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Paper  $\Rightarrow$  Clinical medicine  
Dicipline  $\Rightarrow$  BS (rad)  
Exam  $\Rightarrow$  Final

Q no # 1 What is hydronephrosis? write in detail its causes, pathophysiology, diagnosis and treatment.

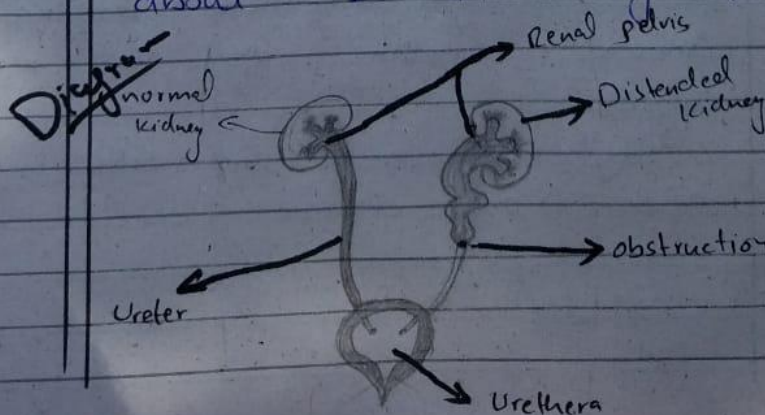
Answer:-

### Hydronephrosis:-

It is a condition in which a kidney swells due to urine failing to properly drain from the kidney to the bladder.

It may occur in one kidney or both.

Hydronephrosis is said to affect about 1 in every 100 babies.



## Causes of Hydronephrosis :-

Hydronephrosis is not a disease, instead it can be due to internal and external conditions that affect the kidney and the urinary collecting systems.

Some most common causes are

- \* acute unilateral obstructive uropathy
- \* Kidney stone
- \* blood clots
- \* Kink in ureteropelvic junction
- \* An Enlarged Prostate gland
- \* tumors in ureter
- \* narrowing of ureter due to injury

## Pathophysiology :-

Hydronephrosis is caused by obstruction of urine before the renal pelvis. The obstruction causes dilation of the nephron tubules within the kidneys which in turn causes swelling of the renal calyces.

Hydronephrosis can either be acute or chronic.

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### Diagnosis of Hydronephrosis.

- \* Symptoms and Signs
- \* Ultrasound
- \* IVU
- \* Cystourethrogram
- \* Cystoscopy
- \* RGP
- \* Delayed Empty
- \* Isotope renography
- \* Urine culture

### Treatment of Hydronephrosis.

It mainly depends on the cause, site, duration and degree of kidney damage

1. U.T.I Antibiotic therapy
2. Prompt drainage
3. Corrected to the cause
4. Relief of lower tract obstruction  
catheter drainage, urinary diversion
5. Nephrectomy

x ————— x

Q no# 2. Explain in detail the types categories and pathophysiology of Tuberculosis (TB) ?

(4)

Answer

## Types of TB :-

There are two main types of TB which are  
i) → Pulmonary TB  
ii) → Extrapulmonary TB

### (i) Pulmonary TB:-

When the mycobacterium tuberculosis infection involves in lungs are known pulmonary TB.

It often occurs by breathing in air droplets from a cough or sneeze of other infected person.

### (ii) Extrapulmonary TB:-

These includes:-

- (i) TB lymphadenitis
- (ii) Genitourinary TB
- (iii) Abdominal TB
- (iv) TB meningitis
- (v) skeletal TB

(i) TB lymphadenitis:- It is the most common type and it occurs when the mycobacterium may involve infection in lymph nodes.

(ii) Genitourinary TB:- It is the second most common type and when infection involves in genital area or urinary track.

(iii)

### Abdominal TB:-

When the TB infection occur in abdominal regions by peritonium, Abdominal lymph vessels.

(iv)

### TB meningitis:-

When this infection occur in the membranes (outer) of brain or spinal cord.

(v)

### Skeletal TB:-

When the infection spreads to bones or skeletal systems.

### Categories :-

TB is categorized into three :-

- Active TB
- Latent TB
- Miliary TB

### Active TB:-

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

It is contagious and causes symptoms. It's most common form is lung disease.

