OSCE 432

HISTORY TAKING & PHYSICAL EXAMINATION

TEMPORARY File

DONE BY:

Shaimaa Alrefaie

Roqaih AlDoeeb

Hossam AlAwad

Leena AlYahya

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Cardiovascular

1. CHEST PAIN:

1. **Where do you feel it?**
   Retrosternal *(MI)*, Poor localized or diffuse *(PE)*, well-localized *(pericarditis, pleuritis, pneumothorax)*, over skin *(musculoskeletal), (costocondritis)?*
2. **When do you get the pain?**
   Does it come suddenly *(MI)* or *(PE)*, does it come on when you do physical things *(Stable Angina*), Is it worse if you exercise after eating *(GERD)?*
3. **Can you tell me what the pain or discomfort does look like?**
   Is it positional, pleuretic, or tender *(pericarditis, Pulmonary Embolism, Pneumothorax)*, Dull, heavy, or tight *(angina)*, tearing or ripping *(Aortic dissection)* pressure or squeezing *(MI),* burning sensation or metal like taste in the mouth *(GERD)?*
4. **Does pain radiate to anywhere?**
   The medial aspect of the left shoulder or left arm *(MI) and (Angina)*, Only to the right shoulder *(Cholecystitis)*, To the Middle back between the scapulae *(Aortic dissection)?*
5. **Does it go away quickly when you stop exercising?**
   This is a typical picture of Stable Angina
6. **When did the pain come?**
   Is it sudden pain with history of surgery or immobilization *(PE),* Is it sudden pain with pressure like feeling on his chest *(MI)* with unstable symptoms
   Does the pain come with effort and gets relieved by rest *(Stable Angina)*
   Is it coming with eating *(GERD), (Esophageal spasm)* or lying down *(GERD), (Pericarditis)?*
7. **Does pain get worse?**
   With deep breath *(Pericarditis,Pneumonia,),*or certain movements? *(Musculoskeletal problem).*

8. **How long does it last?**
   Less than 15 seconds *(non cardiac; musculoskeletal),* from 2 minutes – 20 minutes *(Angina pectoris, GERD),* more than 20 minutes *(MI, pulmonary disease, Aortic dissection, pericarditis)*
9. **Does it affect your daily activities?** *(Indicates Severity).*
10. **Is it coming associated with any other symptoms?**
    Cough *(pleuritis, PE)*, Difficulty in swallowing *(Esophageal spasm)*, hemoptysis *(PE)*, fever *(Pneumonia).*
11. **Have you had angina before, and is this the same?**
12. **Do you have any other associated symptoms?**
    Shortness of breath on exertion *(cardiac dyspnea),* woken up at night short of breath *(Paroxysmal nocturnal dyspnea [PND]),* have to sleep sitting up *(orthopnoea),* ankle swelling *(Cardiac failure).*

2. SYNCOPE:

1. **How old are you?**
   (Teen; 20s: *vasovagal syncope*), (>45: cardiac syncope), (>60: *hypertensive carotid sinus syncope*), (Aging: *orthostatic hypotension*).
2. **Under what circumstances the syncope occur?**
   When standing for prolonged periods or standing up suddenly *(postural syncope),* or while passing urine *(micturition syncope)*, on coughing *(tussive syncope)* or with sudden emotional stress *(vasovagal syncope).*
3. **Did it occur with excessive exercises?**
   (AS), (hypertrophic obstructed cardiomyopathy), (severe coronary artery disease), (pulmonary hypertension).
4. **Can you describe the fainting?**
   Was it like that the world seems to be turning around *(vertigo due to cerebrovascular disease)*, or was it like impending loss of consciousness *(presyncopal feeling).*
5. **Did you lose your conscious completely? For how long the episode last?**
   If Brief*: (vasovagal syncope), (postural hypotension).*

6. **How did you wake up?**

   Feeling normal *(cardiac syncope)* or drowsy *(seizure)*?

7. **How often have episodes occurred?**
8. **Have you injured yourself or bitten your tongue**? *(Seizure)*
9. **Has anyone seen an episode and noticed jerky movements?**

   Myoclonic jerky movements; "isolated, involuntary*"(cardiac syncope)*, tonic- colonic movements *(Seizure, cerebral hypoxia caused by cardiac arrhythmia).*

10. **Was it precipitated by something unpleasant; sight of blood, occur in crowded, hot room?** *(Vasovagal syncope).*
11. **Was it associated with any other symptoms? Nausea & vomiting?**

    (Present: vasovagal syncope), *(Absent: arrhythmia)*

12. **Are you on any medications?**

    Antihypertensive medications/antidepressants *(Postural hypotension)*, Antiarrhythmic drugs *(prolonged QT)*, Diuretics: excessive use causes *(postural hypotension)* "hypovolemia".

13. **Do you have any cardiac diseases?** *(Cardiac syncope).*
14. **Do you have a history of neurological diseases; seizure or Parkinson's disease?**
15. **Do you have a history of diabetes with neuropathy?** *(Postural hypotension).*
16. **Do you have a family history of sudden death?**

    (arrhythmia), (Brugada syndrome)?

3. PALPITATION:

1. **Is the sensation one of the heart beating abnormally, or something else?**
2. **What are the features of the beats?**
3. Does the heart seem very fast & regular *(supraventricular tachycardia)*, fast & irregular *(Atrial fibrillation)* or slow? Have you counted how fast? Is it faster than it ever goes at any other time, e.g. with exercise? If He/She is young you should think of panic attack.
4. **Does the heart seem regular or irregular: stopping and starting?**
   If it is irregular, is this the feeling of normal heartbeats interrupted by missed or strong beats—ectopic beats; or is it completely irregular? *(Atrial fibrillation).*
5. **How long do the episodes last?**
6. **Do the episodes start and stop very suddenly?**
   (Supraventricular tachycardia; SVT).
7. **Can you terminate the episodes by deep breathing or holding your breath?** *(SVT).*
8. **Is there a sensation of pounding in the neck?** *(Some types of SVT).*
9. **Has an episode ever been recorded on an ECG?**
10. **Have you lost consciousness during an episode?**
11. *(Ventricular arrhythmias)*
12. **Have you had other heart problems such as heart failure or a heart attack in the past?** *(Ventricular arrhythmias)*?
13. **Is there heart trouble of this sort or of people dying suddenly in the family?**
    (*Sudden death syndromes e.g. Brugada syndrome or a long QT interval syndrome)*

14. **Do the heartbeats associated with any other symptoms, such as pain, dyspnea or fainting?** Rapid palpitations followed by syncope suggest *(ventricular tachycardia).*

4. ANKLE SWELLING:

1. **When did the swelling begin?**
2. **Is the swelling Unilateral** *(deep venous thrombosis, cellulitis)* or **Bilateral** *(heart, kidney, liver problems)*?
3. **Does it ascend to involve the legs, thighs, genitalia & abdomen?** *(Progression of HF).*
4. **Is it pitting edema** *(lymphedema)***, or non-pitting edema?**
5. **Does it worse in evenings & improve during the nights?** *(Cardiac origin).*
6. **Does it worsen at end of the day?** *(CHF), (No lymphedema).*
7. **Does it affect the face?** *(Nephrotic syndrome).*
8. **Have you noticed foamy urine?** *(Nephrotic syndrome).*
9. **Do you have diabetes or HTN?** *(Nephrotic syndrome).*
10. **Is there any skin discoloration?** *(DVT).*
11. **Have you been in prolonged state of immobility?** *(DVT).*
12. **Have you noticed prominent veins on your legs?** *(DVT).*
13. **Is there any joint pain? Does it worse with movement or rest?**
14. **What types of food do you eat?** *(Excessive sodium in some types of food).*
15. **Do you take any medication?**

    (e.g.: ACE inhibitor, Calcium channel *blockers (vasodilators),* steroids *(lead to sodium and water retention).*
16. **Do you feel tired or have dry skin, coarse hair, or intolerance to cold?** *(Hypothyroidism).*

17. **Do you have marked weakness or stretch marks on the abdomen?** *(Couching's syndrome).*
18. **Have you had Diarrhea?** *(Protein loss leads to decrease in oncotic pressure).*
19. **Do you have a history of cancer?** *(Lymphatic obstruction).*
20. **Do you smoke? Or have shortness of breath or any cardiac disease?** *(CHF).*
21. **Do you drink alcohol? Or do you have any liver diseases?** *(Liver cirrhosis).*

Respiratory

1. COUGH:

1. **How long have you had the cough?**
   Acute cough less than 3 weeks duration *(Common cold), (Sinusitis)*, *(Acute bronchitis)* or *(pneumonia)*, chronic cough of more than 8 weeks duration: if associated with wheezing *(Asthma),* smoking history *(COPD),* lying down or burning central chest pain *(GERD).*
2. **Do you cough up sputum? How much?**
   If it is chronic and very productive [yellow to green sputum] Dry then productive associated with fever & sometimes dyspnea *(Pneumonia),* Dry and irritating *(interstitial lung disease)*, with frothy sputum *(Pulmonary oedema,* Foul smelling, dark color and purulent sputum *(Lung abscess).*
3. **Do you cough up blood? How much?**
   Large amount of sputum with blood *(Bronchiectasis),* Only with blood *(Bronchial malignancy),* Productive with blood *(TB),* Small amounts of blood with sputum *(Bronchitis).*
4. **Is the cough acute and painful?** *(Tracheitis).*
5. **Does coughing worsen particularly at night?** *(Asthma) or (Heart failure).*
6. **Does the cough worse in morning?** *(COPD).*
7. **Does coughing awake you from sleeping?** (*GERD) or (Heart failure)*
8. **Have you had sinus problems?** *(Upper Respiratory Tract Infection).*
9. **Have you become short of breath?**
10. **Do you suffer from recurrent infections?** *(Cystic fibrosis).*
11. **Have you had lung problems in the past?**
12. **Have you been a smoker? Do you still smoke**? *(COPD).*
13. **Do you take any tablets?** *(e.g. ACE inhibitors usually dry cough).*

