

Paper \_\_\_\_\_ Clinical  
medicine

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①

Q No 1 :-

Answer :- HYDRONEPHROSIS :-

The swelling of the kidney due to build up urine is called hydronephrosis

→ It occurs due to excess amount of urine accumulation? cannot pass out from kidney to bladder due to obstruction

Explanation :-

→ Hydronephrosis may occur in one or both kidney

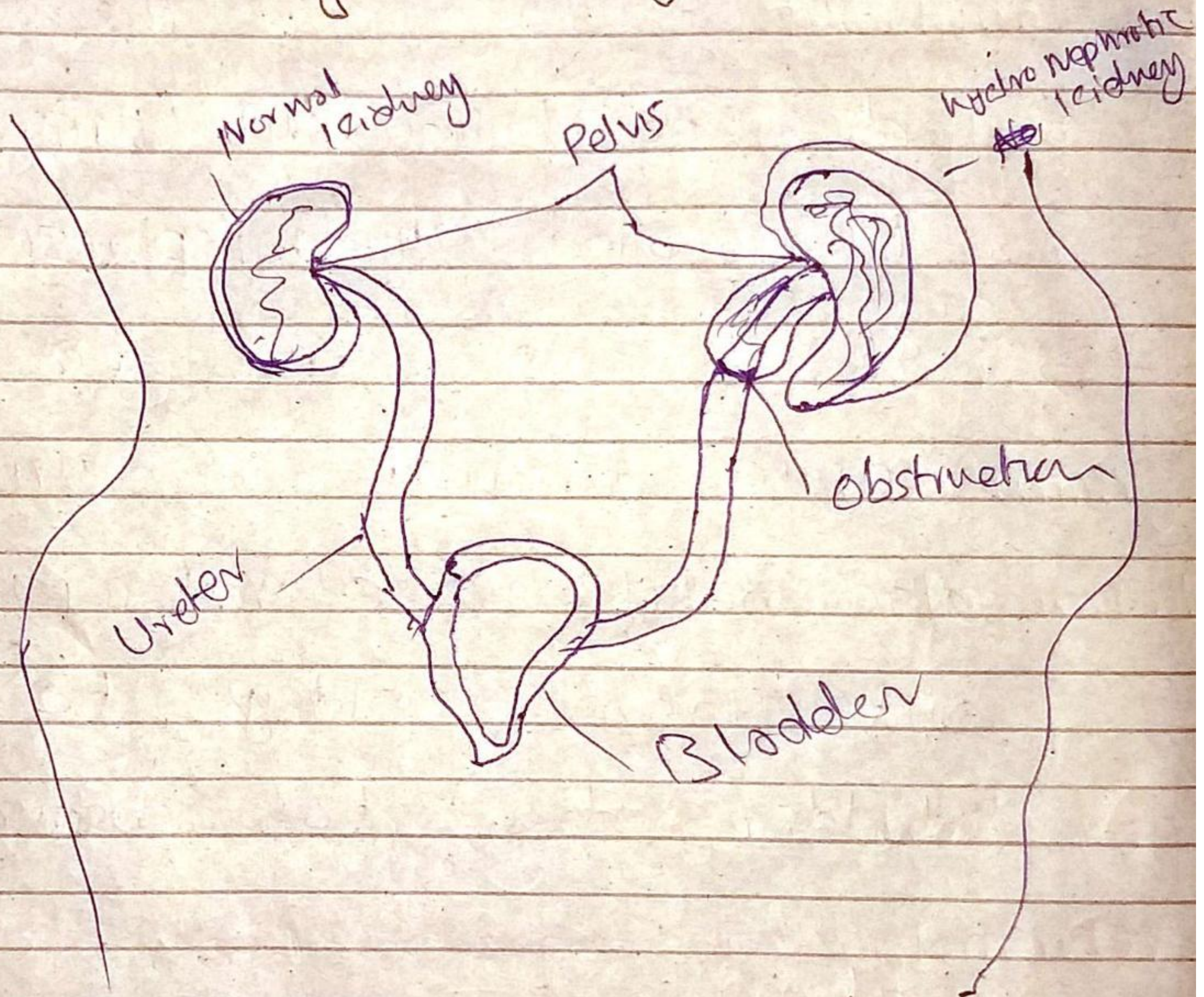
→ In hydronephrosis kidney starts swelling

→ usually due to obstruction

(2)

of urine path way

~~can~~ Diagram of Hydronephrosis.



