

Name - M - Abbas.

ID - 15295.

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medicines.

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Submitted To -

Ms - Maheen
Gul.

Radiology

4th Semester

(1)

Q No: 1

HYDRONEPHROSIS

Definition

Hydronephrosis is the swelling of kidney due to build up of urine
→ It occurs due to when urine cannot pass out from kidney to bladder from

(2)

blockage or obstruction.

Explanation

→ Hydronephrosis occurs in one or both kidneys.

→ In this type of hydronephrosis disease the kidney starts swelling.

→ usually due to obstruction to out-flow of urine.

~~off~~

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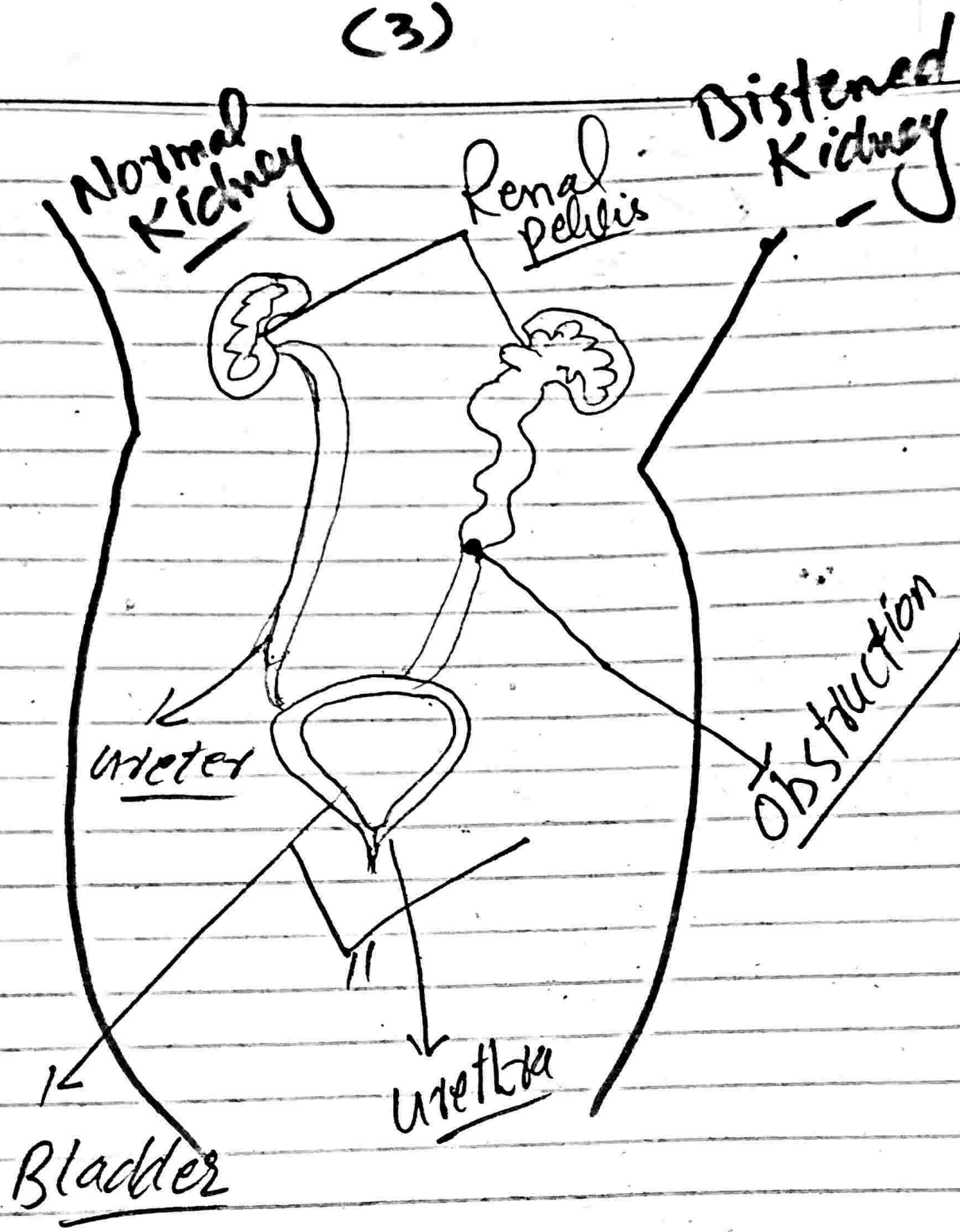


Diagram of
Hydronephrosis

(4)

Causes of hydronephrosis

The causes of hydronephrosis are.

