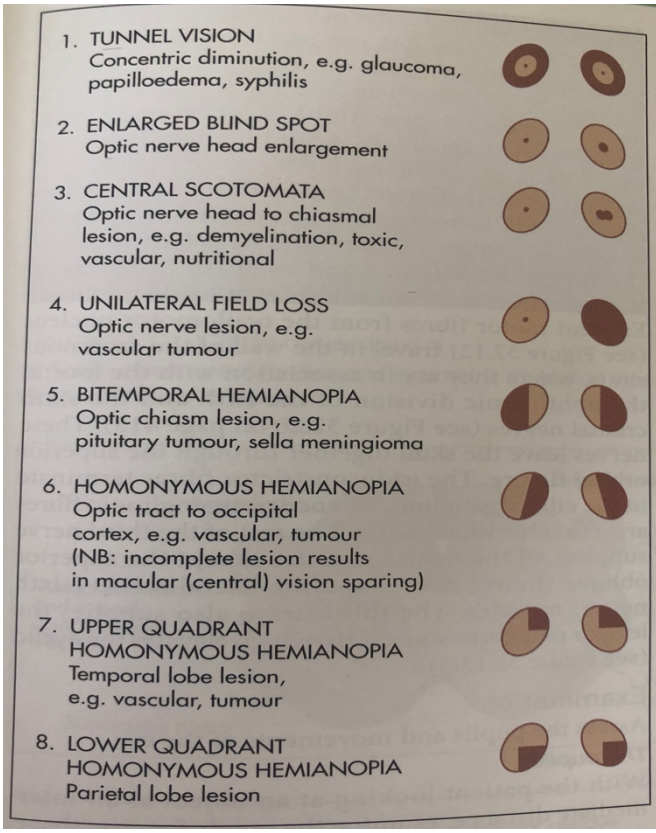
1. Temporal arteritis (unilateral, facial/temporal tenderness)
2. Diabetes (diabetic retinopathy + fatigue, polyuria + polydipsia + hunger)
3. Stroke
4. Age (close-up blurriness)
5. Cataracts (glare sensitivity)

Questions:

- Onset important and associated symptoms

Blindness Differentials:

- Monocular blindness (lesions of one eye or optic nerve)
    1. MS, temporal arteritis
    2. Retinal artery/vein occlusion (sudden)
    3. Optic neuritis
- Bilateral blindness:
    1. Bilateral occipital lobe infarction/trauma, bilateral optic nerve damage (alcohol poisoning) ← rapid onset
    2. Cataracts, acute glaucoma, macular degeneration
    3. Diabetic retinopathy (gradual onset)
    4. Bilateral optic nerve or chiasmal compression/bilateral optic nerve damage
    5. Optic Neuropathy (neurosyphilis or MS)



Field Defects Differentials:

1. Bitemporal hemianopia (lateral vision lost bilaterally): Optic chiasm lesions, e.g. pituitary tumour or haemorrhage; internal carotic artery aneurysm
2. Homonymous hemianopia (medial vision lost bilaterally): lesions are in the tracts, radiation or occipital cortex – stroke, abscess, tumour
3. Optic neuritis: demyelination (MS), syphilis (pain on moving eye, loss of central vision, relevant afferent pupillary defect, disc swelling) =

Weakness Differentials:

1. Generalised: Cachexia
2. Asymmetric (asymmetric weakness, proximal or distal +/- pain, paraesthesia in affected nerve distribution, may have changes in reflexes, muscle fasciculation, muscle wasting): Disuse atrophy, Cerebrovascular or spinal cord disease: demyelinating disorders (MS – diagnosis requires occurance of at least 2 neurological episodes with variable signs including sensory loss and cerebellar signs. Also impact on cranial nerves especially internuclear opthalmoplegia (weakness of adduction in one eye)), strokes, spinal cord tumours or herniated disc
3. Proximal: Myopathy (symmetrical weakness, proximal involvement +/- hypertrophy of weak muscle, no sensory deficits or fasciculations and reflexes preserved until late except in thyroid disease) or MND (neurogenic, pathological changes in anterior horn cells, motor nucleoi or medulla and descending tracts → UMN and LMN signs. Fasciculations almost always present)
4. Distal: Peripheral neuropathic (affecting the peripheral nerve; decreased reflexes, dysautonomia, sensory deficits and affecting distally so hands and feet with weakness +/- pain. Causes include multifocal motor neuopathy, GBS, diabetic radiculoplexus neuropathy) or MND
5. Myasthenia Gravis: (At the NMJ) can cause all of the above (worse with exertion, no sensory change, normal reflexes and no pain, ocular symptoms including diplopia and ptosis, may also have facial and bulbar involvement)
6. Not objective muscle weakness: Anaemia, chronic infection, malignancy, arthritis, deconditioning, depression

