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Question # 1

→ What is hydronephrosis? write in detail its causes, pathophysiology, diagnosis and treatment.

→ Hydro nephrosis :-

Hydro nephrosis is a condition that typically occurs when a kidney swells due to urine failing to properly drain from the kidney to the bladder.

→ This swelling most commonly affects only one kidney, but it can involve both kidneys.

→ It's a secondary condition that results from some other underlying disease. It's structural & is the result of blockage or obstruction in the urine tract.

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→ Hydro nephrosis occurs when there is either a blockage of the outflow of urine or reverse flow of urine already in the bladder (called reflux) that can cause the renal pelvis to become enlarged.

→ Causes :-

Hydro nephrosis is usually caused by another underlying illness or risk factor.

- Kidney stone
- congenital blockage
- Blood clot
- Tumor or cancer
- Enlarge prostate
- Pregnancy
- urinary tract infection or other diseases that cause inflammation of the urinary tract.

→ Patho physiology :-

Hydro nephrosis is caused by obstruction of urine before the renal pelvis.

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→ Obstruction that occurs anywhere along the urinary tract will lead to increased pressure with in the structures of the kidney due to the inability to pass urine from the kidney to the bladder. obstruction include stones & ureteropelvic junction (UPJ)

→ Dilatation of the renal pelvis & calyces.

→ **Types:-**

→ Pelvic type

→ Renal type

→ Pelvorenal type: most common type both the pelvis and calyces are equally dilated

→ **Signs and Symptoms:-**

→ asymptomatic

→ pain felt in renal area.

→ Hematuria

→ urinary infection

→ dysuria · frequency

→ calculi

→ azotemia

→ some large hydronephrosis can be palpable.

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→ Diagnosis :-

- Symptoms & signs
- Ultra Sound
- IVO
- Cystourethrogram
- Cystoscopy
- RUGP
- Delayed empty
- Isotope renography
- Urine culture.

→ Treatment :-

it depend on the cause, site, duration and degree of kidney damage.

- UTI antibiotic therapy
- Prompt drainage
- corrected to the caused
- for relief of lower tract obstruction : catheter drainage urinary diversion, indwelling pigtail.
- Nephrectomy.

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Question # 2

→ Explain in detail the types / categories and pathophysiology of tuberculosis.

→ Tuberculosis :-

Tuberculosis (TB) is a disease caused by bacteria called Mycobacterium tuberculosis.

The bacteria usually attack the lungs, but they also damage other parts of the body.

→ TB is contagious disease. It spreads from person to person, usually through the air when a person with active disease coughs and sprays the bacteria into the air.

→ Types Of TB :-

→ Pulmonary TB :

- Affects lungs

→ Extra-pulmonary TB :

- Abdominal TB
- Tubercular meningitis
- Skeletal TB
- Miliary TB

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⑥ → Pulmonary TB :-

When the bacterium *Mycobacterium tuberculosis* infection involves the lungs.

→ Pulmonary TB occurs by breathing in air droplets from a cough or sneeze of an infected person.

→ Extra-pulmonary TB :-

→ Abdominal TB :-

It affects the guts, peritoneum, abdominal lymph nodes and more rarely, the solid organs in the abdomen.

→ Tubercular meningitis :-

It affects the surrounding membranes of brain & spinal cord.

→ Skeleton TB :-

When the TB spreads to bones from lungs or lymph nodes. It can affect any of your bones, including spine & joints.

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→ **Miliary TB :-**

- Lymphadenitis TB
- Genitourinary TB

• **Lymphadenitis TB :-**

It is the most common type of extra pulmonary TB. It tends to affect any lymph node.

• **Genitourinary TB :-**

It is the second most common type.

It affects any part of the genitals or urinary tract but kidney is the most common site.

→ **TB categories :-**

- Active TB
- Latent TB
- Miliary TB

→ **Active TB :-**

Active TB is an illness in which the TB bacteria are rapidly multiplying & invading different organs of the body.

→ Active TB is contagious & causes symptoms.

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→ Latent TB:-

Occurs when a person has the TB bacteria with in their body, but the bacteria are present in very small numbers & don't develop disease.

→ they are kept under control by immune system.

→ Military TB:-

a rare form of active disease.

→ It occurs when TB bacteria find their way in to blood stream.

→ The bacteria quickly spread all over the body.

→ Affect multiple organs at once.

→ Pathophysiology:-

→ The micro organism enter through droplet nuclei.

→ Bacteria in the airway is transmitted to aveoli

→ Deposition & multiplication of bacteria occur.

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- Bacteria are also transported to the other parts of body through blood streams.
- Phagocytosis by neutrophils and macrophages.
- Start replication inside macrophages and primary infection occurs.
- Immune system gets activated and surrounds the cell to form granuloma in 3 weeks.
- The infected site of tissue leads to necrosis.

Question # 3

→ How are renal stones formed and what are different types of renal stones? Which radiological procedure is most suitable for diagnosing renal stones?