(1) Actual unilateral obstructive uropathy.

→ Development of an obstruction in one of your ureters.

which are tubes

that connect kidney to bladder.

(5)

(2) Kidney stone ::

Kidney stone is common cause for blockage.

(3) Enlarged prostate gland ::

→ which can due (BPH) benign prostatic hyperplasia or prostatitis.

→ (4) Pregnancy.

(5) Tumors near ureter.

(6)

Pathophysiology :

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

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

→ Urethral pressure lead to marked changes in glomerular filtration.

Dilation of Renal
pelvis or calyces.

Types of Hydroureteris:

- Pelvic type
- Renal type.
- Pelvorenal type

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

(8)

Diagnosis of hydronephrosis

→ It diagnosis by.

- (1) Ultrasound.
- (2) Cystoscopy.
- (3) RGP
- (4) Delayed empty.
- (5) Urine culture.
- (6) Isotope renography.
- (7) IVP.
- (8) Urine culture.

(9)

Treatment of hydronephrosis

→ The treatment of hydronephrosis

depend upon the causes, site, 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

(10)

The block urine to
drain through back.

→ Insert a urethral
stent which is
tube that allows
the ureter to drain
into bladder.



(11)

QNO2.

Ans.:

TUBERCULOSIS

Definition:

→ It is a highly contagious infection caused by bacterium called mycobacterium tuberculosis and mycobacterium bovis

Explanation:

An infectious bacterial disease that is

(12)

Characterized by growth
of nodules in tissue

→ Especially the
lung.

→ Tubercle are the
characteristic finding
in TB.

→ It can spread to
other parts of body
like brain and spine

→ It may infect
anyone at any age.

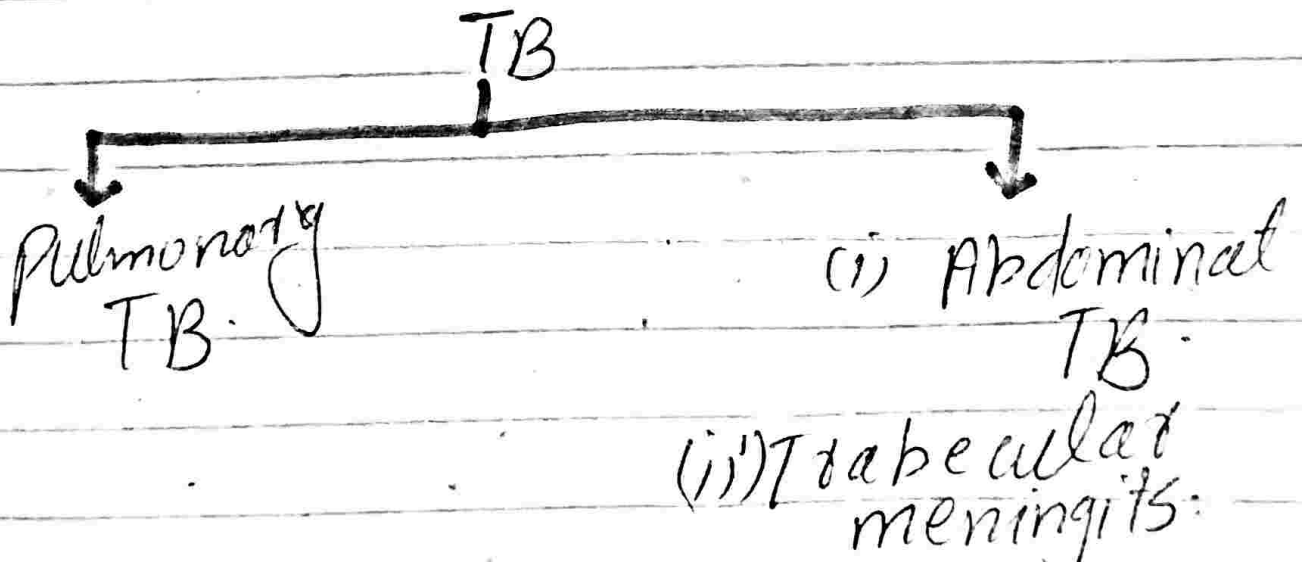
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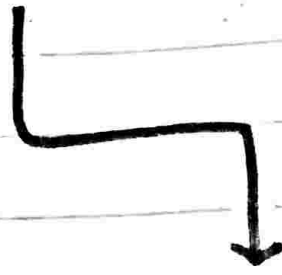
Spread:-