Myopathy (affecting the muscle) Differentials:

1. Alcohol or other drugs (steroids)
2. AIDS
3. Carcinoma
4. Endocrine – hyper or hypothyroidism
5. Muscular dystrophies

Questions:

- Where is the weakness? Generalised, proximal (myopathy) or distal (peripheral nerve affected).
- Is the weakness objective or is just overall weakness/tiredness
- Other symptoms especially sensory (peripheral nerve or higher if sensory disturbances. NMJ or muscle affected if not sensory)
- Always important to ask about symptoms of malignancy
- Hint: think in terms of muscle to brain
    - Muscle: most likely proximal weakness caused by myopathy. Could also by MND
    - NMJ: myasthenia gravis

- Peripheral nerve: most likely distal weakness caused by a peripheral neuropathy – diabetes, GBS. Would have sensory symptoms
- Spinal cord: tumours or herniated disc resulting in asymmetrical weakness and paraesthesia/sensory changes
- Brain: demyelinating (MS), strokes – asymmetrical weakness, sensory changes +/- other symptoms

Investigations:

- Myopathy: infection (HIV), thyroid function tests
- Myasthenia Gravis: Antibodies to acetylcholine receptor or MuSK and electromyography
- Peripheral neuropathies: nerve function tests as well as check diabetes
- Spinal Cord/Brain: CT or MRI

SENSORY DISTURBANCE

Differential Diagnoses

1. Mononeuropathy (pathology affecting individual peripheral nerve): Carpal tunnel syndrome (numbness and tingling in median nerve distribution, wakes them at night)
2. Radiculopathy (pathology affecting nerve root): E.g. L5 root lesions (foot drop and numbness over lateral aspect of the leg and dorsum of the foot. (May have weakness, and generally not as severe as mononeuropathy). Herniated disc with nerve compression most common cause, osteoarthritis in the spine (spinal stenosis), degenerative disc disease, tumours, compression fractures, infection (CMV in AIDS)
3. Distal sensory polyneuropathy (peripheral neuropathy) → stocking-glove sensory loss:
    - Axonal Pathology: diabetes, alcohol, vitamin B12 deficiency, syphilis, HIV, vasculitis (symptoms start distally and progress proximally, reduced vibration, pinprick and temperature. Ankle jerk diminished/absent)
    - Demyelinating pathology: GBS (predominantly motor)
4. Spinal cord lesions: MS, infection (neurosyphilis), tumour, compression fractures (sensory loss + motor weakness or specificity, brisk tendon reflexes, ankle clonus and positive Babinski – UMN lesion)
5. Brainstem lesions: stroke, tumour (cranial nerves usually involved, sensory loss of face is opposite that of the body)
6. Other lesions in the brain (stroke): thalamic lesions (tumours and abscesses but usually lacunar infarct – contralateral sensory deficit. Face + body have same side sensory loss); sensory cortex (small amount of the body is affected if purely sensory, or if it's larger there will be other associated symptoms – body and face are the same side) ← both are UMN so will be those associated symptoms if motor involved

Questions:

- Associated symptoms: no motor (peripheral neuropathy, small sensory cortex infarct, maybe thalamic infarct). Motor (peripheral nerve lesion, nerve root lesion, spinal cord lesions and brainstem/other cortical lesions most likely will have some motor involved)
- Diabetes important as well as trauma/pain (disc compression/fracture, as well as possible fractures resulting in a peripheral nerve lesion, e.g. surgical neck of humerus fracture)

Investigations:

- Nerve conduction studies and electromyography (axonal vs demyelinating)
- Peripheral nerve ultrasound
- Laboratory investigations for treatable causes – diabetes, vitamin B12, syphilis, HIV
- MRI for spinal cord/brainstem/cortical lesions

FALLS

Differential Diagnoses:

1. Acute illness (less likely to maintain balance and decreased reserve): infections, stroke, heart failure, metabolic disturbance (hypoglycaemia), alcohol
2. Mechanical: tripping, losing balance, legs giving way
3. Syncope (see above)

