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Q<sup>1</sup> What is Hydronephrosis? its cause, pathophysiology, diagnosis, treatment?

Ans

### HYDRONEPHROSIS:

It is a condition which occurs when the kidney swells up because of the urine accumulation.

The urine fails to drain out of the kidney and this results in swelling of both or one kidney.

It mostly occurs due to a blockage in urinary pathway or obstruction in the path.

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## CAUSES:-

This condition itself is not a disease but it occurs due to internal or external cause.

=> Most Common Cause :-

- (i) Kidney Stones.
- (ii) Acute Unilateral Obstructive Uropathy.
- (iii) Scarring and Blood Clots.

=> Other Causes :-

- (i) A tumor in the ureter.
- (ii) Pregnancy.
- (iii) Narrow Ureter due to injury or Birth defect.
- (iv) A kink in the ureteropelvic junction.
- (v) Enlarge prostate gland in men.

## PATHOPHYSIOLOGY:-

Anatomic or functional process can prevent the flow of urine and results in Hydro-nephrosis.

It causes the following physiological conditions:-

- (i) Decreases the function of Distal tubular part of nephron.
- (ii) Decreased rate of glomerulus filtration. The rate decline within hours and it can persist for weeks.
- (iii) Renal-tubular ability of transporting minerals also decreases.
- (iv) Post-obstructive Diuresis.
- (v) Decrease in Blood Flow in kidney.
- (vi) Impaired Renal Concentrating function.

## Diagnosis:-

Your doctor will feel your swelling just by genital massage.

In order to get the urine out of kidney, he can use a catheter in doing so.

Your doctor can also perform an ultrasound or CT scan in order to get a closer look of your swollen kidney.

The examination report allows the doctor to locate the blockage.

## Other Tests:-

IVU

RGP

Urine Culture

Cytoscopy

Cyto urethral gram

## TREATMENTS:-

Treatment mainly focuses on the blockage to get rid of. If the cause is a blocked ureter, the following thing might be done.

- (i) Inserting a Nephrostomy tubes
- (ii) Prescribing antibiotics to control the infection.
- (iii) Inserting a Urethral Stent.
- (iv) If there is Scarring or Blood clots, then a surgery is performed.
- (v) If the blockage is due to the kidney stone, the endoscopy surgery is performed.

Q2) Explain in detail → Types and pathophysiology of TB.

Ans TUBERCULOSIS:-

It is infectious disease caused by the bacteria which can spread from person to person through air.

Types:-

It is divided into 3 types:-

(i) Active TB:-

Active TB is also known as TB disease, it's a contagious type.

In this, the bacteria rapidly divide. The active TB can be transferred to any person from one person through coughing into air.

If someone is diagnosed into and have active TB, then he require proper treatment.

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## Symptoms OF ACTIVE TB:-

- (i) Fatigue
  - (ii) Fever
  - (iii) Night Sweat
  - (iv) Chills
  - (v) Loss of appetite
  - (vi) Weight loss
- loss of app

## TREATMENT:-

Active TB can be life threatening if remained un-treated. Multi-Drug treatment is given to treat the Active TB. Patient antibiotic may be put in under supervision of doctors. This method is called "Directly Observed Therapy".

## (ii) LATENT TB:-

It is a TB disease but the TB Bacteria in this condition are in inactive form.

By in active form of Bacteria directly means that

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there will be ~~no~~ no  
symptoms and also  
this type of TB  
is not contagious. But  
By doing a test  
the tests will appear  
positive from TB Blood  
and skin.

Here is a condition, the  
latent TB can be transformed  
into active TB, but this  
totally depend upon the  
individual immune system,  
if he has a weakened  
system because of  
medication or else, then  
the possibility is greater.

Mitig



(iii) Miliary TB:-

one type of TB, affect organs in the body through spreading into whole body.

Often targets are Lungs, Liver, Bone Marrow But as it has the spreading ability then it can also affect the brain, spinal cord and heart.

Miliary TB bacteria also causes the symptoms of Active TB. But it depend on Body parts which are affected by this.

Examples:-

↓ Low Red Blood cell count,  
if the Bone marrow is affected by Miliary TB Bacteria.

## PATHOPHYSIOLOGY:-

Infection starts, if the droplets containing tubercle bacilli are inhaled.

Macrophages ingest these bacilli. Most of the bacilli are destroyed.

Small numbers may divide and are released when macrophage dies.

These bacteria can spread through blood stream, lymphatic channels.

If the immune system fails to keep the bacteria in control, the bacteria divide rapidly. This process can happen in different areas of body such as lungs, brain, Bone and kidney.

Q3) How kidney stones are formed?  
Types of kidney stones & radiological  
procedures for stones.

Ans. RENAL STONE:-

Kidney stones are formed by various causes. When the urine of a person consists of more minerals or substances like calcium, uric acid etc than the fluid. Then there are more chances for the stone to form.