→ TB is caused by bacteria so it can spread through the air, droplets. e.g. if patient cough or sneeze, breathing.

Classification of Tuberculosis



(111)



- (ii) Skeletal TB
- (iv) Miliary TB.
- (v) other less common form.

Tuberculosis Types

Three Types.

- ① → Active TB.
- ② → Latent TB
- ③ → Miliary TB.

Each type is explained as below.

(15)

(1) Active TB:

- It is a disease in which the bacteria rapidly multiply.
- Make you sick.
- Those people which have active TB can be spread the infection
- mostly affected lungs.
- weak immune system.
- Older and young children and also in adults.

(16)

(2) Latent TB

It is type of TB in which a person have TB bacteria in their body but never develop symptoms.

→ Bacteria in their body will be present in small quantity.

→ Does not develop disease b/c they are under control of immune system.

(17)

→ No risk of passing infection from one person to another.

→ Latent TB can be at risk of to convert to Active TB.

(3) Miliary TB:

→ It is rare form of active TB.

→ Sometime bacteria get into blood and spread throughout the body and grow in one or several organs.

(18)

→ It can be seen on
Chest radiograph of
many tiny spots
through lung field.

→ Symptoms of TB

→ Fever

→ Chills

→ Night Sweats

→ Cough

→ Loss of Appetite

→ Loss of weight

→ Loss of Energy

→ Chest pain

(9)

(19)

Pathophysiology of TB

→ primary infection

Pathogenesis:-

→ First bacteria enter through droplets nuclei

→ Then bacteria is transmitted to the

alveoli through air ways.

→ They deposit and multiply.

→ It a bacilli bacteria

→ It also transport to other parts of body.

(20)

→ Phagocytosis by neutrophils and macrophages.

→ Mycobacterium enter into pulmonary. enter into alveoli which is detected by Alveolar

macrophages.

→ Engulf the bacteria

→ Mycobacterium inhibit

The macrophages to form phagolysosomes.

→ Remain protected inside

the macrophage.

→ Start replication.

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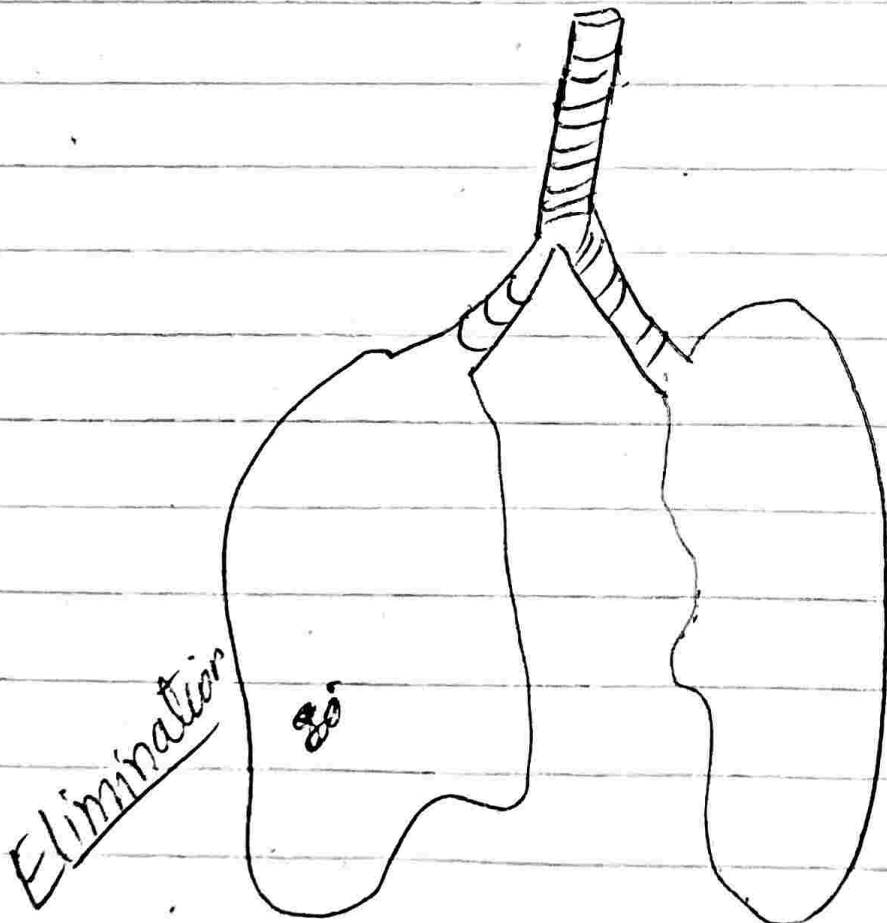
→ primary infection starts.