→ **Nephrolithiasis :-**

a condition in which hard masses (Kidney stones) are formed within urinary tract.

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→ Formation Of Kidney stones:-

→ Kidney stones are formed when the urinary concentration of crystal-forming substance e.g. (calcium, oxalate, uric acid) is high.

→ The urinary concentration of substance that inhibit stone formation (e.g. citrate) is low.

→ Types Of renal stones:-

→ Calcium oxalate stones:-

→ The most common type of kidney stone is calcium oxalate stone.

→ These result when the urine contain low levels of citrate and high level of calcium and either oxalate or uric acid.

→ Calcium phosphate:-

→ are caused by abnormalities in the way the urinary system function.

→ They are often related to a

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- high urine PH.
- calcium phosphate is a minor component of up to 30% of calcium oxalate stone as well.

→ Struvite Stones:-

- Common in women
- form as a result of certain type of urinary tract infection.
- These stones tends to grow quickly and become large, occupying the entire kidney.
- left untreated UTI loss of kidney function may occur.

→ Uric Acid Stone:-

- Common in men
- occur in people who don't drink enough water and take high protein diet.
- Also occur who have gout, family history of kidney stone.
- occur who have had chemotherapy.

→ Cystine Stones :-

- caused by hereditary genetic disorder called cystinuria
- lead to excessive amounts of amino acid in urine.
- this result in the formation of stones in the kidney bladder & ureters.

→ Diagnoses :-

• Blood Tests :-

- look for infection
- factor which contribute formation of kidney. such as calcium

• Urine Test :-

- To check for crystal which lead to the formation of kidney stone.

• Ultrasound :-

- Through ultrasound check / monitor the growth of stone.

Intravenous pyelogram

kidney - ureter - Bladder x-ray.

CT Scan

MRI Scans

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Question # 4

→ Briefly describe the types, causes, diagnosis & treatment of goiter.

→ Types of Goiter:-

There are different types:-

- Colloid Goiter (Endemic):-

→ develop from lack of iodine, a mineral essential to the production of thyroid hormones.

- Non toxic (sporadic):-

→ The cause is usually unknown.

→ It may be caused by medication like lithium.

- Toxic Nodular:-

→ form one or more small nodules as it enlarges.

→ The nodules produce their own thyroid hormone causing hyperthyroidism.

→ Causes :-

→ Iodine deficiency is the cause of goiters.

- Graves' Disease :-

occur when thyroid produce more hormone than normal.

- Hashimoto's Disease :-

occur when thyroid doesn't produce enough thyroid hormone. causing hypothyroidism.

- Inflammation :-
thyroiditis

- Nodules

- Thyroid cancer

- Pregnancy.

→ Diagnosis :-

→ Blood Test :-

check hormone level.

→ Thyroid scan :-

check size & condition

→ Ultrasound :-

size of goiter & nodules are checked.

→ Biopsy :-

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→ Treatment :-

- Medication:
to shrink goiter
- Surgeries
remove your thyroid
known as thyroidectomy.
- Radio active iodine.
RAI ingested orally to
destroy excess tissue
- Home care.
increase & decrease
iodine intake at home.

Question # 5

→ write a detail note on
Atelectasis, bronchiectasis
pneumonia.

→ Atelectasis :-

a partial or
complete collapse of lungs
is called atelectasis.

→ May involve entire lung
a lobe, a segment.

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→ Mechanisms :-

- Obstructive: Blockage of airway.
- Non-obstructive:

contact b/w parietal & visceral pleura. ^{loss of}

→ Risk factor :-

- foreign bodies in the airway
- lung disease
- mucous plugging
- air way pressure by mass of fluid

→ Symptoms:

- Trouble breathing
- Pleurisy
- cough
- fever.

→ Pneumonia :-

- an inflammation of the lungs parenchyma
- most common infectious cause of death
- characterized by consolidation

→ Classification :-

- Morphological
 - Lobal pneumonia
 - Bronchopneumonia
- Clinical classification
 - community-acquired
 - Hospital-acquired

→ Morphological stages :-

- congestion
- Red hepatization
- Grey "
- Resolution

→ Diagnosis :-

- History
- Signs & symptoms
- chest x-ray
- ET

→ Bronchiectasis :-

is the permanent dilation of bronchi & bronchioles due to destruction of the muscles & elastic supporting tissue.

→ Resulting from an chronic ~~secondary~~ necrotizing infection

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→ Bronchiectasis is a secondary disease due to persistent infection or obstruction

→ Clinical Manifestations:-

- cough with purulent sputum.
- Hemoptysis
- Dyspnoea
- COPD
- Episodic fever
- Upper respiratory infection
- Hypoxemia.

→ Diagnoses:-

- chest x-ray
- CT scan
- sputum culture
- sweat test
- Bronchoscopy

→ Treatment:-

- Eliminate cause
- control infection / Antibiotics
- Reverse airflow obstruction
- Bronchodilators
- Chest physical therapy.

The End.