Questions:

- Acute illness: sick recently, constitutional symptoms (fevers, night sweats, chills, fatigue, loss of appetite). Anyone else in the family been sick recently? Any previous medical conditions (diabetes)
- Contributing problems for mechanical falls: weak muscles, vision problems/bifocals, vestibular problems (balance), acute illness → chronic illness (OA of weight bearing joints, Cerebrovascular disease), alcohol
- Risk factors: previous falls, issues with mobility, arthritis/muscle weakness, drugs and alcohol (changed or gone off any recently), vision, cognition, age
- Good to add depression screening onto the end of a fall case + explore ADL impact

Investigations:

- FBC + inflammatory markers + electrolytes
    - Infection: CRP, WCC, blood cultures
    - Metabolic: blood sugar levels
- Would want to do a full neurovascular exam if mechanical (checking leg power)

LOSS OF BALANCE

Differentials:

1. Vertigo: Benign positional vertigo (attacks of sudden rotational vertigo evoked by head turning, ~30seconds), Meniere's disease (vertigo + tinnitus + hearing loss. Attacks last min-hours), Vestibular neuritis (preceded by URTI, caused by herpes virus, sudden rotational vertigo and vomiting, lasts several days but imbalance may persist, reoccur several times per year), inner ear syphilis, neurological conditions (MS, brain tumour), head injury
2. Pre-syncope: orthostatic hypotension or cardiovascular disease → reduced blood flow to the brain (see above)
3. Vestibular problems
4. Peripheral neuropathy, cerebellar ataxia (spinocerebellar degeneration (alcohol cerebellar degeneration) and cerebellar infarct/tumour)
5. Joint, muscle or vision problems
6. Medications
7. Neurological conditions resulting in LOB/unsteadiness: Cervical spondylosis and Parkinson's
8. Hyperventilation: anxiety

Questions:

- Generally would come in with a fall so important to determine the fall was mechanical and due to a loss of balance → before, during, after fall
- Assess if they were lightheaded or experienced vertigo (room was rotating around you)
- PMHx + hearing issues
- If pre-syncopal explore cardiovascular causes (see above)

Investigations: Do Romberg's (cerebellar or sensory ataxia)

- Spinal X-ray
- MRI/CT of spine/brain if thinking neurological conditions
- ECHO/ECG (pre-syncope)

MUSCULOSKELETAL

LIMB/BACK PAIN

Limb Pain:

1. Musculoskeletal system: trauma. Inflammation – polymyositis (muscle disease presenting with aching pain in proximal muscles around shoulders and hips + weakness), polymyalgia rheumatica (pain and stiffness in shoulders and hips, acute/subacute onset of symptoms in multiple locations, >50yo)
2. Skin: Cellulitis, necrotizing fasciitis
3. Vascular system: peripheral arterial disease (acute arterial occlusion – severe pain of sudden onset w/ coolness and pallor), chronic PVD (intermittent claudication) and DVT
4. Nervous system: spinal stenosis (pseud-claudication), nerve entrapment and neuropathy (limb pain w/ paraesthesia's or weakness)
5. Bone disease: Osteomyelitis, Osteoporosis, ostemalacia or tumour
6. SLE (systemic illness with intermittent fevers, photosensitive rash, generalised myalgia and arthralgia,)

Back Pain:

1. Musculoskeletal pain (well localised and aggravated by movement)
2. Spinal nerve root irritation (dermatomal distribution)
3. Malignancy: Infiltration of carcinoma, leukemia or myeloma (progressive, unremitting back pain, worse at night)
4. Crush fracture (osteoporosis) Ankylosing spondylitis (better with activity w/ Achilles tendon Enthesitis, Iritis, Plantar fasciitis and associated with other autoimmune conditions), cervical spondylosis (neck pain)
5. Epidural abscess (IV drug user, can become paraplegic if missed) or haematoma
6. Cauda Equina (bladder + bowel problems – incontinence/retention new onset)

<u>Questions:</u>

- Past history of malignancy (red flag), pain worse at night (red flag for malignancy)
- Age
- Trauma
- IV drug user (discitis from blood borne drugs, epidural haematoma, epidural abscess)
- Recent procedures (catheterization, IV cannula, epidural predisposes to epidural abscess or haematoma)

<u>Investigations:</u>

- MRI for epidural abscess also X-ray
- Full examination of spine and neurovascular assessment of lower limbs