→ After 3 weeks
cell immune activated

and forms granuloma.

→ Leads to Necrosis.

→ involve lymph nodes.



Elimination

Active system
suppress the
infection.

(22)

Diagnosis of TB

→ Blood test

→ T Spot TB Test

→ Quantiferon test

→ PPD tuberculin is injected just below skin of inside forearm.

→ Imaging test like
(A) chest x-ray.
(A) CT Scan.

→ Sputum test

(23)

Treatment of

TB :-

→ Antibiotics.

→ Isoniazid.

→ Rifampin.

→ Streptomycin

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Q No: 3:

Ans

RENAL STONE

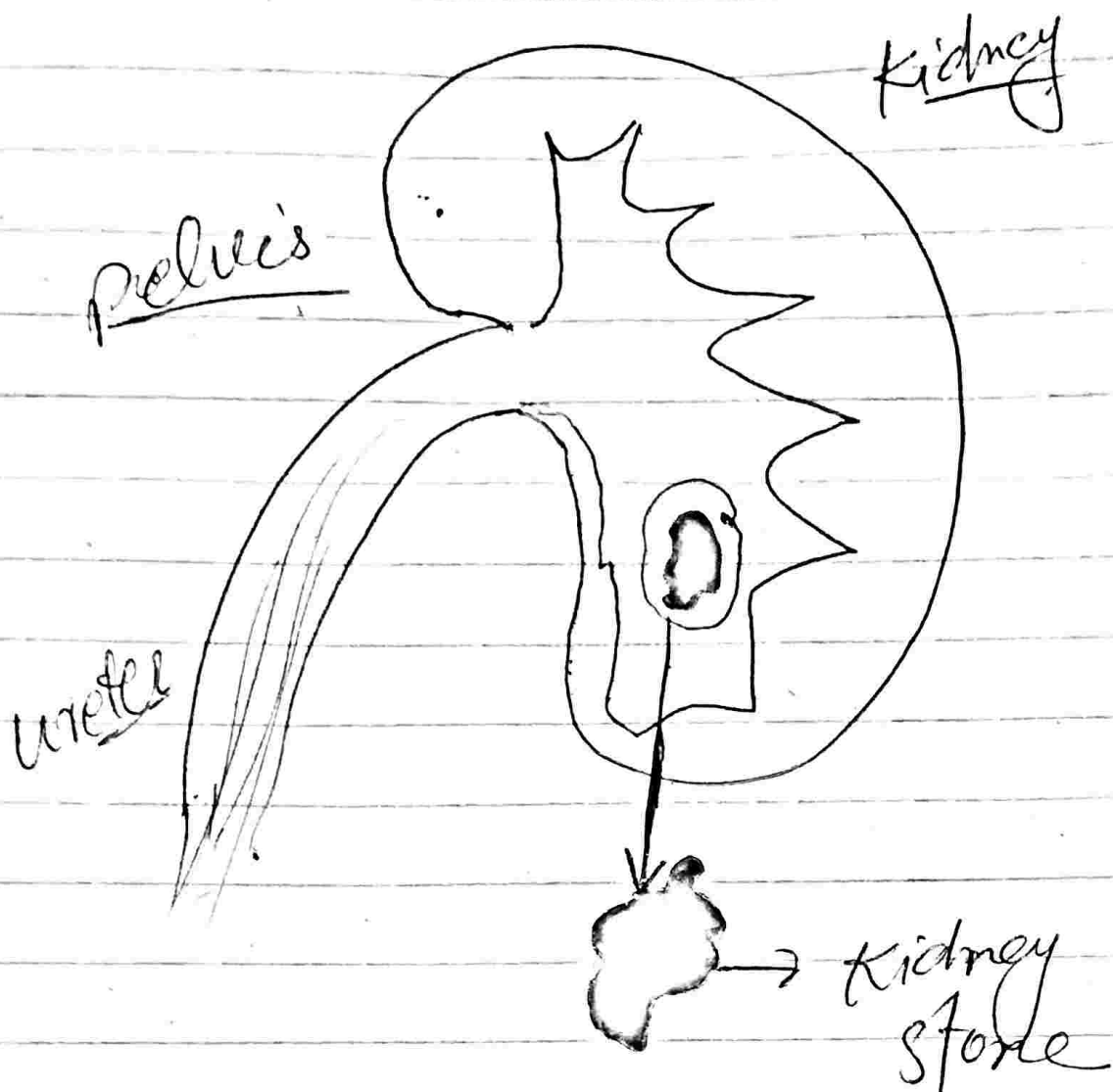
→ It is also called
Nephrolithiasis.