Causes of Hydronephrosis :-

The cause of hydronephrosis  
are give below

3

1) Actual unilateral obstruction  
uropathy :-

When obstruction develop

in one of ureter,

ureters are tube that connect  
kidney to bladder.

2) Kidney stone :- when

stone are develop in

the urine pass ways.

3) Enlargement of prostate gland.

obstruction can cause due

to Benign prostate hyperplasia  
(BPH).

4) Pregnancy

5) Tumor :- tumor near ureter

(4)

## Pathophysiology: -

→ Hydronephrosis can result from anatomic or functional process interrupting the flow of urine.

→ This interruption occurs any where along the urinary tract from kidney to urethral meatus.

→ Urethral pressure lead to marked changes in glomerular filtration.

→ Dilatation of renal pelvis or calyces occur.

(5)

## Types of Hydronephrosis :-

→ Pelvic type

→ Renal type

→ Pelvorenal type

In pelvorenal type the pelvis and calyces both are dilated equally.

## Diagnosis of hydronephrosis

It diagnosis by.

→

1) Ultrasound

2) Cystoscopy

3) RGP

4) Delayed empty

5) Urine culture

6) Isotope renography

7) IVU

8) Urine culture.

(6)

Treatment of hydronephrosis :-

→ Treatment depends upon the site, cause, duration of

kidney damage

→ U.T.I Antibiotic therapy

→ Relief of lower tract obstruction

→ corrected to the cause

→ Promote drainage:

→ insert nephrostomy, tube which allow the block

urine to drain through back

→ Insert a urethral stent which is tube that allows

the ureter to drain into bladder.



(7)

Q No 2 :- Tuberculosis (TB) :-

Ans :- It is highly contagious

infection caused by the

bacterium called Mycobacterium

tuberculosis OR

An infectious bacterial disease

that is characterized by the

growth of nodules (tubercle) in

the tissue. especially the

lung tissue. tubercle are the

characteristics finding in TB.

→ It can spread to other

parts of body such as

brain, spine, lymph nodes

→ It may affect any one

person at any age



(8)

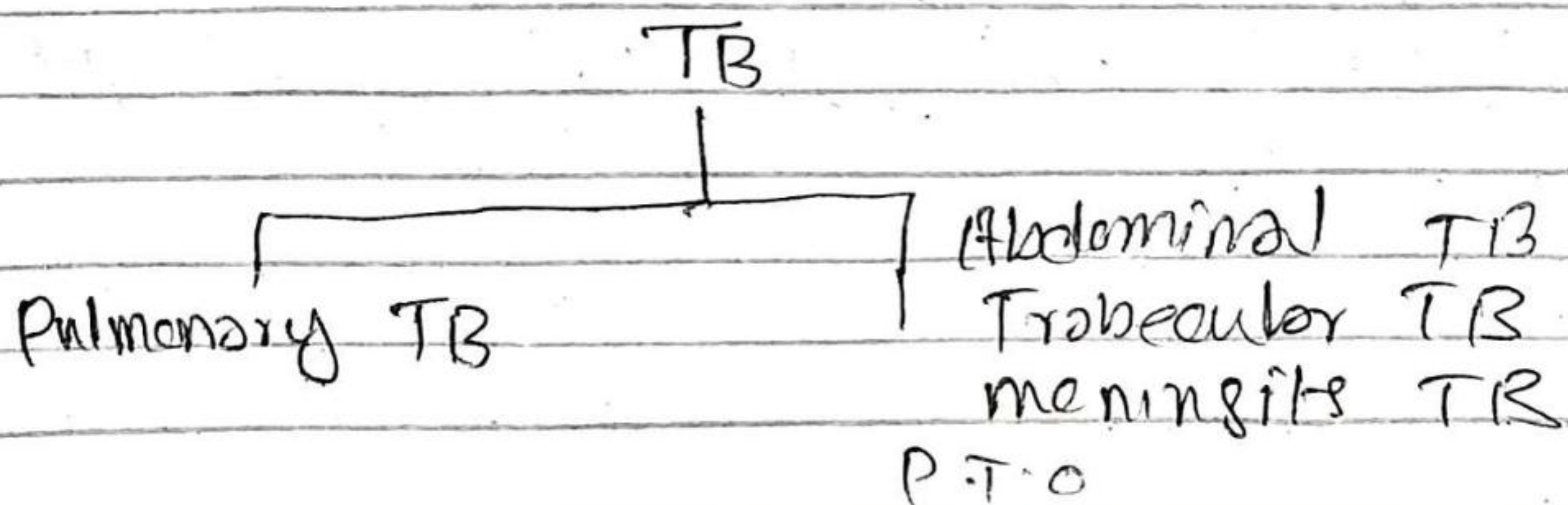
Spreading of TB:- TB is  
is caused by bacteria that  
spread through the ~~air~~ air  
like the cold or flu.