JOINT PAIN/STIFFNESS

Differentials:

1. Trauma: especially in elbow (tennis elbow/golfer's elbow) and knee (meniscal tear, MCL or patella tendon enthesopathy (runner's knee))
2. Osteoarthritis: affecting IP joints, MCP of thumb, acromioclavicular joint, small joints of spine, hips, knees (pain on movement, worse at the end of the day and **stiff** after rest, morning stiffness <30min, slowly progressive deformity, no systemic manifestations. On exam there will be joint effusion, instability, crepitations, limited ROM and muscle atrophy + bony swellings). Secondary (weight-bearing/previously injured joints) is asymmetrical. Primary is symmetrical
3. Rheumatoid Arthritis: affecting hands (PIPs, MCPS and wrist), elbows, small joints of upper C spine, knees, ankle, feet (tarsal and MTPs). Symptoms prolonged with intermittent exacerbations and remissions (palindromic), extraarticular manifestations (fevers, fatigue, inflammatory eye lesions, interstitial fibrosis, heart, nerves and nodules as well as vasculitis). Has functional limitations and deformities. **Stiffness** in the morning
4. Gout: Podagra (MTP big toe) and also small joints of hand, wrist, elbow, knee, ankle and foot. Symptoms pain and inflammation (swelling and redness), subsides over a few days/weeks, can have systemic features (fever and malaise), with asymptomatic intervals
5. Septic Arthritis: Need to be excluded in acute mononeuropathy. Symptoms pain, swelling, erythema, stiffness and fever. Caused by haematogenous spread, bites/puncture wounds/trauma, adjacent osteomyelitis, needle aspiration/injection and surgery
    - Staph Aureus, Streptococci, Neisseria Gonorrhea
6. SLE (systemic illness with intermittent fevers, photosensitive rash, generalised myalgia and arthralgia, mucosal ulcers ad rashes) or other CT diseases

Questions:

- Decreased immunocompetence (age, pre-existing joint disease, HIV, diabetes, IV drugs use) → septic arthritis
- FMHx of conenective tissue disease, RA, gout, OA

Investigations:

- RA: RF and anti-CCP antibodies, CRP, ESR, platelets (all raised)
- X-ray
- Aspirate if considering septic arthritis

JOINT SWELLING

Differentials:

1. Effusion into the joint space
2. Hypertrophy and inflammation of the synovium: RA
3. Bony overgrowth at joint margins: OA
4. Involvement of joint tissues: bursitis, tendinitis, RA
5. Inflammation: Gout, septic arthritis (systemically unwell w/ fever)

Questions:

- Consistency is important in exam – bony, fluid
- Tenderness and warmth → inflammation

Investigations:

- X-ray but could do CT/MRI for soft tissue swellings

JOINTS GIVING WAY/LOCKING

Differentials:

1. Dislocation
2. Muscle weakness
3. Ligamentous problems

FUNCTIONAL DIFFICULTIES

Above causes but be able to do a functional assessment

- Personal ADLs
- Instrumental ADLs
- Important to ask re falls and mobility

HAEMATOLOGY

LYMPH NODE ENLARGEMENT

Differentials:

1. Most common → Infection: EBV (mono/glandular fever) most common infection (severe sore throat, headache, fever, myalgia, nausea and abdominal pain (splenic rupture/enlargement), headache). Also HIV, CMV and Adenovirus
2. Lymphoma: (lymph gland enlargement, malaise, loss of weight, fvever, tiredness)
    - Hodgkin Lymphoma: peak incidence in young people/elderly and males. Risk factors: family hx, EBV, SLE, post-transplant, obesity. PC: enlarged, painless, 'rubbery', superficial LNs (typically cervical, axillary or inguinal). 25% have constitutional upset – fever, weight loss, night sweats, lethargy, pruritis. More common to have systemic signs in HL than NHL
    - Non-Hodgkin Lymphoma (more common than Hodgkin): Diffuse large B cell lymphoma most common. Enlarged lymph nodes (often more than one site and Waldeyer's ring more common in NHL causing sore throat/obstructed breathing), hepatosplenomegaly, and extra-nodal spread (e.g. GI tract)
3. Individual lump: Lymph Node, Lipoma (large and soft), Abscess (tender and erythematous), sebaceous cyst (intradermal), thyroid nodule (attached to thyroid gland)
4. Metastatic solid tumour

Questions:

- Infection features: sore throat, sinusitis, malaise, fever, lethargy
- Family history of lymphoma
- Previous malignancy
- How many lymph nodes are affected

Investigations:

- Marrow and node biopsy, CT/MRI for staging if cancer/lymphoma

ANAEMIA

Symptoms: Weakness, tiredness, dysnea, fatigue, postural dizziness.