2. SHORTNESS OF BREATH:

1. **How long have you been short of breath?**
   Seconds to minutes*:(Asthma), (Pulmonary embolism), (Pneumothorax), Pulmonary oedema) or (Foreign body causing airway obstruction).* Hours to days: *(Cardiac failure), (Exacerbation of COPD), (Asthma), (Pleural effusion) or (Metabolic acidosis).* Weeks or longer: *(Pulmonary fibrosis), (COPD), (Interstitial lung disease), (Pleural effusion) or (Anaemia).*
2. **How does shortness of breath come?**
   Very quickly *(pulmonary embolism)* or instantaneously *(pneumothorax).*
3. **Is it painful to take a big breath?** *(Pleurisy) or (pericarditis)*
4. **Does it associated with any other symptoms?**
   Pleuritic chest pain *(Pneumothorax), (Pneumonia), (Pulmonary embolism)*. Central chest pain *(MI), (Cardiac failure), (large pulmonary embolism).* Feeling of tightness *(Angina).* Absence of chest pain *(Pulmonary oedema), (Metabolic Acidosis), (Pulmonary embolism)*. Presence of cough and wheeze *(Asthma), (Bronchial irritant inhalation), (COPD). Fever (Pneumonia).* Swelling in your leg *(DVT).*
5. **Describe the shortness of breath?**
   Inability to take a breath big enough to fill the lungs and associated with sighing *(Anxiety),* occurs in moderate exertion *(obesity), (lack of physical fitness).*
6. **Does your shortness of breath get worse on any circumstances?**
   Progressively worsen over a period of weeks, months or years (Interstitial lung disease). With dusty weather or any irritants such as smoke (Asthma). At night [PND] (Cardiac failure).
7. **Does your shortness of breath vary from day to day or hour to hour?** (Asthma)
8. **Have you had to sleep sitting up [Orthopnea]?** (Cardiac failure)
9. **How much exercise can you do before your shortness of breath stops you or slows you down? Can you walk up a flight of stairs?** *(Severity)*
10. **Have you been bed ridden for long time or you're not on physical activity?** *(DVT), (PE).*
11. **Do you have weakness of your legs or have you been diagnosed with cancer in your lower limb?** *(DVT), (PE).*
12. **Do you take birth control pills** *(Risk factor of DVT).*

13. **Do you smoke?** *(Risk factor for COPD).*
14. **What is your occupation?**
15. **Have you had heart or lung problems in the past?**
16. **Have you diagnosed with hypertension?**
17. **Are you often short of breath when you are anxious? Do you feel numbness and tingling around your lips when you are breathless?**

3. FEVER:

1. **Have you taken your own temperature? How high has it been?**
2. **How long have you had high temperature? Is it continuous or remittent?**
3. **Have you had shivers and shakes [rigors]?** *(Shaking chills suggest bacteraemia)*
4. **Does it associate with any other symptoms?**
   Diarrhea, abdominal pain, recent abdominal surgery *(IBD), (Diverticular disease), (cholangitis)*. Dental procedure *(Infective endocarditis)*, chest pain *(pericarditis).* Joint symptoms, rashes *(Rheumatology).* Headache *(meningitis), (Cerebral abscess).* Dysuria, renal disease *(Genitourinary system).*
5. **Has anyone you know had a similar illness?**
6. **What medications are you taking?** *(Drug fever).*
7. **Have you had any recently operations or medical procedures?**
8. **Have you travelled recently? Where to?**
9. **Did you take antimalarial prophylaxis and have the recommended vaccinations for your trip?**
10. **Have you had any pets? Have they been sick lately?**
11. **Have you recently had unprotected sexual intercourse or used intravenous drug?** *(HIV)*
12. **Do you have night sweats, weight loss?** *(TB).*
13. **Do you bruise easily? Do you have gum bleeding?**

Gastrointestinal

1. ABDOMINAL PAIN:

1. **Where do you feel the pain?**
   Epigastric area: *(Pancreatitis), (Peptic ulcer), (obstruction of cystic duct), (Dull; MI)*. Right upper quadrant: *(Cholecystitis), (Gall stone)*. Right lower quadrant: *(Appendicitis)*. Left upper quadrant: *(peptic ulcer), (pancreatitis)*. Left lower quadrant: *(Diverticulitis)*. Flank: *(Renal colic), (pyelonephritis)*. Periumbilical *(Small bowel obstruction).*
2. **When did the pain begin? How frequent does it come? How long does it last?**
   Acute pain: *(Appendicitis), (Diverticulitis), (Pancreatitis), (Bowel obstruction)*, (Peritonitis) and *(Cholecystitis)*. Chronic pain: *(IBS), (IBD), (Peptic ulcer disease), (Gastric, small or large bowel cancer), (Coeliac disease)* and *(GERD). Constant pain and Last for hours (Acute cholecystitis)*
3. **Can you describe the character of pain please?**
   Colicky: *(Small bowel obstruction), (Gall bladder stones; RUQ)*, Tearing & hurt the most at its onset: *(Aortic dissection; Epigastric)*, Heart burning*: (Peptic ulcer; Epigastric)*, Dull: *(MI; Epigastric)*, Sharp: *(Appendicitis; RLQ).*
4. **Does it radiate to anywhere?**
   Shoulders: *(Diaphragmatic irritation)*, Right shoulder: *(Cholecystitis), (Biliary colic).* Left shoulder: *(Splenic infarction)*. Back: *(Aortic dissection), (Pncreatitis).* Throat: *(GERD), (Esophageal spasm)*. Groin: *(Renal colic)*. Left arm, neck or jaw: *(MI).*
5. **In which circumstances does the pain get worse?**
   After fatty meal: *(Biliary colic)*. When lying down: *(pancreatitis).* With eating*: (Gastric ulcer).* At night and waking from sleep: *(Peptic ulcer).*
6. **In which circumstances does the pain get better?**
   Antiacids or vomiting: *(Peptic ulcer), (GERD)*. Defecation or passing flatus: *(colonic disease)*. By rolling around *(colicky pain)* or lying perfectly still *(peritonitis).* By food *(Duodenal ulcer).* Sitting up & leaning foreward: *(Pancreatitis).*

7. **Does your abdominal pain associated with other symptoms?**
   Chronic abdominal pain with constipation or diarrhea or both plus bloating: *(IBS).* Bloody diarrhea: *(Ulcerative colitis; UC).* Nausea and vomiting: *(Biliary colic).* Abdominal distention, vomiting and constipation*: (Bowel obstruction).* Fever: *(cholecystitis).*
8. **Have you had a history of relapsing and remitting severe epigastric pain? (***Perforated peptic ulcer).*
9. **Have you traveled to any endemic area?** *(Hepatitis).*
10. **Is there any family history of inflammatory bowel disease** *(IBS), (Coeliac disease)***?**

2. NAUSEA & VOMITING:

1. **Describe what happens during a typical episode?**
   (Rule out rumination).
2. **Was it projectile** *(increased intracranial pressure) or (Pyloric stenosis).*
3. **How long have you been having attacks of vomiting?**
   Acute: *(Gastrointistinal tract infection), (Small bowel obstruction).* Chronic: *(Pregnancy), (Drugs), (Psychogenic vomiting), (eating disorders; Bulimia)* and *(increased intracranial pressure).*
4. **Does the vomiting occur with nausea preceding it, or does it occur without any warning?**
5. **Is the vomiting usually immediately after a meal or hours after a meal?**
   Delayed more than 1 hour after the meal: (gastric outlet obstruction) or (gastroparesis). Early morning vomiting before eating: (Pregnancy), (Alcoholism), (raised intracranial pressure).
6. **What does the vomit look like?**
   Is it bloodstained *(Ulceration), (esophageal varices), (mallory-weiss tear), (Gastro-intestinal bleeding)*, bile-stained? *(Open connection between stomach and duodenum), (Small bowel obstruction)*, old food *(Gastric outlet obstruction).*
7. **Do you have specific vomiting episodes followed by feeling completely well for long periods before the vomiting episode occurs again?**
   (Cyclical vomiting syndrome).

8. **Does vomiting associated with any other symptoms?**
   Abdominal pain *(Bowel obstruction), (Cholecystitis), (choleithiasis)* or *(peritonitis)*, weight loss *(Gastric malignancy, eating disorder),* headache *(Neurological symptoms suggest a central cause).*
9. **What medications are you taking?**
   (Digoxin, opiates, dopamine agonists, chemotherapy).
10. **Have you been diagnosed by Diabetes mellitus?** *(Motor disorders; gastroparesis)*
11. **Have you has a history of hepatobiliary disease?**
12. **Have you had any gastric surgery before?**
13. **Do you drink alcohol?**

3. BLEEDING:

1. **From where have you noticed the bleeding?**
   Was it with vomit *(Upper GI bleeding; Duodenal ulcer)* or stool *(Lower GI bleeding).*
2. **When did it start? How many times? For how long?** Repeated episodes *(significant blood loss).*
3. **What was the color of the vomitus?**
   Fresh bright blood: *(ongoing bleeding)* or coffee-grain stained: *(slowed or stopped).*
4. **Before any blood was seen in the vomitus, did you experience intense retching or vomiting?** *(Mallory-Weiss tear).*
5. **Did the blood come up with the first vomit? Or at the end?** *(Mallory-Weiss tear).*
6. **Have you been taking any drugs?**
   Aspirin: *(potentiate bleeding).* NSAIDs or steroids: *(Peptic ulcer)*
7. **Do you drink alcohol? Do you have liver disease?** *(Esophageal varices).*
8. **Have you ever had a peptic ulcer?** *(Another peptic ulcer).*
9. **Have you passed any black stools or blood in the stools?**
10. **Have you lost weight?** *(Carcinoma of the colon).*
11. **Was the blood mixed with stool or not?**

Mixed blood; dark black tarry stool [Melena]: *(Right sided colonic lesion), (Small bowel lesions), (Upper GI bleeding).* Small amounts of bright-red blood: *(Haemorrhoids), (Local anorectal disease; fissures).*

12.Was there massive rectal bleeding?

(From distal colon), (from rectum), (from major bleeding site higher in the GIT).

13. Did it associated with other symptoms?

Dizziness: *(Indicate significant blood loss)*. Constipation & diarrhea: *(Colon cancer), (UC).*

14.Have you had symptoms like this before?

15.Tell me about your diet recently?