### Latent TB:-

It occurs when a person having TB bacteria within their body, but bacteria are

①

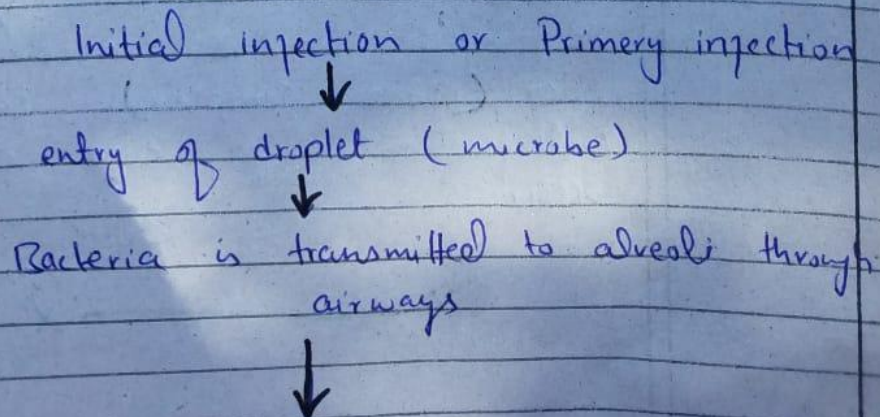
very few in numbers, and they are suppressed by the immune system of the body. They show no signs and symptoms.

### Miliary TB

It is the rare form of active TB in which a bacterium tries to find the way to blood stream and spread to the whole body organs. They show signs and symptoms like active TB and may additional symptoms according to the infected part.

The radiograph of such category shows tiny spots like millet seeds that's why they were named as "miliary" TB.

### Pathophysiology of TB :-



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Deposition & multiplication of bacteria



Bacilli are also transported but engulfed by neutrophils & macrophages

When the mycobacterium gets into pulmonary Alveoli and the immune system has lodged and detect the presence of pathogens and engulf the bacteria (by macrophage) but the mycobacterium resist the phagocytosis activity and till remain and protected inside the macrophage, then it get starts multiplication in it, and hence the primary infection occur. After that cell mediated cell activated and surrounds the cell and form granuloma.

This leads to necrosis of tissue at infectious site and it may involves access to lymph nodes (Ghon complex), later on calcification of Ghon complex occur.

X ————— X

Q no 3:

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

Answer

### Formation of renal stones :-

Kidney stones form when our urine contains more crystals forming substances such as calcium, oxalate and uric acid. Then the fluid in our urine can dilute. At the same time, our urine may lack substances that prevent crystals from sticking together, creating a favourable environment for kidney stones to form.

### Types of kidney stones :-

The types of kidney stones includes :-

#### (a) Calcium stones :-

Most kidney stones are calcium composition in the form of calcium oxalate, oxalate is a substance made daily by



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our liver and absorbed from diet, certain fruits have content of oxalate.

Calcium stones may also occur in the form of calcium phosphate, This type of stone is more common in metabolic conditions such as renal tubular acidosis. It may also be associated with certain medication used to treat migraines such as topomax, Trokendi XR

(b)

### Struvite stones.

These stones are formed in response to urinary tract infection. These stones can grow quickly and become quite large, sometime with few symptoms.

(c)

### Uric acid stones.

These type of stones are occurs in those who lose too much fluid because of chronic diarrhea or malabsorption, those who eat excess protein diet and those with diabetes or metabolic syndrome. certain genetic factor may also involved.

(d)

Cystine stones:-

They are mostly occur in those people who are having hereditary disorder called Cystinuria that causes the kidneys to excrete too much of a specific amino acid.

Diagnosis:-

Silent kidney stones means that cause no symptoms are often found when an x-ray is taken during a health exam. Other people realize they have stones when feeling sudden pain occur when the stone is passing.

When a person has hematuria or sudden stomach, side pain test like ultrasound or CT scan may diagnose a stone.

A CT scan is often used in the ER when a stone is suspected.

These imaging tests tell the doctor how big the stone is and where it located.



(u)

Q no:- 4:-

Briefly describe the types, causes, diagnosis and treatment of goiter.

Answer:

## Goiter:-

It is a condition in which the thyroid gland grows larger. The thyroid gland is a small, butterfly shaped gland located in the neck below the Adam's Apple.

It often secretes  $T_3$  and  $T_4$  hormones which aid in metabolic activities.

## Types of Goiter:-

Goiters have different causes so as a result it having different types.

(i) **colloid goiter:-**

It develops from the lack of iodine, which is essential for production of thyroid hormones. This type is more common in those areas where iodine is scarce.

(ii) **Non Toxic goiter (sporadic)**

It may be caused by medications like lithium.

It doesn't affect the thyroid.