When TB patient cough, sneeze  
talks, laughs or sings. tiny  
droplets which contain bacteria  
are released.

When the healthy person inhale  
this affected droplet get  
affected or infected.

Not spread through hand shaking  
sharing food or drinks.

Classification of TB



④

↳

skeletal TB

milary TB

Types of TB

A TB infection doesn't mean

you will sick

\* you may have TB without

symptom.

There are three types of

TB

- 1) Active TB
- 2) Latent TB
- 3) Milary TB

1) Active TB : — It is a

illness in which the bacteria

multiply rapidly and can

make you sick.

→ cause symptoms

(10)

→ People with active bacteria

TB can spread the infection

→ active TB usually affect the

lung but can spread to

other organ

→

The individual with weak immune

are more susceptible to get

infected

→

2) Latent TB :- In this type

the present have mycobacterium

but never had symptoms.

→ The amount bacteria are very

less and control by immune.

→ There is no risk of spreading

in latent TB.

→ But may also convert into

①

active TB if some have already ~~if~~ HIV, or taking medicine which suppress immune.

3) Milliary TB :- It is a

rare condition of active TB.

In condition the bacteria are

spread to your blood and

through blood affect the

whole body organs.

Symptoms are same like

active TB, depends upon the

organ which affected

→ Their name are derived from

the distinctive pattern in

radiograph of many tiny

spots, through out the lung

(12)

The lung field which is  
appear like milky seed

→ mostly it is fatal.

Symptoms :- depend upon the  
type & site of TB.

→ Fever, chills, Night sweating,

cough, Loss of Appetite

loss of weight

Blood in sputum &

loss of energy.

Latent TB is asymptomatic

It convert to active than

the symptoms are

→ Bad cough

→ Pain in chest

→ coughing of blood

In extrapulmonary TB, there are  
other symptoms.

(13)

Phaltophysiology :-

phallogenisis :- 1st of all

bacteria enter through droplets



then bacteria is transfer to

alveoli (air sac) through air tract



Bacteria are deposited in alveoli & start multiplication.



If a Bacilli bacteria if also

transport to other parts of

body via blood stream and

& phagocytosis occur by

Neutrophils and macrophages



The mycobacterium when

enter to alveoli, phagocyte

engulf it after detection.

(14)

In side macrophages the mycobacterium resist through phagolysosome secretion and remain protected inside macrophages

→ It start division inside macrophage & the primary infection starts

After three week cell mediated immunity get activated and forms granuloma which cause necrosis at infection site

It also involve the lymph nodes & form calcification of case complexes

(15)

Imaging Test :- Chest - X-ray  
which shows the lung CXR → CT-scan  
is

Normal for latent TB.