Low dietary fiber Risk factor for *(Diverticulosis), (Haemorrhoids) and (Anal fissures).*

4. DIARRHEA:

1. **How many stools per day do you pass now normally?**
2. **When did your problem start?** Abruptly *(infection)* or Gradually *(IBD), (IBS).*
3. **How do the stools look like [stool form]?**
   Small amounts of formed stool more than 3 times a day and the stools are not loose and stool volume is not increased [Not true diarrhea]: *(Local rectal pathology), (incomplete rectal emptying), (psychological disturbance that leads to an increased interest in defecation).* Watery stool and of high volume *(Secretory diarrhea)*, *(Osmotic diarrhea) or (Abnormal intestinal motility).* The stools contain blood *(Exudative diarrhea)*. The stools are fatty *(Steatorrhea).*
4. **Have you seen any bright-red blood in the stools, or mucus or pus?**
   (Colonic disease).
5. **Are your stools pale, greasy, smelly and difficult to flush away?** *(Steatorrhoea).*
6. **Have you seen oil droplets in the stool?** *(Chronic pancreatitis).*
7. **Are you passing large volumes of stool every day?**
   (Suggests small bowel disease if non-bloody).
8. **Does it disappear with fasting?**
   (Osmotic Diarrhea) **or Persist with fasting?** *(Secretory diarrhea).*

9. **Have you been woken from sleep during the night by diarrhoea?** *(Organic cause more likely).*
10. **In which circumstances does the diarrhea get worse\get better?** Diary product worsens the symptom *(Lactose intolerance)*, Rye wheat or barley worsens the symptom *(Coeliac disease)*, associated with abdominal pain, which is relieved by bowel movements *(IBS).*
11. **Do you have to race to the bathroom to have a bowel movement?** *(Urgency in colonic disease).*
12. **Have you had problems with leakage of stool?** *(Faecal incontinence).*
13. **Have you lost weight?** *(e.g. cancer, malabsorption).*
14. **Have you had recent fever, rigors or chills?** *(e.g. infection, lymphoma)***.**
15. **Have you had any problems with arthritis?** *(e.g. inflammatory bowel disease, Whipple's disease).*
16. **Have you had frequent infections?** *(Immunoglobulin deficiency).*
17. **Have you had treatment with antibiotics recently?** *(Consider Clostridium difficile infection).*
18. **Have you had any recent travel? Where?** *(Consider infections such as Giardia).*
19. **Have you a personal history of inflammatory disease or prior gastrointestinal surgery?**
20. **Have you any history in the family of coeliac disease or inflammatory bowel disease?**

5. CONSTIPATION:

1. **How often do you have a bowel movement?**
2. **Are your stools hard or difficult to pass?**
3. **What do the stools look like [stool form, e.g. small pellets], Any blood in the stools?**
4. **Do you strain excessively on passing stool?** *(Fissures) or (Strictures).*
5. **Do you feel there may be a blockage at the anus area when you try to pass stool?**
6. **Do you ever press your finger in around the anus or vagina to help stool pass?**
7. **Has your bowel habit changed recently?** *(Malignancy).*

8. **Are you on any medications?**
   (Codeine, antidepressants, oraluminium or calcium antacids).
9. **Any associated symptoms?**
   Weight loss *(Malignancy)*, diarrhea, abdominal pain made better by a bowel movement *(IBS).*
10. **Do you have a history of colon polyps or cancer?**
11. **Do you have a history of colon polyps or cancer, hypothyroidism, DM, spinal cord ingury?**
12. **Any family history of colon cancer?**

6. DYSPHADIA:

1. **Do you have trouble swallowing solids or liquids, or both?**
   Solids and liquids suggests *(motor problem, e.g. achalasia)* solids only suggests a *(mechanical problem like cancer or a stricture).*
2. **How long have you had this symptom?**
   (Dysphagia of short duration suggests an inflammatory process).

3. **Where does the hold-up occur (please point to the area)?**
   Lower oesophagus suggests *(mechanical obstruction in the lower oesophagus).*
4. **Is the trouble swallowing intermittent or persistent?**
   Intermittent suggests *(eosinophilic oesophagitis [EoE])*, *(lower oesophageal ring)* or *(motor problem)* EoE also causes acute food impaction.
5. **Has the problem been getting progressively worse?** *(Cancer) or (Stricture).*
6. **Does it associated with other symptoms?**
   Cough or choke on starting to swallow *(Oropharyngeal dysphagia),* hear a gurgling noise when you swallow, bad breath [Halitosis] *(Zenker's diverticulum)*, regurgitate old food *(Distal esophageal obstruction), (Zenker's diverticulum) or (Achalasia),* heartburn or acid regurgitation *(GERD*), weight loss *(Cancer),* asthma or hay fever *(This would be further supportive of EoE).*
7. **Is it painful to swallow [odynophagia]?** *(Acute inflammation of the oesophagus).*

7. JAUNDICE:

1. **How did the skin discoloration start?** *Sudden* (Choledocholithiasis) *Gradual* (Cancer in the head of the pancreas)
2. **Have you noticed any changes in your stool & urine color*?***
   Pale stool and dark urine [increased conjugated bilirubin] *(Obstructive jaundice),* normal stool and dark urine [increased conjugated & unconjugated bilirubin] *(Hepatic problem),* normal stool & urine color [increased unconjugated bilirubin] *(Pre-hepatic problem).*
3. **Do you have any skin itching [Pruritus]?**
   Primary skin disorders: *(Asteatosis [dry skin], urticarial, dermatitis herpitiformis) or*
   Systemic conditions: *(Biliary obstruction, cholestasis, iron deficiency, polycythemia rubra vara, DM, hypothyroidism, hyperthyroidism, carcinoid syndrome)*
4. ***Does it associated with other symptoms?***
   Fever (Cholangitis), (Hepatitis), change in your appetite or weight (Malignancy), abdominal pain that radiate to the right shoulder and worsen by eating fatty food (Choledocholithiasis)
5. **Have you had any vomiting of blood or passage of dark stools?**
6. **Do you drink alcohol? How much? How long?**
7. **Have you ever used intravenous drugs or tattoos?** (Hepatitis B or C).
8. **Have you ever had a blood transfusion?** (Hepatitis B or C).
9. **Have you started any new medications recently or used herbals?** (TB medications and herbals cause hepatotoxicity).
10. **Have you had any recent contact with patients with jaundice or liver problems?**
11. **Have you any history of recent high-risk sexual behaviours?** *(Hepatitis).*
12. **Have you travelled overseas to areas where hepatitis A is endemic?**
13. **Have you been immunized against hepatitis B?**
14. **Have you any history of inflammatory bowel disease?** *(Primary sclerosing cholangitis).*
15. **Have you had any surgeries (e.g. pancreatic or biliary)?**
16. **What is your occupation (contact with hepatotoxins)?**
17. **Is there any family history of liver disease?**

Genitourinary

1. FLANK PAIN:

1. **Where do you feel the pain?**
   Moderate flank or back pain *(Pyelonephritis)*, Suprapubic *(cystitis), severe loin pain (renal calculi).*
2. **How your symptoms started?**
   Sudden onset *(Renal colic)*, Gradual onset *(Pyelonephritis)*.
3. **How long have you experiencing this symptom?**
   Hours to 1 week *(Renal colic, Pyelonephritis)*, weeks to months *(renal cysts or malignancy).*
4. **Can you describe your pain?**
   Sharp or colicy pain *(Renal colic)*
5. **Do you feel the pain in other areas?**
   Referred to testis *(Renal colic)*, referred to distal urethra *(Bacterial cystitis)*, referred to lumbosacral spine, ingunal canal or lower extremities *(Acute prostatitis)*
6. **Does urination relieve the pain?** *(Cystitis).*
7. **Is it constant or intermittent pain?**
8. **Of scale 0 – 10 and 10 is the most sever, how can you grade your pain?**
   Very severe *(Renal colic).*
9. **Have you ever had renal stones?** *(Patient who had renal stones is more likely to have it again).*
10. **Do you have any associated symptoms?**
    Fever *(UTI; Pyelonephritis)*, weight loss or decreased appetite *(Urinary tract malignancy).*
11. **Are you urinating more frequently than usual during the day?**
    (Urinary tract infection), (Benign prostatic hyperplasia; BPH).
12. **Do you feel a strong sensation that you need to urinate immediately?**
13. **Is the urge to urinate so immediate that you sometimes urinate before you get to the bathroom?** *(Acute cystitis), (Upper motor neuron lesions).*

14. **Do you have pain during urination? How long have you had this pain?**
15. 1-2 days: *(Bacterial cystitis), (Acute bacterial prostatitis), (Bacterial epididymitis).*
    2-7 days: *(Urethritis), (epididymitis), (gonorrhea, chlamydia, herpes simplex virus)*
16. **At what point during urination does your pain occur?**
    At the beginning *(urethritis)*, at the end *(cystitis or prostatitis).*
17. **Is you urinary stream weaker than usual?** *(BPH).*
18. **Does it take longer than usual to start urinate?** *(BPH).*
19. **Do you experience dribbling or slow urine flow at the end of urination?** *(BPH).*
20. **Do you notice red discoloration of the urine?** *(Urinary tract malignancy).*
21. **When does red urine occur?**
    At the beginning: *(Urethral causes)*. Late: *(from the trigone of the bladder, or its neck).*
    Total: *(from any site other than the bladder or the urethra).*
22. **Is it painful when you pass this red urine? Is it painful before or after urination?**
    Painless haematuria *(Urologic malignancy)*, painful before urination *(Stones)*, Painful after urination *(Clot colic due to arteriovenous malformation), (Malignancy).*
23. **Do you notice any clots of your red urine?**
24. **Have you undergone a urinary catheter procedure?**
25. **Do you take warfarin or aspirin?** *(Causing hematuria)*

2. NEPHROTIC SYNDROME:

1. **Do you have swollen legs?**
2. **When did it start?**
3. **Where is the level of the swollen legs? Does it ascend to involve the legs, thighs, genitalia & abdomen?** *(To estimate the level of edema).*
4. **Do you have buffy eyes?**
5. **Do you have abdominal pain? Or vomiting?** *(Fluid retention is progressive).*
6. **Are you short of breath?** *(Pulmonary edema).*
7. **Do you have foamy urine?** *(Proteinuria).*
8. **What is the amount of your urine?** *(Decrease urine output).*

9. **Do you notice blood in the urine?** *(Wegener's granulomatosis),(Goodpasture's syndrome), (IgA nephropathy).*
10. **Do you have itching?** *(Uremia).*
11. **Do you have sinusitis?** *(Wegener's granulomatosis).*
12. **Do you cough blood?** *(Wegener's granulomatosis), (Goodpasture's syndrome).*
13. **Do you notice weight change lately?** *(Due to Edema).*
14. **Have you been ill lately?** Infection within 1-3 days: *(IgA nephropathy).* Infection within 1-3 weeks**:** *(post-streptococcal glomerulonephritis).*
15. **Do you have diabetes or hypertension?** *(Nephrotic syndrome).*
16. **What medications are you taking?** *(Some medications cause nephrotic syndrome).*
17. **Have you diagnosed with inflammation of the kidneys?** *(Recurrence of nephrotic syndrome).*
18. **Have you diagnosed with SLE or hepatitis?** *(Nephrotic syndrome).*

3. ACUTE KIDNEY INJURY:

1. **How did your kidney problems begin? Have you been tired lately?**
2. **Have you had the need to pass urine at night?**
3. **Were you told there was inflammation of the kidneys?** *(Glomerulonephritis).*
4. **Have you had kidney infections recently or as a child?**
5. **Have you had kidney stones or urinary obstruction?**
6. **Have you passed blood in the urine?**
7. **Have you had problem with rashes or arthritis?**
8. **Have you had problems with swelling or shortness of breath?**
9. **Do you have itching?**
10. **Have you recently lost a large amount of blood?**
11. **Have you diagnosed with diabetes or hypertension?**
12. **Have you had cardiovascular or peripheral vascular diseases?**
13. **Is there a history in the family of enlarged kidneys and high blood pressure?**
14. **What medications are you taking?**

When taking the history

- Ask about the main symptom the patient presented with.
- Ask about obstructive and irritative symptoms.
- On taking history of acute kidney injury case, you are trying to find the cause of decreased renal function.