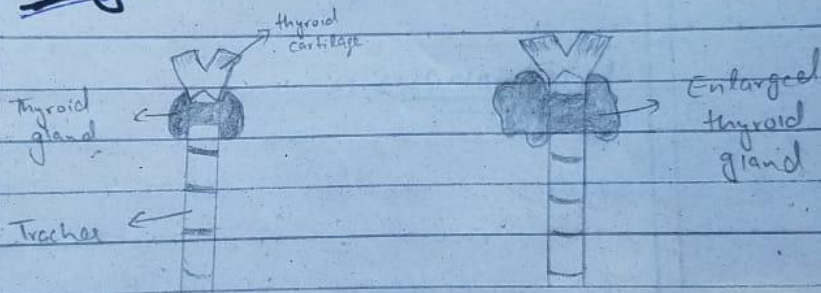
hormones and thyroid function is healthy. They are also benign.

(iii)

Multi nodular goiter.

This type of goiter forms when the nodules on the gland become large and produces it's own hormones and causes a hyperthyroidism of a simple goiter.

Diagram



Normal

goiter

Causes of goiter:-

iodine deficiency is the major cause which aid in production of thyroid hormones, so in the absence it may work high and size become large of thyroid gland

Other causes may include

(15)

- \* Grave's Disease (hyperthyroidism)
- \* Hashimoto's thyroiditis (hypothyroidism)
- \* Inflammation (thyroiditis)
- \* Nodules (cysts may appear but not cancerous)
- \* Thyroid cancer
- \* Pregnancy

### Diagnosis :-

It can be diagnosed by doctors usually checking the swelling of neck, it may also ordered to perform following diagnostic tests.

- # Blood test
- # Thyroid Scan
- \* Ultra sound (ultrasonography)
- \* Biopsy
- \* An antibody test

### Treatment :-

It can be treated depends on the size of goiter, signs and symptoms otherwise they will recommend.

(14)

- \* observations
- \* Medications  
(e.g. Levodopa, Synthroid etc.)
- \* Surgery
- \* Radioactive iodine
- \* healthy lifestyle and home care

x ————— x

Q) no ⇒ 5. Write a detailed note on Atelectasis, bronchiectasis and pneumonia.

### Atelectasis :-

When some of our alveoli don't fill with air it is called Atelectasis. It is different from a collapsed lung (also known as pneumothorax). A collapsed lung happens when air gets stuck in the space between the outside of our lung & our inner chest wall. This causes our lung to shrink or even collapse.

(15)

## Symptoms :-

Following are the symptoms -

- \* trouble breathing
- \* Sharp chest pain, especially during inhalation
- \* rapid breathing
- \* blue coloured skin, lips, finger nails etc.

## Causes:-

The causes of this disease will categorize into two:-

### obstructive atelectasis:-

Its causes are following

\* inhalation of foreign object

- \* mucus plug in airway
- \* tumor growing within airway.
- \* tumor in lung tissue that presses air ways

### non obstructive atelectasis:-

- \* Surgery
- \* pleural effusion
- \* Lung scarring
- \* pneumothorax
- \* surfactant deficiency
- \* chest tumor

(16)

it can be diagnosed by oximeter, blood gas test, chest x-ray, CT scan, etc  
~~bronchoscopy~~ etc.

### Treatment:-

- \* Chest physiotherapy
- \* Bronchoscopy
- \* Breathing exercise
- \* Drainage
- \* Surgical treatment

### ∴ Bronchiectasis ∴

The permanent dilation of bronchi and bronchioles due to destruction of muscle and elastic supporting tissue, it usually results from necrotizing infection.

### Etiology:-

- \* Long lasting bronchial obstruction
- \* Congenital or hereditary condition  
→ Cystic fibrosis



Diagnosis:

- \* clinical
- \* Chest x-ray
- \* CT Scan
- \* Sputum culture
- \* Sweat test
- \* Bronchoscopy
- \* cilia function and structure
- \* Lung function

Treatment:

- \* Eliminate cause
- \* Control infection
- \* Reverse airflow obstruction
- \* Bronchodilators

“ Pneumonia ”

∴ It is an inflammation of the lung parenchyma (i.e. alveoli rather than bronchi) of infective origin.  
 \* It is most common infectious cause of death.

Classification

Two type of classifications

(18)

## Morphological Classification:

- ① Lobar Pneumonia
- ② Broncho Pneumonia

## Clinical Classification:

- ① Community - Acquired Pneumonia
- ② Hospital - Acquired Pneumonia

## Causes of Pneumonia:

most common is Streptococcus pneumoniae bacteria cause

others :-

- \* Mycoplasma pneumoniae
- \* Haemophilus influenzae
- \* rhinovirus
- \* respiratory syncytial virus
- \* Cryptococcus species

## Treatment:-

- \* Antibiotics
- \* ibuprofen
- \* respiratory therapy
- \* At-home care
- \* IV antibiotics,

End.