These stone promoter substance comes from the blood stream and are present in the urine. Because kidney filters the blood.

These stone promoters stick together in kidney forming a large stone. Because of the substances which are not present in the urine at the time of stone formation, which prevent stone formation.

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## 7 TYPES OF STONES:-

### (i) URIC ACID STONE:-

This stone develops because of high proteinous diet and lack of fluid in the body. Diabetic patients and genetic factors also promote uric acid stone formation.

### (ii) Calcium Stone:-

Most of the kidney stones are calcium stones. Mostly Calcium and Oxalate forms this stone. The concentrations of both of these increase due to vitamin D doses and bypass surgery of the intestine in the urine.

This type of stone is most common to occur in metabolic conditions.

⇒ Calcium stones include Calcium Oxalate and Calcium Phosphate.  
→ Formed because of abnormalities in pathway of urine.

(iii) CYSTINE STONE:-

These stones develop by the disorder called cystinuria. This disorder causes the amino acid to excrete out of the body.

(iv) STRAVATE STONES:-

Forms because of infections in the urinary pathway. The growth of these stones is quite high.

RADIOLOGICAL PROCEDURES:-

Following are the radiological procedures for the kidney stone.

① Ultrasound:-

This test uses sound waves in order to create an image of the internal structure.

This test allows the doctor to locate and monitor the

the stone:

The most common radiological procedure for the kidney stone.

(ii) KIDNEY - URETER - BLADDER X-RAY:-

This x-ray helps the radiologist to locate the stone or shows that there is much growth of stone here or there. Where the stone is grown, returned or passed.

(iii) CT SCANS:-

It has a more in-depth scan for the kidney. Take images from different angles and then gives a more detailed image which can't be obtained with normal x-ray.

(iv) MRI:-  
Magnetic waves are used to image the stone. Give two or three dimensional images. This procedure doesn't use any radiation like CT scan and is not harmful.

(v) INTRAVENOUS PYELOGRAM (IVP)  
That examination which uses a special dye to outline the pathway of urine i.e. kidney, ureters, bladder.

(vi) RETROGRADE PYELOGRAM:-  
x-ray to imaging test uses kidney pelvis, bladder, ureters.  
This test is also done during a test called cystoscopy.

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Ans

GOITER:- That condition in which the butterfly shaped thyroid gland grows larger.

It is located just below the Adams Apple.

The thyroid gland secretes hormone named  $T_4$  and  $T_3$ , which helps in metabolic activities.

TYPES:-

Following are the types of goiter.

- 1) Non-Toxic Goiter:- (Sporadic)  
This type of goiter is mostly caused by which factor is still unknown. But it is considered that it may be caused by medication.

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This type of goiter does not affect the functionality of thyroid gland and secretes his hormones as normal.

2) Colloid Goiter (Endemic)  
The type results from the lack of iodine. Those people who get infected by this type, they live in iodine is scarce.

3) Toxic Nodular:-  
As the name suggests, this type forms small nodules which when it enlarge the thyroid gland. Then these nodules produce their own hormone causing hyperthyroidism.

## Causes:-

The most common cause is the iodine deficiency. In the iodine deficient area, the gland gets impaired and becomes unable to work. Which makes the gland larger in size.

Other Cause includes-

- 1) Pregnancy.
- 2) Thyroid Cancer.
- 3) Nodules
- 4) Inflammation.
- 5) Graves Disease.
- 6) Hashimoto's Disease.

## DIAGNOSIS:-

Physician will ~~check~~ inspect the swelling. Any how, he will may perform the following tests.

Thyroid Scan  
Blood Test

Ultrasound  
Biopsy

## TREATMENT:

After inspection and test, the treatment provided to the patient will be based upon the symptoms appeared and thyroid condition.

The following things may be done for the treatment.

- 1) Medication
- 2) Observation
- 3) Radio-Active Iodine  
And
- 4) Surgery ~~can~~<sup>is</sup> also be a way to go with.
- 5) Home Care and lifestyle (healthy)

Q.5) Explain The Following:-

Ans

(i) PNEUMONIA:-

It is an infection in one or both of the lung caused by virus, Bacteria or fungi.

The infection cause inflammation in alveoli, which is the unit of lungs we can say. (air sacs).

The alveoli get filled with pus or fluid which make the person is unable to breath properly.

SPREADING:-

The bacterias can spread from one person to another, this mean it is contagious.

No matter it is viral or bacterial pneumonia, it can spread through inhaling.

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The droplet of infected person sneeze or cough.

Symptoms

Symptom includes the following:

- 1) Low of appetite
- 2) Headache.
- 3) Nausea
- 4) Vomiting.
- 5) Shortness of Breath
- 6) Sneezing.
- 7) Fever.
- 8) Coughing
- 9) Chest Pain.

⇒ Other symptoms depends on the age.

→ Infants may show no symptom. Sometime lack of energy.

→ Older people may have milder symptoms.