Haematology

1. ANEMIA

1. **How was the problem diagnosed** [Routine tests or symptoms]?
2. **What symptoms have you had** (e.g. tiredness, fatigue, dyspnoea, faintness, palpitations, headache, tinnitus, anorexia—and angina if there is pre-existing coronary artery disease.)**?**
3. **Where do you live?**
   People of Mediterranean or southern Asian origin *(Thalassaemia)*, common in KSA; in the East and South *(sickle cell disease).*
4. **Have you noticed any bleeding from the bowel, or vomited any blood?** (GI Blood loss; Iron deficiency anaemia).
5. **Have you noticed black bowel motions "Melena"?** (GI Blood loss: Anaemia of chronic disease).
6. **Have you had problems with stomach ulcers or inflammation of the bowel** (colitis) **or previous bowel operations?** (May cause anaemia due to malabsorption).
7. **Have you been taking arthritis tablets or blood thinning tablets?**(Anaemiaof chronic illness).
8. **Have you had problems with your kidneys or a chronic severe arthritis?** (Anaemia of chronic disease)
9. **Have you had a recent operation or procedure?** (Blood loss)
10. **Have you done Gastrectomy or Atrophic gastritis before?**
    (Pernicious anaemia), (B12 deficiency anaemia) due to impair absorption.
11. **Have you had Previous resection of the stomach or terminal ileum?**
    (B12 deficiency)

12. **Do you have serious gastrointestinal disease?**
    (folate and iron deficiency because of malabsorption).
13. **Have you had heavy periods?** (Iron deficiency anemia)
14. **Are you on any medications?**
    e.g over-the-counter aspirin, Anti-inflammatory drugs or anticoagulants such as warfarin(Cause of bleeding) or chemotherapeutic agents, Chloraphenicol and Sulphonamides (Bone Marrow Failure).
15. **Have you ever needed a blood transfusion?**(anaemia due to myelofibrosisor bone marrow failure may have included regular blood transfusions).
16. **Have been generally unwell or had problems withrecurrent infectionsor chronic malarial infection or intestinal parasitic infection?** (Chronic anaemia)**. or ulcers?**
17. **Is there a history of anaemia in the family** (Haemoglobinopathy: thalassemia & sickle cell anemia) **Do you know what thec ause was?**
18. **Have you been in area where malaria is endemic?**

2. BLEEDING & BRUSING

1. **Where is the site of bleeding?**
   Superficial bleeding; (vascular or platelet disorders), deep bleeding (coagulating diorders).
2. **Do you regularly bleed from this site?** (Recurrent bleeds at a single site suggest a local structural abnormality).
3. **Have you always had problems with bleeding?**
   Acquired coagulation disorders: (vitamin K deficiency), (liver disease), (Anticoagulants e.g. heparin, warfarin), (Disseminated intravascular coagulation;DIC). Congenital coagulation disorders: (Haemophilia A), (Haemophilia B), (Von Willebrand's disease).
4. **Did you have trauma or surgery caused this bleeding, or was it bleed spontaneously?** (to asses the severity of the condition).
5. **Do you have bubbling or tingling feeling in your joint? Do you have painful or stiff joints?** (Hemophilia)

6. **Have you had any surgeries before?**
   Does the bleeding start immediately after surgery: (defective platelet plug formation) or hours after surgery: (indicative of failure of platelet plug stabilization by fibrin due to a coagulation defect).
7. **Is there a history of same problem in the family?** (Hereditary)
8. **Do you have any other disease?**
   Liver disease causes (coagulation defect) whereas renal failure: (elevation of uremia level causing platelet dysfunction).
9. **Have you had any bleeding** (gum, nose) **how much blood have you lost?**
10. **Are you easily get bruises?**
11. **Have you had heavy periods?**

Endocrine

1. HYPOTHYROIDISM

1. **Have you found cold weather more difficult tocope with recently [Cold intolerance]?** **(Hypothyroidism)**
2. **Have you had problems with constipation?***(Hypothyrodism), (Hypercalcemia).*
3. **Have you been troubled with fatigue?**
   (Hypothyroidism), (Addison's disease), (DM), (Anaemia), (Connective tissue disease), (chronic infection).
4. **Have you gained weight?** A loss of appetite with weight gain *(Hypothyroidism)*
5. **Have you noticed that your skin has become dry?**
   Coarse, pale and dry *(Hypothyrodism),* dry and scaly *(Hypoparathyrodism)*
6. **Do you think your memory is not as good as it was? Have you felt depressed?** *(Hypothyroidism)*
7. **Do you think your voice has become hoarse?**
   Slow and nasal *(Hypothyroidism)*
8. **Do you feel muscle pain or weakness?**

9. **Do you feel numbness or pain in your hands or any part of your body?** (Peripheral neuropathy)
10. **Have you noticed enlargement in the front of your neck?** (Goiter)
11. **Do you take any medication?**
    "Lithium, amiodarone (antiarrhythmic), treatment of thyrotoxicosis can cause hypothyroidism "
12. **Have you noticed swelling around the eyes [**Periorbital puffiness]? *(Hypothyroidism)*
13. **How is your menstrual periods? is it irregular ? have you noticed changes in the amount ?**

2. HYPERTHYROIDISM

1. **Have you had any history of thyroid problems?**
2. **Have you had a family history of thyrotoxicosis?**
   (There is a familial incidence of Graves' disease and associated autoimmune conditions such as vitiligo, Addison's disease, pernicious anaemia, type 1 diabetes, myasthenia gravis and premature ovarian failure)
3. **have you noticed enlargement in the front of your neck ?**
   (Graves' disease), (toxic multinodular goiter), a solitary nodule *(toxic adenoma)*painless, postpartum or subacute *(thyroiditis)*
4. **Have you taken amiodarone or thyroxine?**
   (*Amiodarone* contains large quantities of iodine, can cause thyrotoxicosis in up to 12% of patients in low iodine-intake areas. *Thyroxine* is sometimes taken by patients as a way of losing weight)
5. **Have you had recent exposure to iodine?**
   (Iodinated X-ray contrast materials can precipitate thyrotoxicosis—usually in patients with an existing multinodular goitre)
6. **Have you had palpitations***?*
   (Thyrotoxicosis can present with atrial fibrillation, which may precipitate heart failure)
7. **Have you noticed insomnia, irritability or hyperactivity?**
8. **Have you had loss of weight ?** *(thyrotoxicosis),(uncontrolled diabetes mellitus)*
9. **Have you had diarrhoea or increased stool frequency?** *(hyperthyroidism)*

10. **Have you had increased sweating or heat intolerance?** *(hyperthyroidism), (phaeochromocytoma), (hypoglycaemia) and (acromegaly).*
11. **Have you had tremor?**
12. **Have you had muscle weakness?**
13. **Have you had eye problems such as double vision, grittiness, redness or pain behind the eyes?**

3. DIABETIS MELITIS

1. **How old are you?**
   Young age (type 1 diabetes) older age (Type 2 diabetes)
2. **Have you been tired lately?**
3. **Have you noticed any mood changes?**
4. **Have you been drinking more water and passing more urine than usual?** Hyperglycemia
5. **Does you wake up at night to urinate?**
6. **Have you noticed a change in eyesight -particularly an inability to focus?**
7. **Have you lost weight without trying?**
   Thin patient (Type 1) Obese patient (Type 2)
8. **Have you developed generalized itching without rash?**
9. **Have you developed genital thrush?** Due to low immunity
10. **Since when have you had all these symptoms?**
    Weeks (Type 1) Months to years (Type 2)
11. **Do you have any other relatives with diabetes?**
    Negative family history (Type 1) Positive family history (Type 2)
12. **Are you taking any other medicines such as steroids?**
13. **Have you had pancreatitis or malabsorption or pancreatectomy?**
14. **Do you have any auto- immune disease?** More common it type 1
15. **Have you noticed parsethsia on your legs?** *(Complication of DM)*
16. **Have you noticed any ulcers on your legs?** *(Complication of DM)*
17. **Do you have chest pain***? (Complication of DM)*
18. **Have you noticed decrease amount of urine***? (Complication of DM)*

4. CUSHING'S DISEASE

1. **Have you gained a lot of weight recently? How much?**
2. **Do you bruise easily?**
   (Due to loss of perivascular supporting tissue-protein catabolism).
3. **Has your skin become thin?**
4. **Have you noticed any skin pigmentation?**
   (Because of melanocyte stimulating-hormone like activity in the ACTH molecule)
5. **Have you had problems with acne?**
   (To see if adrenal androgen secretion is also increased).
6. **Have you felt agitated and been unable to sleep?**
7. **Have you had problems with weakness of your muscles or difficulty getting up out of chairs?**
   (Proximal myopathy) (Due to mobilization of muscle tissue or excessive urinary potassium loss).
8. **Have you had problems maintaining erections (men) or had amenorrhoea (women)?**
9. **Have you been diagnosed with diabetes?**

Rheumatological Examination

Introduction: (WIP³E)

Wash hands: wash your hands in front of the examiner or bring sanitizer with you

Introduce yourself and check patient's name: my name is _____ , I'm a third year medical student, what is your name?

Permission after explaining the examination: I'm going to do physical examination for your (hand or knee) which involve look, feel and move your joints, Is that ok with you?

Position: the position is (sitting) in hand examination. (Standing up), then (supine) for knee examination

Privacy: close the curtain or the door, If there is no one of them you have to say "I Should maintain patient privacy"

Exposure: in the hand from (hand to elbow) and in the knee from (knee to the thigh)

General appearance: (ABC²DE)

"Always stand in the end of the bed when you are doing general inspection"

Appearance: The patient is (young, middle aged or old) and looks well

Body built: He looks (normal, thin or obese)

Connections: Around bed I can't see any medications or any equipment connecting to the patient

Color: He doesn't look pale or jaundiced

Distress: The patient look comfortable and he doesn't appear short of breath and he doesn't use accessory muscles

Else: He is conscious

ALWAYS COMPARE WITH THE OPPOSITE SIDE

ASK THE PATIENT IF THEY HAVE ANY PAIN

1. Hand examination

First put the patient's hands on a pillow

A- Look

Nails: pitting and onycholysis (Psoriasis), splinter hemorrhage (SLE)

Fingers: discoloration (Raynaud's phenomenon), digital infarction (Scleroderma)

Dorsum: scars (Rheumatoid nodule scar), deformity (e.g. Swan neck), muscle wasting (Rheumatoid arthritis), skin changes like tightness (Scleroderma) or psoriatic plaques (psoriatic arthritis), rheumatoid nodules (Rheumatoid arthritis)

Palm: scars (Carpal tunnel release surgery), deformity (e.g. Dupuytren's contracture), swelling (Carpal tunnel syndrome), palmar erythema (Inflammation), muscle wasting in thenar or hypothenar (Carpal tunnel syndrome).