Sputum Test :- "Sputum smear"  
Sample of sputum  
taken to examine under microscope  
for TB germ presence.

Mantoux - Stein test (Tuberculin) :-  
PPD (Purified) protein derivatives

are extracted from TB germ  
and injected into the skin

If lump is appear at test  
Positive.

Treatment of TB :- antibiotic  
are used to treat TB

1st line :- Isoniazid, ~~Rifampin~~ Rifampin  
Pyrazinamide, Ethambutol, Streptomycin

2nd line :- Capreomycin, Ofloxacin, Levofloxacin  
moxifloxacin, Rifabutin, Kanamycin  
prothionamide, amin salicylate, cycloserine  
Ethionamide.

→ dose duration is 3 month  
six month or 9 month.



Q No 3 :- <sup>(10)</sup> Renal Stone Formation,  
Types & diagnosis

Ans Renal Stone Formation :-

Renal stone also called nephrolithiasis is condition in which hard masses form with in the urinary tract.

- When there is UTI or family history of renal stone, the substance like calcium oxalate, uric acid, calcium phosphate are accumulate in the kidney or ureter & bladder
- calcium, oxalate, & uric acid are crystal forming substance
- The area which is infected are more susceptible for development of Renal stone.
- The calcium, oxalate & uric acid concentration is high in urine
- citrate concentration is low in

urine, citrate <sup>(17)</sup> inhibit stone development.

- Probability to develop stone among men 13% & female 7%
- 80% stone are calcium oxalate & phosphate

## Types of Renal Stones

### Calcium oxalate :-

- Common type renal stone
- 20%
- when low level of citrate & high level of oxalate this stone develop
- calcium oxalate present in beets, nuts, black tea, chocolate, tomato & spinach etc

### Calcium phosphate stone :-

- It occur after simultaneously of oxalate stone
- Diagnosed after series of tests

(13)

## Struvite Stones :-

- common in women
- resalts after UTI
- grow rapidly & become large
- if untreated, cause sever infection & loss of kidney function.

## Uric acid Function :-

- common in men
- occur in those who drink less water, family history, animal protein intake.
- gout or chemotherapy also cause this stone

## Cystine stone :-

- genetic based, cystinuria
- excessive amount of the amino acid accumulate & produced
- can result into a stone.

## Diagnosis of Renal Stone: - (19)

The radiological procedures are more likely to diagnose stone given below

CT-Scans - CT scan is the

- best radiological procedure to diagnose Renal Stone

→ In CT scan the doctor may be able to determine the size & location of stone

- It also evaluates the anatomy of urinary tract

MRI :-

MRI also use to diagnose renal stone because there is no radiation risk in MRI for pregnant women.

Plane X-Ray of <sup>(20)</sup> kidney stones  
So bladder: → The X-ray help the doctor  
then whether the stone are  
grown, passed & returned

Ultrasound: — Pf also determine  
size, location, passing &  
returning of the renal  
stone using sound wave.

Q No 4 :-

Ans:— Goiter :- The swelling of the neck resulting from enlargement of the thyroid gland

→ A butterfly shape gland found in neck called thyroid gland

→ Thyroid gland secret hormones,  $T_4$  (tetraiodothyronine) &  $T_3$  (triiodothyronine)

→ These hormone regulate the metabolic functions (food into energy) of the body

→ A condition that increase the size of thyroid gland called Goiter

→ Goiter can develop both in male & female but are more common in female

### Types of Goiter :-

There are many types of Goiter because of many different causes.

### Colloid Goiter (Endemic) :-

This type of goiter may develop in those who are iodine deficient, iodine is an important mineral for production of thyroid hormone. Colloid goiter can be seen in those who live in areas where iodine is

3

(23)

not in the proper amount.

→ If the iodine is deficient the thyroid gland stimulated and adapted to increase cells size & number due to increase work load.