## CAUSES:-

There are several causes of pneumonia. List

### 1) BACTERIAL PNEUMONIA:-

It is the most common cause of pneumonia.

This one is caused by the streptococcus pneumoniae. Other causes include

Myoplasma pneumoniae.

Haemophilus influenzae.

Legionella pneumoniae.

### 2) FUNGAL PNEUMONIA:-

This pneumonia is caused by the bird droppings and soil fungi.

People with weaker immune system always get affected by this pneumonia.

3) VIRAL PNEUMONIA -  
Respiratory  
virus cause this pneumonia.  
eg:- Influenza, RSV.

=> CLASSIFICATION:-

TYPE I :- (MORPHOLOGICAL)

① LOBAR PNEUMONIA -  
Caused  
by streptococcus pneumonia.

Having four morphological  
stages.

- 1) Congestion
- 2) Red Hepatization.
- 3) Grey
- 4) Resolution

② BRONCHO-PNEUMONIA  
It is  
the infected of a  
specific part of terminal  
Bronchioles, it  
results in patchy  
consolidation of lungs.

(2) TYPE II :- (clinically)

- (i) Community - Acquired pneumonia (CAP)
- (ii) Hospital - Acquired pneumonia (HAP)

"CAP" :-

In Community Acquired Pneumonia, you or the person can be get infected by the pneumonia in community setting. not in hospital, nursing or health care centres.

"HAP" :-

that pneumonia by which infect the person get affected. It is in a hospital stay. It can be very serious.



## DIAGNOSIS:-

Following are the main procedure for diagnosing.

Sputum.

Blood Culture.

PCR.

Serology

Bronchoscopy

Broncho-Alveolar Lavage.

## CLINICAL:-

History

Symptoms

Chest x-ray

CT.

## TREATMENT:-

It depends on the type of pneumonia.

### 1) Medications:-

Anti-biotics may be prescribed for the condition.

Oral Anti-biotics can treat  
Bacterial pneumonia.

Anti-Biotics have no effects  
on viral.

Anti-Biotics can also be  
used for fungal case.

AT HOME CARE:-

Doctor may  
recommen over the  
counter medication.

These may include:-

Aspirin

Ibuprofen

Acetaminophen.

Complications:-

- 1) Lungs Abscesses
- 2) Sepsis
- 3) Respiratory Failure
- 4) Pleural effusion.
- 5) Acute respiratory Distress  
Syndrom.

(ii) ATELECTASIS:-

It is the partial collapse of lung.

It may include a lobe, several segments or the entire lung.

It is different from collapse lung. As both are different but pneumothorax can be transformed into atelectasis because the lungs alveoli will deflate as the size of lungs get smaller.

SYMPTOMS:-

Symptoms are..

- 1) Trouble breathing.
- 2) Rapid Breathing.
- 3) Heart Rate Increase.
- 4) Sharp chest pain.
- 5) Blue color lips, eye skin etc.

## CAUSES:

Depending on Cause it is divided into two.

### i) Obstructive Atelectasis:-

It occurs when a blockage develops in one of the airways. By this, air is prevented to travel to the air sacs. So the lung collapse.

⇒ Stopp which blocks the airway.

- 1) Tumor in airway.
- 2) Tumor in lung tissue.
- 3) Mucus in airway.
- 4) Inhalation of ~~foreign~~ foreign object.

### (ii) Non-Obstructive Atelectasis:-

is not caused by any blockage. Its common Cause are as follow:-

- b) Surgery.
- 30) Pneumothorax.
- 31) Lung Scarring.
- 32) Pleural Effusion.
- 33) Chest Tumor.
- 34) Surfactant Deficiency.

#### Diagnosis:

- 1) Chest X-ray.
- 2) CT Scan.
- 3) Broncho Scopy.
- 4) Blood Gas Test.

#### Treatment:

- 1) Chest Physiotherapy.
- 2) Broncho Scopy.
- 3) Drainage.
- 4) Breathing Exercises.
- 5) Surgery.

(3) BRONCHIECTASIS:-  
Condition in which  
the Bronchi and  
Bronchiole are perman-  
-ly get dilated because of  
the destruction  
of elastic supporting and  
muscle tissues. ↓ tissues

ETHIOLOGY:-

→ Hereditary Condition.

→ Bronchial Obstruction (Long Lasting)

SYMPTOMS:-

SHORTNESS OF BREATH.

Chest Pain.

Weight Loss.

Fatigue.

Coughing.

Clubbing.

Diagnosis:-

1) Chest X-ray.

2) CT Scan.

3) Pulmonary Function Test

- 4) Purified Protein Derivative.
- 5) Sweat Test

### TREATMENT).

- 1) CHEST Physiotherapy.
- 2) Oxygen Therapy.
- 3) Vaccination.
- 4) Expectorant.
- 5) Tiotropium.
- 6) Pulmonary Rehabilitation.