MCP JOINT: METACARPOPHALANGEAL JOINT

PIP JOINT: PROXIMAL INTERPHALANGEAL JOINT

DIP JOINT: DISTAL INTERPHALANGEAL JOINT

DON'T FORGET TO LOOK TO THE ELBOW FOR RHEUMATOID NODULES OR ANY SKIN CHANGE LIKE PSORIATIC PLAQUES

B- Feel:

Dorsum:

1. Feel the temperature by dorsum of your hand in wrist and MCP (Septic arthritis)
2. Check for any tenderness or swelling by pressing on the wrist, MCP joint, PIP joint and DIP joint (Rheumatoid arthritis) and anatomical snuffbox (Scaphoid fracture)

DON'T FORGET TO LOOK TO THE PATIEN'T FACE WHEN YOU PRESS

Palm:

3. Muscle wasting in thenar or hypothenar (carpal tunnel syndrome)
4. Radial pulse (ensure adequate arterial supply)

Elbows:

- Check for any rheumatoid nodules (Rheumatoid arthritis)

Sensation:

- Thenar eminence (Median nerve)
- Hypothenar eminence (Ulnar nerve)
- First dorsal web space (Radial nerve)

C- Move:

Active movement:

- wrist extension, wrist flexion, finger flexion, finger extension, finger abduction and thumb opposition

Passive movement:

- do flexion and extension of patient' s wrist and feel for any crepitus and noting patient's face for any pain. Also, do flexion and extension for every joint in fingers to check for any subluxation or dislocation

Assist power:

- finger extension (Radial nerve), finger abduction of index finger (Ulnar nerve) and thumb abduction (Median nerve)

D- Functions:

Power grip: "Hold my fingers and don't let me pull it

Pincer grip: "Place your thumb and index finger against my index finger

Pick up a small object: like a coin

F- Special tests:

Phalen’s test:

- used to assess for carpal tunnel syndrome, examine it by asking the patient to flex both wrists (dorsum on the dorsal, and the wrist should be in 90°) and the patient should wait for 30-60 seconds and if the patient feel tingling and numbness in the thumb, index, and middle fingers that’s mean the test is positive

Tinel's test:

- used to assess for carpal tunnel syndrome examine it by tapping over the median nerve at flexor retinaculum which lies in the proximal part of the palm and if the patient feel tingling and numbness in the thumb, index, and middle fingers that’s mean the test is positive

2. Knee examination

A- Look

Ask the patient to stand up

Front:

- asymmetry, scar (Previous surgery or trauma), deformity (Varus), swelling (Septic arthritis), quadriceps wasting (Rheumatoid arthritis), redness (Septic arthritis)

Back:

- baker’s cyst (Rheumatoid arthritis)

B- Feel:

Ask the patient to lying down

- Feel the temperature by dorsum of your hand in the surrounding areas of patella (Septic arthritis)
- Ask the patient to flex their knee slightly and check for any tenderness by pressing the border of the patella and around the patella (Septic arthritis)

- Check for any swelling behind the knee (Baker's cyst)

Effusion Exam:

✓ Patellar tap test: used to assess large effusion
✓ Milking sign: used to assess small effusion

C- Move:

Active movement:

- flexion knee, extension knee and hyperextension of knee by lift the leg off the bed

Passive movement:

- do flexion and extension of patient's knee and feel for any crepitus and noting patient's face for any pain

D- Functions:

- Ask the patient to walk and look for any limping or obvious abnormalities

F- Special tests:

Anterior and posterior drawer tests:

- used to assess for anterior and posterior cruciate ligaments, examine it by flex the patient's knee 90 degrees and sit on the patient' s foot and pull forward and push backward the leg, If there is movement when pull forward suggest anterior cruciate ligament damage and vice versa.

Collateral ligament test:

- used to assess for medial and lateral collateral ligament, examine it by holding the leg with slightly flexed of the knee and attempt to bend the lower leg medially and laterally, If it is possible to bend the lower leg medially suggest lateral collateral ligament damage and vice versa.

McMurrays test:

- used to assess for meniscal damage, examine it by putting your left hand on the knee joint and by right hand hold the foot, then flex the knee and attempt to bend the lower leg medially with extension of the leg, also laterally with extension of the leg, If the patient feel pain or you feel click on your left hand that’ s mean the test is positive.

Apley's grinding test:

- used to assess for meniscal damage, examine it by asking the patient laying prone (face-down) and flex the knee 90° and place your knee in patient thigh then hold the lower leg and attempt to bend the lower leg medially and laterally, If the patient feel pain that’ s mean the test is positive

Thyroid Examination

Introduction: (WIP³E)

Wash hands: Wash your hands in front of the examiner or bring sanitizer with you

Introduce yourself and check patient's name: My name is _____ , I'm a third year medical student, what is your name?

Permission after explaining the examination: I'm going to do physical examination for your thyroid gland which involve look, feel and listen to your neck by stethoscope, Is that ok with you?

Position: The position should be sitting

Privacy: Close the curtain or the door, If there is no one of them you have to say "I Should maintain patient privacy"

Exposure: Full head and neck

ASK THE PATIENT'S NAME FOR ANY CHANGE IN VOICE WHICH INDICATE TO HYPOTHYROIDISM

General appearance: (ABC²DE)

"Always stand in the end of the bed when you are doing general inspection"

Appearance: The patient is (young, middle aged or old) and looks well

Body built: He looks (normal, thin or obese)

Connections: Around bed I can't see any medications or any equipment connecting to the patient

Color: He doesn't look pale or jaundiced

Distress: The patient look comfortable and he doesn't appear agitation (hyperthyroidism) and he doesn't appear short of breath and he doesn't use accessory muscles

ELSE: He is conscious

1. Peripheral Examination

Hands:

Check for:

Hands:

- symmetrical warm (Warm in hyperthyroidism and cold in Hypothyroidism), fine tremor (hyperthyroidism)

Nails:

- thyroid acropachy (Graves' disease), onycholysis or Plummer' s nails (Hyperthyroidism)

Fingers:

- peripheral cyanosis (inadequate circulation)

Palm:

- sweating (Hyperthyroidism), palmar erythema (Hyperthyroidism), yellow skin (hypercarotenemia due to Hypothyroidism), pallor of palmar creases (Anemia)

Radial Pulse:

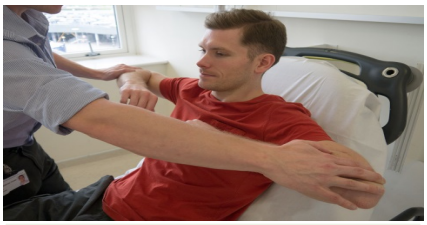
- tachycardia or irregular rhythm (Atrial fibrillation) in hyperthyroidism and bradycardia in hypothyroidism
- Tell the examiner that you have to check the patient's blood pressure: hypertension both in hypothyroidism and hyperthyroidism

Pemberton's sign: Ask the patient to lift both arms as high as possible and wait a few then look for signs of plethora, cyanosis, distended neck veins, respiratory distress and inspiratory stridor

Shoulder

Check for:

- Pemberton’ s sign (substernal goiter)
- Proximal myopathy (hyperthyroidism or hypothyroidism)



Examine Proximal myopathy

The Face

Check for:

- Facial puffiness (Hypothyroidism)

Eyes

Check for:

1. Exophthalmos: Abnormal protrusion of the eyeball (Graves' disease)
2. Chemosis: Edema of the conjunctiva (hyperthyroidism)
3. Lid lag: Hold your finger high & ask the patient to follow it with their eyes and rapidly move your finger downwards (Graves' disease)
4. Lid retraction: Upper eyelid is displaced superiorly or the lower eyelid inferiorly and the sclera is visible around the iris (Graves' disease)
5. Loss of the outer third of the eyebrows (Hypothyroidism)
6. Assess visual fields (Graves' disease)

EXOPHTHALMOS: INSPECT IT FROM THE FRONT, SIDE AND ABOVE

Mouth

Check for:

- Large tongue (Hypothyroidism)

In the Lower limb:

Check for:

- Pretibial myxedema (Graves' disease)
- Ankle reflex: hyperreflexia in hyperthyroidism and delayed relaxation in hypothyroidism

2. Local examination

Inspection

Check for

1. Scars
2. Swelling
3. Ask the patient to swallow or drink water and watch the movement of any swellings
4. Ask the patient to stick his tongue out and watch if the swelling is movement (Thyroglossal cyst)

Palpation

(STAND BEHIND THE PATIENT)

Check for

1. Press on one side and fell from another side
2. Ask the patient to swallow or drink water and feel the movement of any swellings
3. Feel if there is any bruit
4. Cervical lymph nodes
5. Tracheal deviation: from anterior

Percussion

- Over the sternal notch and clavicle: dullness may indicate a large thyroid mass (Substernal goiter)

ASK THE PATIENT TO TAKE A DEEP BREATH THEN HOLD IT, WHILE IS HOLDING HIS BREATH CHECK THE BRUIT BY THE BELL

Auscultation

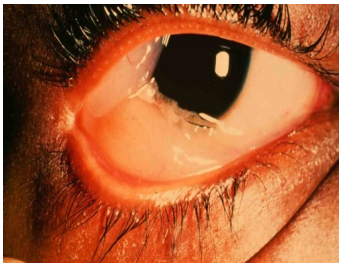
Check for

- Bruit in both lobes (Graves' disease)

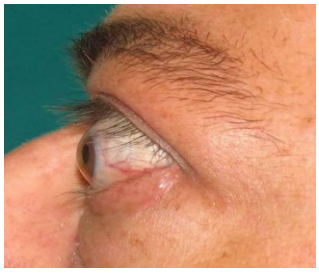
To complete the examination

- Auscultate the heart for any systolic murmurs and the lung bases for any crepitations

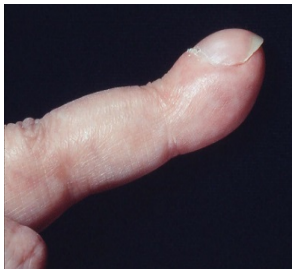
Onycholysis



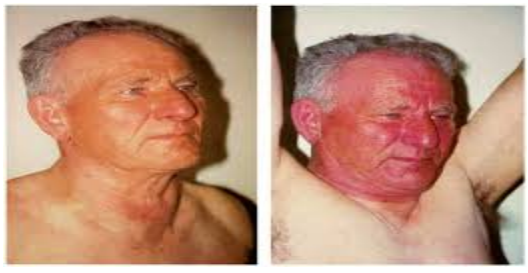
Chemosis



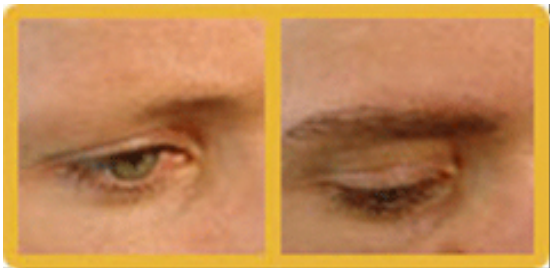
Exophthalmos and upper lid retraction



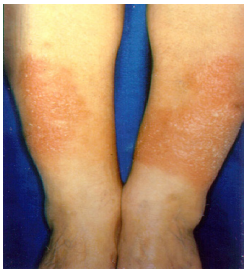
Thyroid acropachy



Pemberton's sign



Loss of the outer third of the eyebrows



Pretibial myxedema

QUESTIONS

What is the Graves' disease?