Nontoxic Goiter (sporadic) :-

this type of goiter is developed with unknown

cause, The thyroid secretion

& function is normal

& healthy, but some

time medication like

Lithium

can caused nontoxic goiter



(24)

Lithium is used to treat mood disorder e.g bipolar disorder.

→ The nontoxic goiter is benign in nature.

→ The production hormones are also normal.

Toxic Nodular or

Multinodular Goiter :-

→ One or more nodules are form in this type of Goiter

→ Each nodules forms and secrete their own hormones in excess amount, causing hyper thyroidism

5

~~45~~ (25)

→ It generally forms as an extension of a simple goiter.

Causes of Goiter :-

Iodine :- The deficiency of iodine caused goiters.

because iodine is the mineral to help thyroid gland in producing thyroid hormones

→ When iodine is not in proper amount its deficiency stimulate the thyroid to grow larger in the size.

(2b)

Graves Disease :- This disease occur when the thyroid produces more hormones than the normal, known as Hyperthyroidism

→ This excessive hormonal production tend the thyroid to increase in size.

Hashimoto's Disease :-

When the thyroid produces hormones in less amount that stimulate pituitary gland to secrete Thyroid stimulating hormone which make thyroid to grow in size and cause Hyperthyroidism.

(27)

Inflammation :- When the thyroiditis develop that can cause goiter.

Nodules :- A non cancerous solid or fluid containing cyst may develop on thyroid. In case it to swell

Thyroid cancer :- malignant

tumor develop one side of the thyroid and cause it swell but it is not common as benign tumor.

Pregnancy :- During pregnancy some time iodine are deficient so it cause thyroid goiter.

(28)

Symptoms: —

→ Noticeable swelling in

your neck

→ Dysphagia, Dysphonia

→ Coughing,

→ hoarseness in your voice

→ Dizziness when you

raise your arm above

your head

Diagnosis: —

→ The doctor checks for

neck swelling

Blood tests: — hormonal changes

detected & increase number

of antibody diagnosed

goiter

(29)

Thyroid scan :- Thyroid scan determine the size of gland

Ultrasound :- → Determine size of giter & nodules with images after each follow up

Biopsy :- small piece of tissue taken for examination in lab.

Treatment :- Treatment depend upon the type, size and symptoms of goiter.

Medication :- For both hypothyroidism & hyperthyroidism medication are prescribed by a doctor to shrink goiter. Corticosteroid are given to reduce inflammation.

(b)

(30)

Surgery:— Thyroidectomy

(removal of thyroid) are

performed if not treated

with medicine.

Radioactive iodine:— These

iodine destroy the tissue

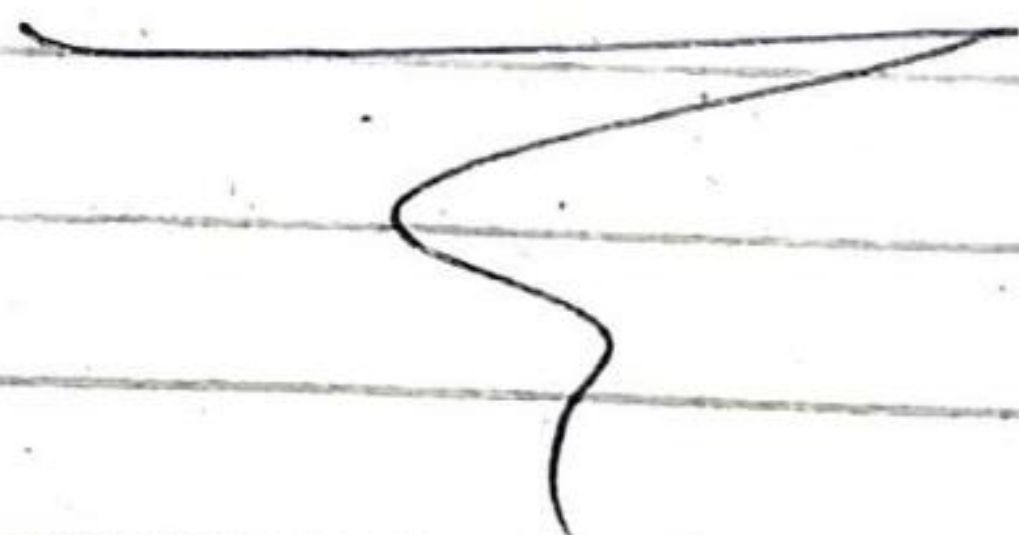
in those who who have

multinodular goiter

Iodine care:— increase or

decrease iodine intake

accordingly.