→ It is a condition
in which hard masses
form within the
urinary tract.

→ It is a hard crystalline
mineral formed

within the kidney or
urinary tract.

(25)



Formation of Kidney Stone

→ The urinary concentration of crystal forming substances like calcium

(26)

oxalate, uric acid is
high

→ Fluid in your urine
can dilute

→ At some time

urine may lack
substances that

prevent crystal from

sticking together

creating ideal environment

for kidney stone

to form.

(27)

→ Kidney stone is approximately 13% for men and 7% for women.

→ In adult with kidney stone is approximately 80%.

Consist of calcium oxalate or calcium phosphate.

5)

(28)

Types of Renal Stone

- ① Calcium oxalate.
- ② Calcium phosphate
- ③ struvite stones.
- ④ Uric acid stones.
- ⑤ Crystalline stone.

(1) Calcium oxalate

→ most common type of kidney stone.

→ These result when low level of citrate

(29)

and high level of calcium.

→ Either oxalate or ~~at~~ uric acid.

→ It link with food high in oxalate.

→ Foods including :-

beets, black tea,
chocolate, potatoes
and spinach.

(2) Calcium phosphate

→ It is caused by abnormalities in

way of urinary system function.

(30)

→ It simultaneously
with calcium oxalate
stones

(3) struvite stones

→ It is more common
in women.

→ When struvite
stone form as a result
of certain type
of urinary tract infection

→ These stones grows
quickly.

→ It becomes large.

→ Some time loss of
kidney function.

(31)

(4) Uric acid stones

→ more common in men.

→ It occurs in those people who don't

drink enough water.

→ or it use high

quantity of protein.

→ It occurs in peoples have

family history of

this type of kidney

stone.

(32)

(5) cystine stones

→ It caused by hereditary genetic disorder called cystinuria.

→ That can leads to excessive number of amino acids, cystine, collecting in urine.

→ Result formation of stone in kidney bladder, ureters.

(33)

Diagnosis of Renal Stones by radiological procedure:

The following procedure
is for diagnosis of
Renal ~~stone~~ stone.

(1) CT Scan:

→ CT is the best

procedure for the
diagnosis of kidney stone.

→ In CT Scan the
doctor may look

(34)

→ It is not typically used to prevent kidney stone.

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(35)

Q NO 4

Goiter

Definition :: Thyroid gland
increase size called Goiter.

The swelling of
neck resulting
from enlargement
of Thyroid gland.