It is an autoimmune disorder that leads to overactivity of the thyroid gland (hyperthyroidism)

What are the causes of hyperthyroidism?

Graves' disease, Plummer's disease, toxic thyroid adenoma, excessive intake of thyroid hormones and excessive iodine intake

What are the causes of hypothyroidism?

Hashimoto's thyroiditis, treatment for hyperthyroidism, thyroid surgery, iodine deficiency and medications (e.g. Lithium)

What is the difference of hypertension between hyperthyroidism and hypothyroidism?

Hyperthyroidism increase of systolic pressure (*wide pulse pressure)* and hypothyroidism increase of diastolic pressure (*narrow pulse pressure*)

What are the causes of anemia in thyroid disease?

Chronic disease, folate deficiency, B12 deficiency, iron deficiency

What is the difference between hyperthyroidism and thyrotoxicosis?

Hyperthyroidism is the hyperactivity of the thyroid gland and thyrotoxicosis is the clinical syndrome that results when tissues are exposed to high levels of circulating thyroid hormone

Haematological Examination

Introduction: (WIP³E)

Wash hands: Wash your hands in front of the examiner or bring sanitizer with you

Introduce yourself and check patient's name: My name is _____ , I'm a third year medical student, what is your name?

Permission after explaining the examination: I'm going to do physical examination for your body which involve looking at your hand and face, and feel some of your pulses, Is that ok with you?

Position: The position should be sitting

Privacy: Close the curtain or the door, If there is no one of them you have to say "I Should maintain patient privacy"

Exposure: All over the trunk

General appearance: (ABC²DE)

"ALWAYS STAND IN FRONT OF THE PATIENT WHEN YOU ARE DOING GENERAL INSPECTION"

Appearance: The patient is (young, middle aged or old) and looks well

Body built: He looks (normal, thin or obese)

Connections: Around bed I can't see any medications or any equipment connecting to the patient

Color: He doesn't look pale or jaundiced

Distress: The patient look comfortable and he doesn't appear short of breath and he doesn't use accessory muscles

ELSE: He is conscious

example: The patient looks well, lying comfortably on the bed, not distressed, the patient is having good body shape, and he is not connected to I.V lines nor oxygen mask.

Hand

Check for:

Hands: symmetrical warm (Hypovolemia)

Nails: cyanosis (Hypoxemia), koilonychias (iron deficiency anemia)

Fingers: peripheral cyanosis (inadequate circulation), nicotine staining (Smoking), digital infarction (Abnormal globulins), gouty tophi (Myeloproliferative disease)

Palm: pallor of palmar creases (Anemia)

Dorsum: arthropathy (Hemophilia)

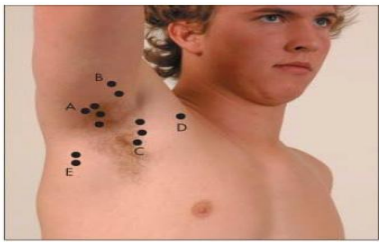
Radial Pulse

THE BEST METHOD TO CHECK FOR EPITROCHLEAR LYMPH NODES IS TO FLEX THE PATIENT'S ELBOW TO 90°, ABDUCT THE UPPER ARM A LITTLE AND PLACE THE PALM OF YOUR HAND UNDER THE PATIENT'S ELBOW

Tell the examiner that you have to check the patient's blood pressure

Epitrochlear and Axillary lymph nodes

- Axillary lymph nodes: central, lateral, pectoral, infraclavicular, subscapular
- A: central B: lateral C: pectoral D: infraclavicular E: subscapular



The Face:

Eyes:

- Pallor in conjunctiva (Anemia)
- Jaundice in sclera (Hemolytic anemia)
- Conjunctival suffusion (Polycythemia)

Conjunctival pallor suggests anemia and is more reliable than examination of the nail beds or palmar creases

If there is swollen lymph nodes describe it as lump

Mouth:

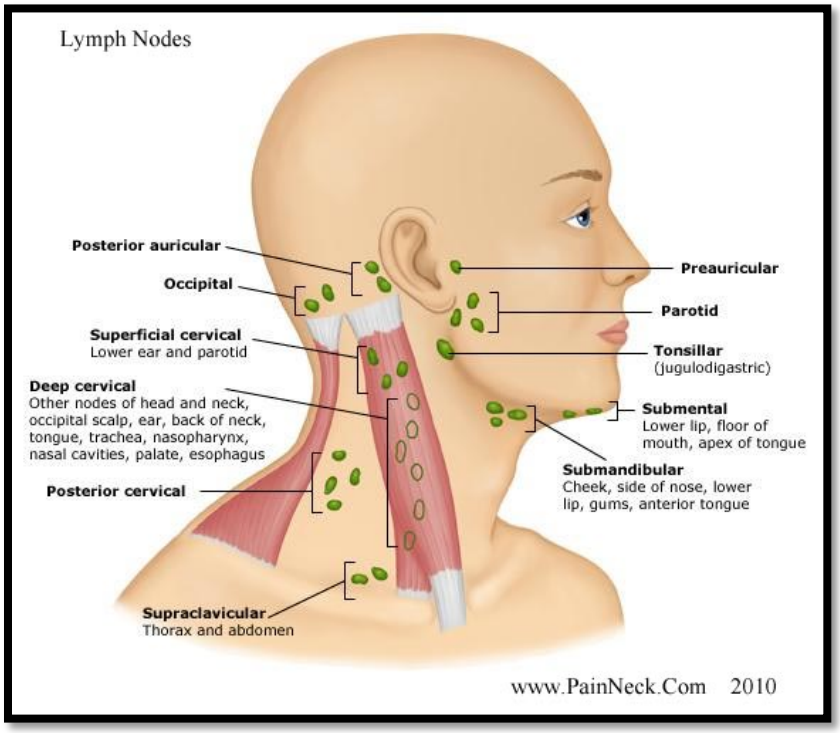
- Angular stomatitis (iron/B12/folate deficiency)
- Glossitis (iron/B12/folate deficiency)
- Ulcers or hemorrhage (Aplastic anemia)
- Gum hypertrophy (Monocytic leukemia)

The Neck

(STAND BEHIND THE PATIENT)

Check for:

- Submental lymph node - submandibular lymph nodes - anterior cervical lymph nodes - posterior cervical lymph nodes - pre-auricular lymph nodes - post-auricular lymph nodes - occipital lymph nodes and supraclavicular lymph nodes
- Ask the patient to raise his shoulder when you examine supraclavicular lymph nodes because it is deep at least 3 cm



In cervical lymph node examine the right side by right hand then when you finish examine the left side by left hand because when you examine it in same time maybe press both of carotid arteries and the patient loss of his conscious especially in old people they have narrowing in carotid artery

Bony tenderness

Check for:

- Spine
- Sternum
- Clavicles
- shoulders (enlarging bone marrow due to infiltration of cancer)

The Abdomen

(LYING FLAT – 1 PILLOW ONLY)

Check for:

- Hepatomegaly (leukemia)
- Splenomegaly (leukemia)
- Para aortic lymph nodes (lymphoma or lymphatic Leukemia)

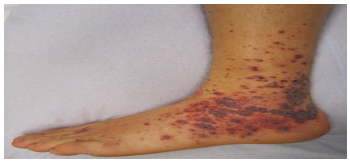
The legs

Check for:

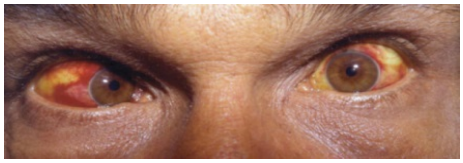
- Vasculitis (henoch-schönlein purpura)
- Bruising (thrombocytopenia)
- Pigmentation (lymphoma)
- Ulceration (hemolytic anemia)
- Neurological signs (B12 deficiency)

To complete the examination

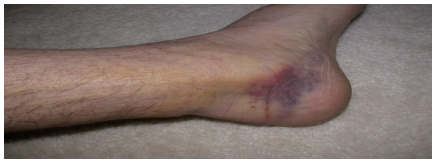
- Perform a Per rectal examination (pelvic examination in a female)
- Perform an examination of the external genitalia
- Check the inguinal nodes
- Fundoscopy exam
- Urine Dipstick



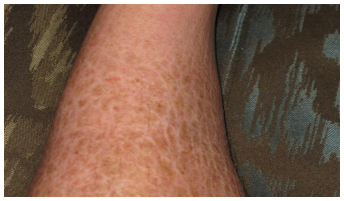
Vasculitis



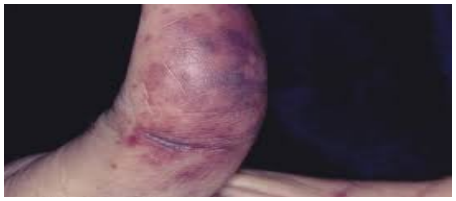
Coniunctival suffusion



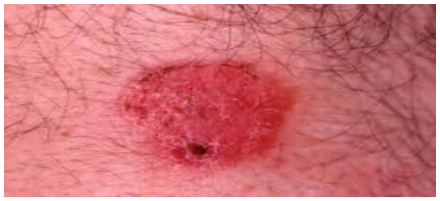
Bruising



Pigmentation



Digital infarction



Ulceration

What are the causes of swollen lymph nodes?

