QUESTION NO: 1

What is Hydronephrosis? Write in detail its causes, pathophysiology diagnosis and treatment.

ANSWER:

HYDRONEPHROSIS:

INTRODUCTION:

⇒ It is a condition which affecting **one** or **both** of the kidneys.

⇒ Hydronephrosis can happens when urine cannot **drain** out of the kidneys properly which causing them to **swell up** or **stretch**.

⇒ The bladder, kidneys and linking tubes are known as Urinary System.

⇒ When the urinary system works properly, the kidney filter **blood** to remove **waste products** from the body.

⇒ Hydronephrosis can develop when there is a problem in the **urinary**

system.

⇒ It can happens at any age.

CAUSES OF HYDRONEPHROSIS:

1: ACUTE UNILATERAL OBSTRUCTIVE UROPATHY:

⇒ One of the most common cause of hydronephrosis is acute unilateral obstructive uropathy.

⇒ It is a blockage that prevents urine from leaving your kidneys.

⇒ The most common cause for this condition is kidney stone.

2. KIDNEY STONES:

⇒ Kidney stones are small hard mineral deposits.

⇒ They form in kidneys and create a blockage anywhere along the urinary tract from kidney to urethra.

3. ENLARGED PROSTATE GLAND:

It is due to benign prostatic

hyperplasia (BPH) or prostatitis.

4. PREGNANCY:

⇒ It causes a compression due to a growing fetus.

5. VESICOURETAL REFLUX (VUR)

⇒ A blocked ureter can cause urine to go back into kidney, which causes swelling.

⇒ This backflow of urine is known as (VUR).

PATHOPHYSIOLOGY:

Due to the ethiological factors

↓

Obstruction of the urine flow

↓

Fluids backs up into the kidney.

↓

Causing dilation of renal pelvis

↓

Results in pressure trauma

↓

Higher pressure causes irreversible destruction of the nephrones

↓

Hypertrophy of the kidneys as a consequences of increased pressure

↓

Hydronephrosis

Renal failure

DIAGNOSIS:

1: PHYSICAL EXAMINATION:

The doctor will ask about any symptoms if patient having and will examine the area near the kidneys and bladder for swelling.

The doctor will ask about **medical history** and patients **family's medical history**.

2: URINE TESTS:

A urine test is performed to find out if there is blood, stone crystals or any infection and bacteria present.

3: BLOOD TESTS:

Tests of kidney function including

- Creatinine
- eGFR
- BUN Blood urea nitrogen.

4: IMAGING PROCEDURES:

Ultrasound
CT Scan
MRI

TREATMENT:

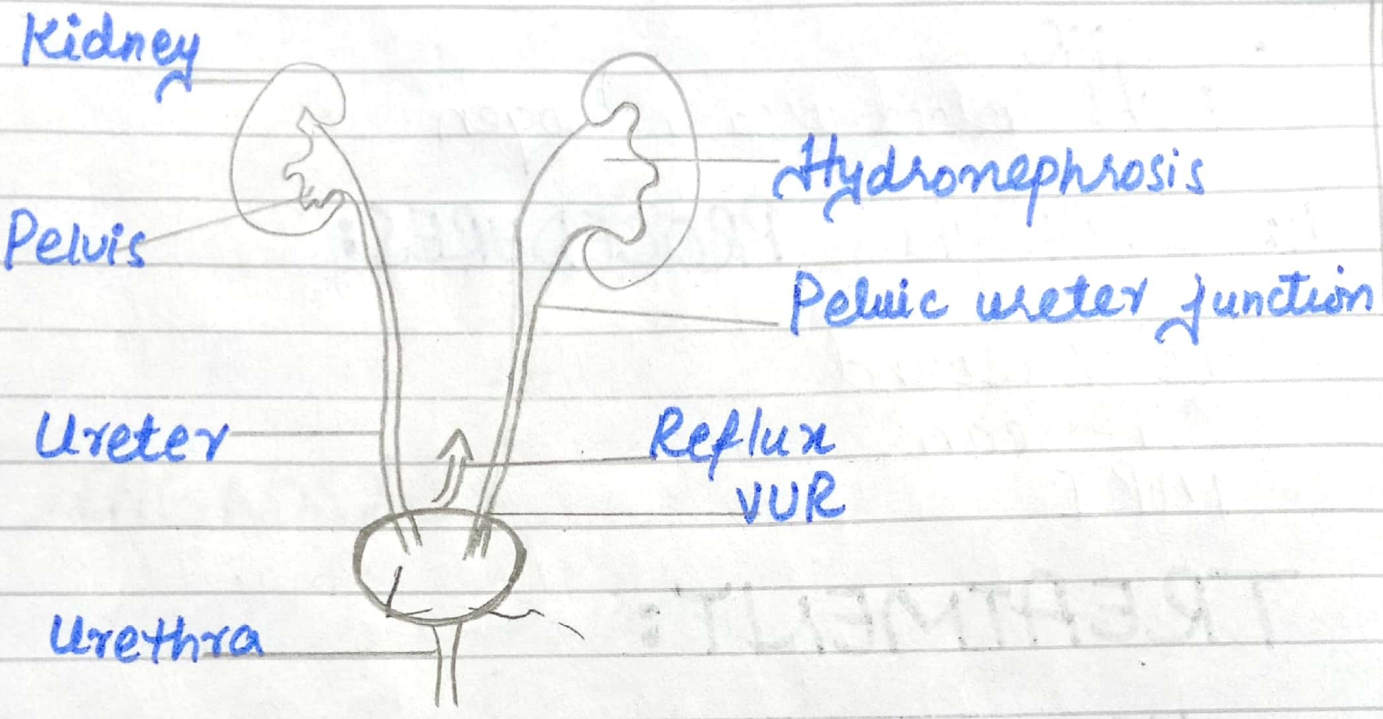
1: URETERAL STENT:

It is a tube that allows the ureter to drain into the bladder.

2: NEPHROSTOMY TUBE:

This tube allows the blocked urine to drain through back.

3: Antibiotics
4: Urinary diversion



QUESTION NO: 2

ANSWER:

TYPES / CATOGORIES OF TB:

Following are the types and catogories of TB.

1: ACTIVE TB:

Actiie TB is when the TB

bacteria is multiply in the body causing to develop the symptoms of TB.

⇒ If the lungs get infected with active TB it can easily spread the disease to others.

⇒ It may invade to other **organs** so called "**extrapulmonary TB**".

GENERAL SYMPTOMS OF ACTIVE TB:

- chills
- fever
- loss of appetite
- fatigue.

2: LATENT TB:

⇒ It is a condition when a person have a TB infection but the bacteria remains **inactive** in his body and causes no symptoms.

⇒ It is a not a **contagious** but has a chance of becoming active 5 to 10%.

3: MILIARY TB:

⇒ It is a form of TB that spreads in the body

⇒ Affecting one or several organs.

It oftens affects the lungs, bone marrow and liver.

It can also spreads to other parts of the body including spinal cord, brain and heart.

FOR EXAMPLE:

If a person bone marrow is affected it may have a red blood cell count or rash.

PATHOPHYSIOLOGY OF TB:

Initial infection or primary function

↓

Entry of microorganisms through droplet nuclei

↓

Bacteria is transmitted to alveoli through airways

↓

Deposition and multiplication of bacteria

↓

Bacilli are also transported to other parts

of the body via blood stream and phagocytosis

↓

Mycobacterium

↓

Pulmonary alveoli

↓

Immune system has locked in

↓

Deposition and multiplication of bacteria

Mycobacterium bacteria inhibits the macrophages phagosome + lysosome) to forms phago lysosome and remains protected inside the macrophages.