→ Thyroid gland
secrete hormones

T₄ and T₃.

→ It is butterfly shape

(36)

gland found in neck
called Thyroid gland.

Explanation

→ It is a gland which
found in neck also
known as Thyroid
gland.

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

→ Goiter can develop
both in male and
female.

(37)

→ It is more common in female.

Types of Goiter

There are many types of Goiter.

(1) Collide Goiter. (Endemic)

→ It is type of Goiter may develop in those who are iodine deficient.

→ Iodine is important

(38)

mineral got Thyroid hormone.

→ Colloid Goiter

Can be seen in those peoples who lives in area

where iodine

is insufficient.

→ If the deficiency

of iodine occurs

the Thyroid gland

stimulated and

adapted to increase

cells size and

numbers.

(39)

2) Non Toxic Goiter

This type of
Goiter is developed
with unknown cause

The Thyroid secretion

→ Function is normal
and healthy but
some drug medication
like lithium can
cause non toxic
goiter.

→ To treat the
mood disorder e.g.
bipolar disorder
lithium will be
use for this.

(40)

→ The non-toxic goiter is benign in nature.

3) Toxic Nodular or Multinodular Goiter

→ In this type of goiter one or more nodules is formed.

→ Each nodule form and secrete their own hormones in excess amount.

causing hyperthyroidism.

(11)

Symptoms of Goiter

→ Dizziness when

you raise your arm
above your head.

→ Coughing.

→ Heaviness.

→ Swelling in Neck.

→ Dysphagia.

Diagnosis of Goiter

→ Blood test:

→ Hormonal changes

detection and increase

number of antibody
diagnosed goiter.

(42)

→ Ultrasound.

→ Biopsy.

→ Thyroid Scan.

Causes of Goiter

(1) IODINE :-

→ Deficiency of iodine cause goiter.

→ B/c iodine is the mineral to help thyroid gland in producing thyroid hormones.

(43)

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

(2) Graves disease

→ This disease occurs when the thyroid produce more hormones than normal.

→ known as hyperthyroidism

→ Excessive hormonal production tend thyroid to increase in size.

(111)

3) Hashimoto's disease

→ Thyroid produce less amount of hormones that stimulate pituitary gland.

→ To secrete

Thyroid stimulating hormones.

→ It make Thyroid to grow in size

→ Cause Hypertthyroidism.

(4) inflammation:-

→ When Thyroiditis develop that can cause goiter.

(45)

④ Nodules:-

→ A ~~can~~ noncancerous
solid or fluid.

→ containing cyst
may develop on
Thyroid

→ And cause it
to swell.

⑤ Thyroid Cancer

Malignant tumor
develop one side
of Thyroid.

→ cause it to
swell.

It is not common

(46)

as benign tumor.

(b) Pregnancy:

→ Some time

iodine deficiency

will occur during

pregnancy.

→ It cause Thyroid
Goiter.

Treatment of Goiter

→ The treatment of
goiter depend upon
size, type and
symptoms of goiter.

(47)

Medication:

- Doctor prescribed ~~the~~ the medication both hypothyroidism and hyperthyroidism to shrink goiter.
- Corticosteroid give to reduce inflammation

Surgery:

- Thyroidectomy is performed if medication not working.

(45)

Radioactive iodine

→ These iodine

destroy the tissue
which have multi

nodular goiter.

xy xy

(49)

Q NO 5

Ans ::

Atelectasis

Definition ::

→ Atelectasis refers either incomplete expansion of lung.

Neonatal atelectasis.

→ collapse of previously inflated lung tissue producing areas of relatively airless pulmonary

(50)

Pulmonary parenchyma.
acquired atelectasis.

→ Types of atelectasis

→ On the basis of underlying mechanism and distribution of alveolar collapse atelectasis is classified into

Three form.

→ (1) Resorption.

(2) Compression.

(3) contraction.

(51)

Symptoms of Atelectasis

→ Coughing.

→ Fever.

→ Breathing difficulty.

→ chest pain.

Risk factors

→ Foreign bodies in air ways.

→ Lung disease.

→ mucous plugging

of airway pressure

cause by mass or fluid

→ Anesthesia

→ prolonged bed rest.