Infections, cancers, Immune system disorders or medications

Neurological Examination

1. Higher mental functions (HMF)
2. Cranial nerves
3. The upper limb (Motor and Sensory system)
4. The lower limb (Motor and Sensory system)
5. Cerebellar examination
6. Gait

1. Higher mental functions (HMF):

Consciousness:

When the patient is fully awake and appropriately answers all questions is called alert and you can use Glasgow Coma Scale for evaluate that

Orientation:

Oriented to person, place, and time by asking the patient's name, present location and the date

Memory:

Recent memory: tell the patient 3 words, then after 3-5 minutes ask to recall them

Remote memory: ask the patient to recall historical events e.g. what's the name of your primary school?

Language: Include Writing And Reading

- Ask the patient to naming something in the room e.g. pen or watch
- Ask the patient to repeat the phrase "no ifs, ands, or buts"
- Ask the patient to take a piece of paper and fold it in half and put it beside him\her
- Give the patient something to read it
- Give the patient a piece of paper and ask him\her to write complete sentence

TABLE 38-2
Glasgow Coma Scale

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1

2. Cranial nerves:

#	Name	Both	Examination
I	Olfactory	Sensory	Smell
II	Optic	Sensory	Visual acuity, color vision, visual fields, pupillary reflexes and fundoscopy
III IV VI	Oculomotor, Trochlear, Abducens	Motor	Eye movements
V	Trigeminal	Both	Sensory: light touch, pinprick sensation and corneal reflex Motor: masseter and temporalis muscles, open mouth against resistance and jaw jerk
VII	Facial	Both	Facial movements (facial expression)
VIII	Vestibulocochlear	Sensory	Hearing
IX X	Glossopharyngeal Vagus	Both	Gag reflex and swallowing
XI	Accessory	Motor	Sternocleidomastoid and trapezius muscles
XII	Hypoglossal	Motor	Tongue muscles

1. Olfactory nerve

Give something familiar for the patient to smell and identify, for example, orange/lemon peel, coffee, or vinegar (exam each nostril alone)

Signs	Causes
No smelling (anosmia), but not to ammonia which stimulates the pain fibers carried in the trigeminal nerve.	1. Bilateral anosmia: usually nasal, not neurological. Causes include upper respiratory tract infection, trauma, smoking, old age and Parkinson's disease 2. Unilateral anosmia: mucous blocked nostril, head trauma, subfrontal meningioma

2. Optic nerve

A- Visual acuity:

- Tested by using Snellen charts.
- The patient stand at 6 meters from Snellen charts
- If the patient normally uses distance glasses, ensure they wear them for the assessment.
- Ask the patient to cover one eye and read the lowest line they can see.
- Record the line reached, allow a maximum of two errors per line e.g. 20/20
- If the patient can't see any of the letters, record whether they can count fingers held in front of their face.
- If they can't, so if they can see hand movements (wave your hand).
- If they can't, so if they can see a light.

B- Color vision: tested by using Ishihara plates.

C- Visual fields:

- Sit directly facing the patient, approximately 1 meter away
- Ask the patient to focus on your face and not move their head or eyes during the assessment.
- Test visual inattention by holding both arms out and wiggling your fingertip and ask the patient to point at which fingers are moving
- Testing each eye by asking the patient to cover one eye with their hand, If the patient covers their right eye you should cover your left eye and vice versa

(mirror the patient), because both of you be able to see your hand at the same time.

- Ask the patient to tell you when they can see your fingertip wiggling in each of the four quadrants

Signs	Causes
Loss of part of the usual field of vision (visual field defect).	Tunnel vision: a constricted visual field, giving the impression of looking down a pipe or tunnel, may be caused by glaucoma, retinal damage or papilledema
	Enlarged blind spot: caused by papilledema
	Unilateral field loss: blindness in one eye caused by devastating damage to the eye, its blood supply, or optic nerve
	Central scotoma: a hole in the visual field, caused by multiple sclerosis, vascular lesion, toxins such as methyl alcohol, gliomas of the optic nerve or glaucoma
	Bitemporal hemianopia: the temporal half of each visual field is lost caused by damage to the center of the optic chiasm, such as a pituitary tumor, craniopharyngioma, suprasellar meningioma
	Binasal hemianopia: the nasal half of each visual field is lost (very rare)
	Homonymous hemianopia: The right or left side of vision in both eyes is lost. Commonly seen in stroke patients
	Homonymous quadrantanopia: corresponding quarters of the vision are lost in each eye. Upper quadrantanopias suggest a lesion in the temporal lobe and lower quadrantanopias suggest a lesion in the parietal lobe

D- Pupillary reflexes:

- Tested by placing one hand vertically along the patients nose to block any light from entering the eye, which is not being tested
- Shine a pen torch into one eye and check that the constricted pupils in both the illuminated eye (direct) and non-illuminated eye (consensual)
- This should be tested on both eyes

Marcus Gunn pupil = relative afferent pupillary defect (RAPD)

Light reflex: Afferent fibers travel with optic nerve. Efferent fibers come with occulomotor nerve

- Perform swinging-flashlight test by swinging the torch from pupil to pupil, normally both pupils constricted, If Marcus Gunn pupil sign is positive the affected pupil will dilate or mild constriction when the torch moved from the normal eye to the abnormal one
- Check for accommodation by asking the patient to look at a distant object then look immediately to your index finger which distance approximately 30 cm in front of their face and observe the pupil, normally it will constrict

Signs	Causes
Loss of pupillary constriction to light or accommodation	- Argyll—Robertson pupil: bilateral small pupils do not constrict to light but constrict to accommodation. Caused by neurosyphilis and diabetes mellitus - Holmes—Adie pupil: unilateral dilated pupil do not constrict or low constrict to light, but constrict to accommodation very slowly and relax very slowly. It's usually idiopathic and predominates in young adult females, It may also follow iridoplegia or ocular trauma

E- Fundoscopy:

- Turn off the light of the room
- Ask the patient to look at a distant object to become the pupil dilated
- Look through the ophthalmoscope 30 cm away from the patient and bring light in nasally from the temporal field
- Observe for a reddish/orange reflection in the pupil
- You have to assess optic disc, retinal vessels and macula
- Normally the disc is a pale pink/yellow color and round or slightly oval, and macula located temporally from the optic disc, and the veins appear larger and darker in color than the arteries

Signs	Causes
Absent of reddish/orange reflection in the pupil	Cataract
Papilledema	Raised intracranial pressure, retro-orbital lesion, inflammation or ischaemia
Retinal hemorrhages	Diabetes mellitus, hypertension, subarachnoid hemorrhage, trauma, bacterial endocarditis (known specifically as Roth spots)

3-4-6.Oculomotor, Trochlear and Abducens nerves

- Inspect for any ptosis or squint on the eyes
- Ask the patient to keep their head still and follow your finger with their eyes
- Move your finger through the various axis of eye movement (H shape)
- Observe for any nystagmus
- Ask the patient if had any double vision
- Perform cover test by asking the patient to look at a distant object, then cover one eye and observe the uncovered eye for any movement, normally there is no movement, If the eye moves temporally that is mean there is convergent squint, If the eye moves nasally that is mean there is divergent squint

Signs	Causes
Ptosis (drooping of the lid)	Weakness of the levator muscle in myasthenia gravis, third-nerve palsy, surgery or trauma
Squint (strabismus)	Congenital, disease of the muscle, nerve palsy, trauma, or neoplasm
Nystagmus	Congenital, stroke, medications, trauma, multiple sclerosis

5. Trigeminal nerve

Inspect the patient's face for any wasting of the temporalis muscle which will appear as hollowing above the zygomatic arch.

A- Sensory supply:

Always compare

- Light touch by cotton and pinprick sensation:
  - ✓ Forehead: ophthalmic branch
  - ✓ Cheek: maxillary branch
  - ✓ Jaw: mandibular branch

Corneal reflex: Afferent fibers travel with trigemnal nerve. Efferent fibers come with facial nerve

B- Motor supply:

- Ask the patient to clench teeth and feel for the bulk of masseter and temporalis muscles bilaterally
- Ask the patient to open their mouth against resistance

C- Reflexes:

Normally jaw jerk is absent or very slight

- Corneal reflex: touch the cornea by using cotton wool. This should cause the patient to close their eyelids
- Jaw jerk: ask the patient to open mouth loosely and place your finger horizontally across their chin, then tap your finger with a tendon hammer

Signs	Causes
The jaw deviates to the weak side when the mouth is opened	Lower motor neurone (LMN) lesion
Wasting of muscles	Long-term trigeminal nerve palsy, motor neuron disease (MND), myotonic dystrophy
Loss of light touch and pin-prick sensation	Trigeminal ganglion lesion (e.g., herpes zoster)
Loss of light touch only with loss of sensation on ipsilateral side of the body	Contralateral parietal lobe (sensory cortex) lesion
Loss of light touch only	Lesion at sensory root pons
Loss of pin-prick only with contralateral side of body	Ipsilateral brainstem lesion
Loss of sensation in projecting part of the face (nose, lips, anterior cheeks)	Damage to the lower part of the spinal sensory nucleus (syringomyelia, demyelination)

You can describe the procedure of the examination to the patient by asking the patient to mirror you (e.g. raise your eyebrows like this)

7. Facial nerve

- Inspect the patient's face for any asymmetry
- Ask the patient to perform the following facial movement:

Both sides of the forehead receive bilateral nerve supply

1. Raised eyebrows: "raise your eyebrows as if you're surprised" (Look for asymmetry)
2. Closed eyes: "close your eyes tightly and don't let me open them" (Assess power)
3. Blown out cheeks: "blow out your cheeks and don't let me deflate them" (Assess power)
4. Baring teeth: "can you do a big smile for me?" (Look for asymmetry)
5. Purse lips: "can you attempt to whistle for me?" (Look for asymmetry)

Signs	Causes
Loss of facial movement on the ipsilateral side but with preservation of forehead wrinkling	Upper motor nerve lesion (unilateral: cerebrovascular accident [CVA], bilateral: pseudobulbar palsy, motor neuron disease)
Loss of all movement on the ipsilateral side of the face	Lower motor nerve lesion Unilateral: demyelination, tumors, Bell's palsy, pontine lesions, cerebellopontine angle lesions. Bilateral: sarcoid, Guillain–Barré syndrome [GBS],myesthenia gravis)

8. Vestibulo-cochlear nerve

Hearing (cochlear), balance and equilibrium (vestibular)

Hearing Examination:

A- Simple test of hearing:

- Whisper a number into one ear and ask the patient to repeat it. Repeat with the other ear.