Q NOS:

(3)

Ans

Atelectasis:— The Atelectasis refers to either incomplete expansion of lung.

→ Neonatal atelectasis:— collapse of

- Previously inflated lung producing areas of relatively airless pulmonary parenchyma

Acquired atelectasis:—

Types of atelectasis:—

on the basis of underlying mechanism

- E distribution of alveolar collapse atelectasis is classified into three form

- ① Resorption
- ② Compression
- ③ contraction

Symptoms of Atelectasis:—

→ Coughing, Fever, Dyspnea & chest pain



## Risk Factors : — Foreign bodies <sup>(32)</sup>

- in air ways
- Lung Diseases
- mucus plugging of air way pressure  
cause by mass or liquid.
- Anesthesia & Prolonged bed rest.

## Obstruction Atelectasis : — It is

- the most common type.
- is a result blockage of  
air ways occur.
- It prevent air from reaching  
distal air way.

## Non Obstructive atelectasis : —

- It is passive
- compressive
- Caterization
- adhesive.

## Radiologic pattern<sup>(33)</sup> of atelectasis:-

- 1) Right upper lobe atelectasis:-
  - Shift of minor fissure superiorly
  - Shift of trachea towards ~~trachea~~ side of collapse
  - → S-sign of golden colour appear
  - obstructive of ab bronchus
- 2) Right middle lobe Atelectasis:-
  - silhouettes the right heart borders
  - of frontal view
  - elevation of diaphragm
  - → Density overlying the heart on lateral view
- 3) Right Lower lobe :-
  - Shift major down
  - Shift of heart to right
  - elevation of right hemidiaphragm

(34)

4) Left upper Lob Atelectasis :-

- Hori density around left hilum
- elevation of Left hemidiaphragm
- Shift the right structure to left
- Lateral view Linear density
- Hydrolucent crescentation appearance.

Treatment of Atelectasis :-

- Breathing or coughing exercise
- Inhaled medication
- Surgery.