Differentials:

1. Deficiencies: Iron deficiency (microcytic anaemia), vitamin B12/folate deficiency (macrocytic anaemias.) Due to bleeding or dietary (veganism/vegetarianism)
2. Anaemia of chronic disease
3. Infection, e.g. malaria
4. Thalassemia
5. Pregnancy
6. Bone marrow/renal failure: cancer

Questions:

- Ask re bleeding – menstrual, GI (melena or haematemesis), any recent surgeries
- PMHx and chronic disease
- Malignancy features

Investigations:

- Iron studies, vitamin B

EASY BRUSING/BLEEDING

Differentials:

1. Thrombocytopenia or platelet dysfunction
2. Coagulation disorders: Vitamin K deficiency, liver disease and congenital causes e.g. Haemophilia and Von Willebrand's disease
3. Senile ecchymoses (loss of skin elasticity with age)
4. Medications (anticoagulants)

Questions:

- Exclude trauma/abuse

PAEDIATRICS

ACUTELY ILL CHILD

Differentials to consider:

1. Bacterial infection (fever, tachycardia and mottled skin)
2. Croup (infectious cause of stridor): stridor + barking cough + hoarse voice. Viral cause is parainfluenza.
3. Respiratory distress:
    - Bronchiolitis: hx of runny nose and cough, poor feeding. RSV most common cause. Typically worsens between days 3-5
    - Asthma: difficult to diagnose under 2yo. Symptoms of wheeze, SOB, cough (including nocturnal), chest tightness, exercise induced symptoms. Atopic hx in patient and family. Triggered by viral illnesses, exercise and allergies.
    - Paediatric pneumonia: cough, hypoxemia, fever, tachypnea, respiratory distress and chest pain
4. Vomiting and diarrhea:
    - Infective gastroenteritis: usually rotavirus, adenovirus or norovirus. Bacterial causes include Salmonella, Shigella and parasitic causes include giardia and cryptosporidium. Symptoms: vomiting, diarrhea and abdominal pain
    - Septicaemia
5. Fever
    - URTI – common cold, tonsillitis, otitis media (runny nose, pulling at ears, fluid avoidance)
    - LRTI – bronchiolitis and pneumonia (cough, chest pain, difficulty breathing)
    - Gastroenteritis/appendicitis – abdominal pain, diarrhea, vomiting, food/fluid intake reduced and urine output reduced
    - UTI – often non-specific symptoms (miserable, vomiting)
    - Meningitis – headache, irritable, reduced level of consciousness (do a CSF culture)
    - Bone/joint infections – limping and not using the limb due to pain

Look for:

- Respiratory distress: tachypnea, nasal flaring, tracheal tug/supraclavicular in drawing/head bobbing, intercostal and subcostal recession, abdominal breathing, grunt, cyanosis

Investigations:

- Look at meningitis and UTI (urine culture) because they may appear asymptomatically

Differentials:

1. Asthma
2. Anorexia
3. IBD: Diarrhea, fever, fatigue, abdominal pain, blood in stool, reduced appetite/weight loss.
4. Cerebral palsy: (low muscle tone/floppy, unable to hold their own head up, muscle spasms or feeling stiff, developmental delay, feeding/swallowing difficulties and prefers to use one side of their body):
    - Physical disability that affects movement and posture – due to damage to the developing brain affecting body movement, muscle control, muscle coordination, muscle tone, reflex, posture and balance. May have visual, learning, hearing, speech and intellectual impairments and epilepsy.
5. Cystic fibrosis: life threatening condition where there is changes in airway surface liquid compositions – predisposes lung to chronic pulmonary infections and bronchiectasis.
    - Neonates: failure to thrive
    - Children and young adults: respiratory symptoms (cough, wheeze, recurrent infections, bronchiectasis, pneumothorax, haemoptysis, respiratory failure, cor pulmonale), GIT symptoms (pancreatic insufficiency causing DM, gallstones, cirrhosis) and other including male infertility, arthritis, vasculitis
    - Diagnosis based on genetics, faecal elastase (pancreatic dysfunction) and sweat test (look at sodium and chloride in the sweat)