B- Rinne's test:

- Tap a tuning fork and place it onto mastoid process (bone conduction) then next to their ear (air conduction) and ask which is louder. A normal patient will find the air conduction louder than bone conduction (Rinne's positive)

Signs	Causes
Air conduction louder than bone conduction (both air & bone conduction reduced equally)	Neural deafness
Bone conduction louder than air conduction	Conductive deafness

C- Weber's test:

- Tap a tuning fork and place it in the midline of the forehead and ask if it is louder in either ear.
- Normally it should be heard equally in both ears.

Signs	Causes
The sound is heard louder in the intact ear	Neural deafness
The sound is heard louder in the affected ear	Conductive deafness

Vestibular Examination:

A- Turning test:

- Ask the patient to stand facing you, with arms outstretched.
- Ask them to march on the spot, then close their eyes (continue marching).
- Normally the patient remains in the same position.

Signs	Causes
The patient will turn toward the side of the lesion	Vestibular lesion

9-10. Glossopharyngeal &Vagus nerves

- Ask the patient to open their mouth and inspect the uvula.
- Ask the patient to say "aah." and watch the uvula.
- Check that it lies centrally and does not deviate to one side.
- Test the gag reflex by touching the arches of the pharynx.
- Ask the patient to cough, and look for any bovine cough.
- Ask the patient to take a sip of water and swallow it, and look for any coughing or delayed swallow.

Signs	Causes
Uvula moves to one side	Vagus nerve lesion on the opposite side
Uvula doesn't move	Muscle paresis
Uvula moves with "aah" but not gag and ↓ pharyngeal sensation	Glossopharyngeal palsy
Bovine cough (non-explosive cough)	Vagus nerve lesions
Poor swallow and aspiration	Combined glossopharyngeal and vagus or lone vagus lesion

11. Accessory nerve

- Inspect the sternocleidomastoids and look for wasting, fasciculation, hypertrophy, and any abnormal head position.
- Ask the patient to raise their shoulders and resist you pushing down (Trapezius muscle)
- Ask patient to turn head to one side and resist you pushing it to the other (Sternocleidomastoid muscle)

Poor head turning to the left indicates weak right sternocleidomastoid

Accessory nerve lesions usually present as part of a wider weakness or neurological syndrome. Very rare come as isolated accessory nerve lesions

Signs	Causes
Bilateral weakness with wasting	Muscular problems or motor neuron disease
Unilateral weakness (trapezius and sternocleidomastoid same side)	Peripheral neurological lesion.
Unilateral weakness (trapezius and sternocleidomastoid of opposite sides)	Usually with hemiplegia, suggests a UMNL ipsilateral to the weak sternocleidomastoid

12. Hypoglossal nerve

- Inspect the tongue for any wasting or fasciculation.
- Ask the patient to stick their tongue out and look for any deviation.
- Place your finger on the patient's cheek and ask to push their tongue against it.
-

Signs	Causes
Tongue deviation and fasciculation on the affected side	LMN neuron lesion

3. The upper limb: Tone - Power - Reflexes - Sensation

Inspection

- Deformity
- Scars
- Muscle wasting
- Involuntary movements
- Fasciculation
- Tremor

Tone

- Ask the patient to relax
- If they can't relax tell them to relax the limb "as if you're asleep"
- Start proximally at the shoulder, then move down to the elbow and wrist joints
- Feeling how easy the joints is to move passively through its range of movement
- Normally there is slight resistance in movement
  1. Shoulders: flexion - extension - abduction – adduction
  2. Elbow: flexion – extension
  3. Forearm: Pronation - supination
  4. Wrist: full range of motion (360°)

Hypertonia

1- clasp-knife rigidity (spasticity): The limb appears stiff and with increased pressure, there is a sudden moves easily

2- lead pipe rigidity: The limb is equally stiff through all the range of movements of a joint.

3- cogwheel rigidity: tremor superimposed on lead pipe rigidity

Signs	Causes
hypotonia	LMNL, cerebellar lesions or myopathies
Clasp-knife rigidity (spasticity)	UMNL
Lead pipe and cogwheel rigidity	Parkinsonism

Power

A- Shoulders
- Abduction (C5/6):"Don't let me push your shoulders down"
- Adduction (C6/7/8):"Don't let me push your shoulders up"

B- Elbow
- Flexion (C5/6):"Don't let me pull your arm away from you"
- Extension (C7/8):"Don't let me push your arm towards you"

C- Wrist
- Flexion (C6/7):"Don't let me pull your wrists up"
- Extension (C7/8):"Don't let me pull your wrists down"

D- Fingers
- Finger flexion (C7/8):"Hold my fingers and don't let me pull it"
- Finger extension (C7/8):"Put your fingers out straight and don't let me push them down"
- Finger abduction (C8/T1):"Splay your fingers and don't let me push them together"
- Thumb abduction (C8/T1):"Don't let me push your thumbs up"

Ensure the patient's upper limb is completely relaxed

Score	Description
0	Absent voluntary contraction
1	Feeble contractions that are unable to move a joint
2	Movement with gravity eliminated
3	Movement against gravity
4	Movement against partial resistance
5	Full strength

Grades of power

Reflexes

Grades of muscle reflex:

Grade	Description	Cause
0	Absent	LMNL or myopathy
+1	Hyporeflexia	
+2	Normal	.....
+3	Hyperreflexia	UMNL
+4	Clonus (brisk)	

If the reflex did not appear properly ask patient to close his eyes firmly

In all sensation exams, place the tool on the patient's sternum to show them how it should feel and ask the patient to close their eyes

There are three reflexes in the upper limb:

A- Biceps reflexes (C5/6)
B- Supinator reflexes (C5/6)
C- Triceps reflexes (C7/8)

Sensation

A- Light touch: touch sensation by cotton wool for each of the dermatomes of the upper limbs
B- Pin prick: touch sensation by pin prick for each of the dermatomes of the upper limbs
C- Vibration: vibration sensation by tuning fork and when it stops on the bony prominence at the base of thumb, If it feels different in both hands you should move to the radial stylus on the wrist and then to the olecranon on the elbow until it feels normal
D- Proprioception: hold the distal phalanx of the thumb by its sides demonstrate movement of the thumb "upwards" and "downwards" to the patient then ask the patient to close their eyes and having moved the joint a few times hold it in one position up or down and ask the patient which position the joint is in

4. The Lower Limb: Tone - Power - Reflexes – Sensation

Inspection

- Deformity
- Scars
- Muscle wasting
- Involuntary movements
- Fasciculations
- Tremor

Tone

- Ask the patient to relax
- If they can't relax tell them to relax the limb "as if you're asleep"
- Start proximally at the hip then move down to the knee and ankle joints
- Feeling how easy the joints is to move passively through its range of movement
- Normally there is slight resistance in movement:
  1. Hip: roll the leg from side to side
  2. Knee: put your hand behind the patient's knee and raise it quickly
  3. Ankle: holding the lower leg and partially evert the foot and do dorsiflexion of the ankle

Signs	Causes
Involuntary contraction and relaxation of foot with dorsiflexion of the ankle (ankle clonus)	UMNL

Power

A- Hip

- Flexion (L2/3):"raise your leg off the bed and don't let me push it down"
- Extension (L5/S1/2):"don't let me from lifting your leg off the bed"
- Abduction (L4/5/S1):"move your leg away from the midline and don't let me push it inside"
- Adduction (L2/3/4):"don't let me from moving your leg away from the midline"

B- Knee

- Flexion (L5/S1):"don't let me pull your leg away from you"
- Extension (L3/4):"don't let me push your leg towards you"

C- Ankle

- Dorsiflexion (L4/5):"push my hand towards you by your foot"
- Plantarflexion (S1/2):"push my hand away from you by your foot"
- Inversion (L5/S1):"push your foot against my hand"

- Eversion (L5/S1):"push your foot out against my hand"

Reflexes

There are three reflexes in the lower limb:

If the reflex did not appear properly ask patient to pull one hand against the other

A- The knee or patellar reflex (L3/4)
B- The ankle reflex (S1/S2)
C- The plantar reflex (L5/S1/S2): Normally there will be a plantar flexion of the big toe (downwards)

Signs	Causes
The big toe move Dorsiflexion (upward) in plantar reflex (Babinski sign)	UMNL (pyramidal) and in infants

Sensation

A- Light touch: touch sensation by cotton wool for each of the dermatomes of the lower limbs
B- Pin prick: touch sensation by pin prick for each of the dermatomes of the lower limbs
C- Vibration: vibration sensation by tuning fork and when it stops and start from great toe, If it feels different in both legs you should move to the tibial epicondyle on the knee and then to the greater trochanter on the femur until it feels normal
D- Proprioception: hold the distal phalanx of the great toe by its sides demonstrate movement of the thumb "upwards" and "downwards" to the patient then ask patient to close their eyes and having moved the joint a few times hold it in one position up or down and ask the patient which position the joint is in

5. Cerebellar examination

Head

A- Look for nystagmus

- Inspect the patient's eyes for any nystagmus
- Ask the patient to keep their head still and follow your finger with their eyes, then move your finger right, left, up and down and look for any nystagmus

B- Assess the speech:

- Ask the patient to say "British constitution" or "West Register street" to

Upper limbs

Check for

1. Resting tremor by placing a piece of paper on the patient's outstretched hand
2. Pronator drift by asking the patient to place arms outstretched forwards with palms upwards and close their eyes, then observe the arm for pronation movement
3. Rebound phenomenon by asking the patient to resist your pulling of their arm, then suddenly remove your hand
4. Tone as explained before
5. Finger to nose test to assess coordination by asking the patient to touch their nose with the tip of their index finger, then touch your finger tip as fast as they can and move your finger just before the patient leave their nose
6. Dysdiadochokinesia to assess coordination by asking the patient to clap by alternating the palmar and dorsal surfaces of the hand, ask them to do this as fast as possible and repeat the test with the other hand

Lower limbs

Check for

1. Tone as explained before
2. Heel to shin test to assess coordination by asking the patient to run the heel of one foot down the shin of the other leg and repeat the test with the other leg
3. Coordination by asking the patient to lift the big toe up to touch your finger
4. Gait

6. Gait

1. Ask the patient to stand up and observe the patient's posture and whether they are steady on their feet
2. Ask the patient to walk normally a few meters, then turn around quickly and walk back
3. Ask the patient to walk in a straight line with their heels to their toes
4. Ask the patient to put their feet together and keep their hands by their side and keep eyes open, once the patient is stable ask him\her to close their eyes (Romberg's test)

Questions

What are the features of Horner's Syndrome?

- Miosis
- Ptosis
- Anhidrosis

What are the causes of Pinpoint Pupil?

- Opioids or pontine pathology

What are the causes of raised intracranial pressure?

- Tumour
- Abscess
- Encephalitis
- Hydrocephalus
- Benign intracranial hypertension

Wish you all the best