↓

Primary infection occurs

↓

Cell mediated immunity gets activated surrounds the cell to form granuloma (3 weeks)

↓

Leads to necrosis of tissues at infection

↓

Cone Complex

↓

Latent T.B

QUESTION NO: 3

ANSWER:

FORMATION OF RENAL STONE:

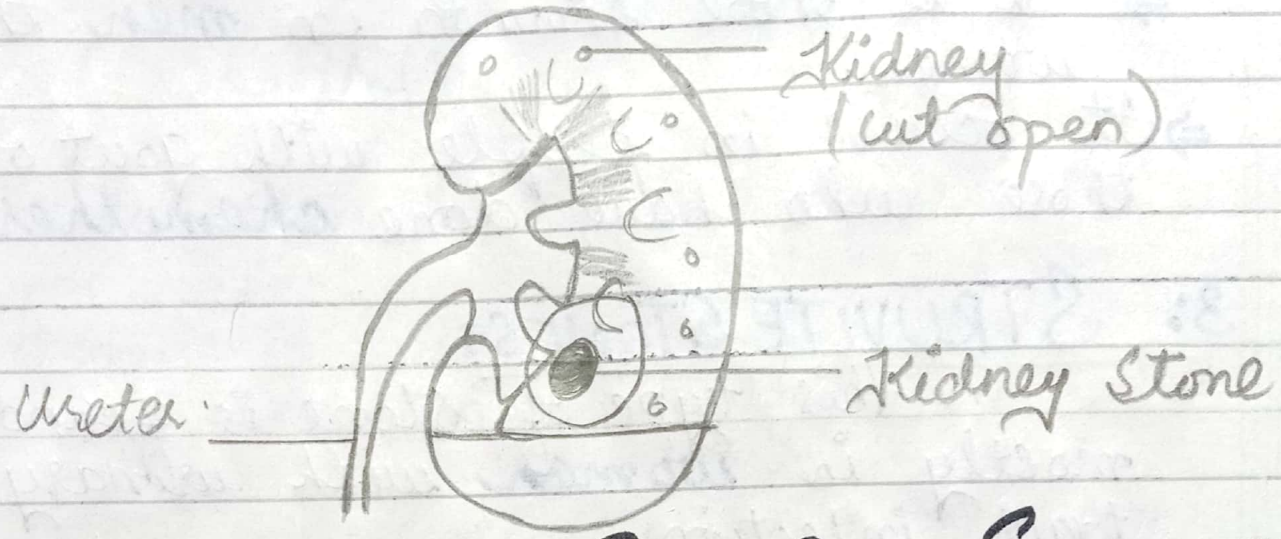
➡ A kidney stone is a hard, **crystalline** mineral material formed within the kidney or urinary tract.

➡ Renal stones form when there is a decrease in urine volume or an excess of **stone forming** substances in the urine.

➡ At the same time, our urine may lack substances that prevents crystal from sticking together, creating an ideal environment for kidney stones to form.

➡ The crystal get deposited on the nucleus and continue to grow.

➡ These can sometimes adhere to the renal papillae.



TYPES OF RENAL STONES:

1: CALCIUM STONES:

Most of the kidney stones are calcium stones.
It is usually in the form of calcium oxalate and calcium phosphate.

Oxalate is found in naturally occuring foods.
e.g fruits & vegetables
nuts & chocolates.
Our liver also produce oxalate.

2: URIC ACID:

⇒ It is the type of kidney stone.
⇒ It is more common in **men** than women.
⇒ It occurs in people with gout or those who have done **chemotherapy**.

3: STRUVITE STONES:

This type of stone is found mostly in **women** with urinary tract infection.

These stones are very large and cause **urinary obstruction**.

4: CYSTINE STONES:

These stones are very rare.
It is found in both men and women who have the **genetic disorder cystinuria**.

RADIOLOGICAL PROCEDURES FOR DIAGNOSING KIDNEY STONES:

The most suitable radiological procedure for diagnosing a renal stone is CT Scan:

CT SCAN:

CT scan is the first line test for evaluation of renal stone in patients with acute flank pain and suspicion of urolithiasis.

CT has sensitivity and specificity of over 95% for diagnosing of nephrolithiasis.

Doctor use CT scan to look for stones in the kidneys, ureters and bladder to determine their size and exact location.