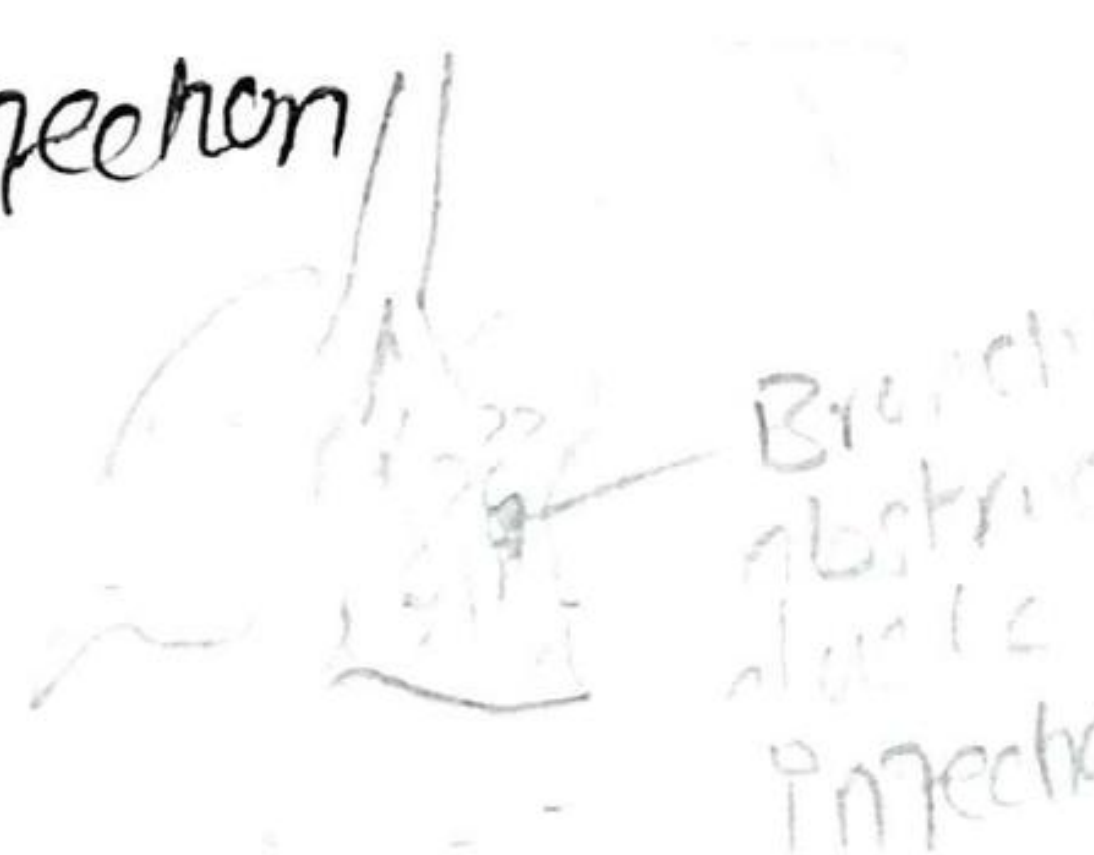
## 2) Bronchiectasis :- (35)

Bronchiectasis is the permanent dilation of bronchi & bronchioles due to obstruction of muscle & elastic supporting tissue

→ It is secondary disease due to obstruction because of infection

a) Cystic fibrosis :-

Bronchiol obstruction due to thick pus or fluid.



● Symptoms :-

- Productive cough
- Hemoptysis
- Dyspnea, Fever (episodic)
- In severe case, hypoxia pulmonary hypertension & hypercapnea.

## Diagnosis :-

Radiology :- Chest X-ray, CT scan

- Sputum culture test
- Sweat test
- Bronchoscopy → tumor, foreign body
- Immunoglobulin
- cilia function & structure.

## Treatment :-

- remove cause
- ensure tracheo-bronchial clearance
- control infection
- Reverse air flow
- chest physiotherapy
- Bronchodilator
- Antibiotics eg Penicillin, aminoglycoside  
cephalosporine etc.



3) Pneumonia :- It is an inflammation of the lung parenchyma e.g alveoli non bronchi.

- common infectious cause of death
- characterized by solidification
- The solidification of alveoli is occur due to mixture of inflammatory exudate, bacteria & wbc filled in alveoli

Classification of Pneumonia :-

- 1) TYPE 1
  - Lobar Pneumonia
  - Broncho Pneumonia
- 2) Type 2
  - Community acquired Pneumonia
  - Hospital acquired Pneumonia

The Lobar Pneumonia is caused by Streptococcus, Staphylococcus, H. influenza, Klebsiella, Pseudomonas & E. coli

Morphological Stages :-

→ 4 stages

- 1) Congestion
- 2) Hepatization
- 3) Grey hepatization
- 4) Resolution

Bronchopneumonia :- The infection of the terminal bronchioles found at alveoli and surround the alveoli

Chest X-ray of Lobar Pneumonia  
→ Solidification confined to one or more lobes

# Clinical Diagnosis : 39

- History
- sign & symptom
- chest x-ray & CT

## Etiological diagnosis :-

- → Gram's stain, sputum, Blood culture, PCR, serology & Bronchoscopy.

## Treatment :-

- Adequacy of respiratory function
- Humidified oxygen for hypoxemia
- → Chest physiotherapy
- Bronchodilator
- Proper hydration
- chest Pain analgesia.