OTHERS:

- MRI
- IVP
- KUB

QUESTION NO: 4

ANSWER:

TYPES OF GOITER:

There are different types of Goiter.

1: COLLOID GOITER: (ENDEMIC)

⇒ This type of goiter develops when there is deficiency of **iodine** which is important for the production of **thyroid hormones**.

2: NON-TOXIC GOITER: (SPORAIDIC)

⇒ The cause of this type of goiter is unknown.

⇒ It may be caused because of medications like **lithium**.

⇒ This type of goiter not affect the production of thyroid hormone.

⇒ So the function is normal. They are also benign.

3: TOXIC NODULAR:

This type of goiter forming one or more small nodules as it enlarges.
The nodules are capable of producing its own thyroid hormone.
It causes hyperthyroidism.

CAUSES OF GOITER:

most common causes of goiter.

1: IODINE DEFICIENCY:

⇒ iodine is an important element for the production of thyroid hormones.
⇒ If there is iodine deficiency it causes goiter.

2: GRAVE'S DISEASE:

When too much thyroid hormone is produced.

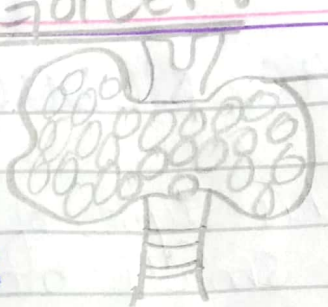
3: HASHIMOTO'S DISEASE:

When too little thyroid hormone is produced.

4: PREGNANCY:

Extra hormones may cause enlargement of the thyroid gland.

Goiter:



Enlarged thyroid Gland

DIAGNOSIS:

HORMONE TEST:

This blood test measures thyroid hormone levels, which shows if thyroid is working properly.

ULTRASOUND:

Ultrasound of the thyroid reveals the gland's size and find nodules.

CT OR MRI:

If the goiter is very large spread into the chest, CT scan or MRI is used.

BIOPSY:

procedure which involves taking small samples of thyroid tissues.

TREATMENT:

1: MEDICATIONS:

- Levoxyl
- Synthroid
- Tirosint

This medications resolve the symptoms of hypothyroidism as well as slow the release of thyroid stimulating hormone from pituitary gland.

3: RADIOACTIVE IODINE:

In some cases radioactive iodine is used to treat overactive thyroid gland.

QUESTION NO: 5

ANSWER:

ATELECTASIS:

DEFINITION:

⇒ Collapse or closure of the lung resulting in reduced or absent gas exchange.

⇒ It may affect a part or all of one lung.

It develops when the alveoli becomes airless from absorption of their air without replacement of air with breathing.

Atelectasis may be acute or chronic.

SYMPTOMS:

Cough
fever
pleurisy
Trouble in breathing

RISK FACTORS:

lung disease
prolong bed rest
mucous plugging

TYPES:

Obstructive
Non-obstructive
Passive
Compressive
Adhesive.

2: BRONCHIECTASIS:

DEFINITION:

It is a chronic condition where the walls of the bronchi are thickened from inflammation and infection in the bronchi.

SYMPTOMS:

Daily Cough
Large amount of sputum production
Chest pain
Clubbing

CAUSES:

Past severe infection that damaged the lung.
Genetic diseases
Aspirating things like fluids, stomach acid or food into the lung.

DIAGNOSIS:

Chest CT scan is the most common test for diagnosing bronchiectasis.

3: PNEUMONIA:

DEFINITION:

It is infection of one or both lungs.

CAUSES:

Bacteria

- Viruses
- fungi.

TYPES OF PNEUMONIA:

BACTERIAL:

Caused by various bacteria.

VIRAL:

Caused by flu (influenza).

- Mycoplasma pneumonia
- other pneumonias.

TREATMENT:

- NSAIDS
- Drink plenty of fluids
- Do not take cough medicines

SYMPTOMS:

Cough
fever, sweating and shaking chills.
Chest pain

END OF PAPER:

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