(52)

obstructive Atelactasis

→ It is the most common type.

→ in a result blockage of airways.

→ It prevent air reaching distal airways.

Non obstructive atelactasis

→ It is passive.

→ compressive.

→ calcification

→ adhesive.

(53)

Radiographic pattern of atelectasis:

(1) Right upper lobe
Atelectasis :-

- Shift of the minor fissure superiorly.
- Shift of trachea towards side of collapse.
- S - sign of Golden.
- obstructive of bronchus.

(54)

2) Right middle Lobe
Atelectasis ::

Silhouettes the right

heart border of

frontal view

→ Elevation of diaphragm

→ Density overlying
the heart on

lateral view.

3) Right lower lobe Atelectasis

→ shift of major down

→ shift of heart to ~~right~~
right.

(55)

Elevation of right
hemidiaphragm.

(4) Left upper lobe

Atelectasis:-

→ hazy density
around left hilum

→ Elevation of left
hemidiaphragm.

→ Shift to right
structure to left.

→ Lateral view
linear density.

→ Hydrolucent crescentic
appearance.

(56)

Treatment of Atelctasis

→ Breathing or coughing
Exercises.

→ Inhaled medicines.

→ Surgery.

—————

(59)

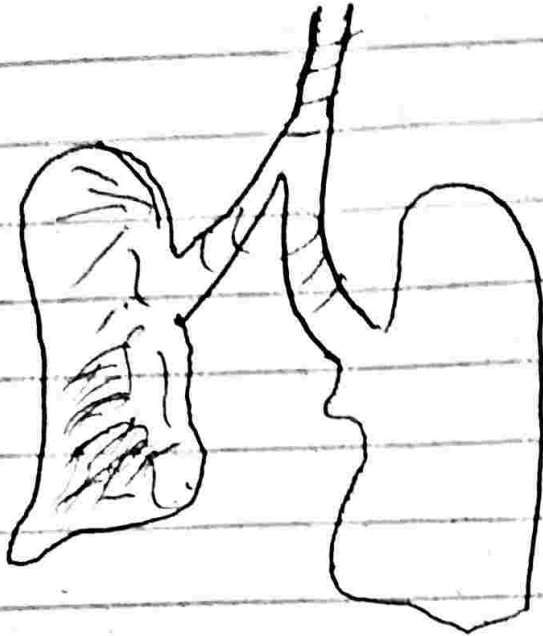
(2) Branchiectasis

Definition :-

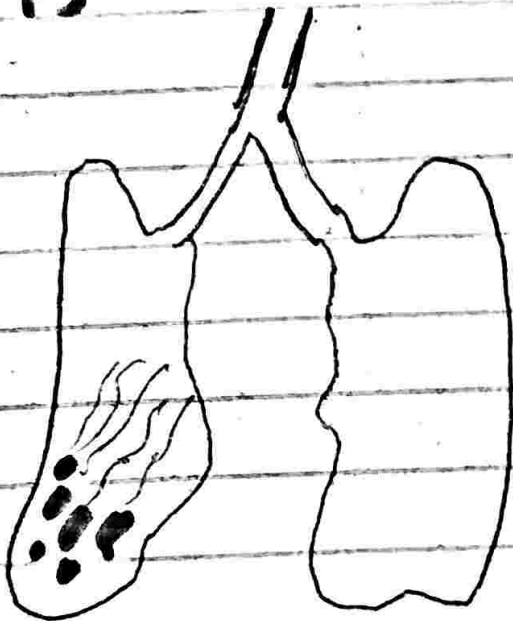
Branchiectasis is the permanent dilation of bronchi and bronchiole due to obstruction of muscles and Elastic Supporting tissue

→ It is Secondary disease due to obstruction.

(58)



Bronchial infection TB CF

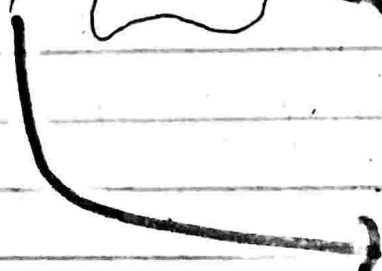
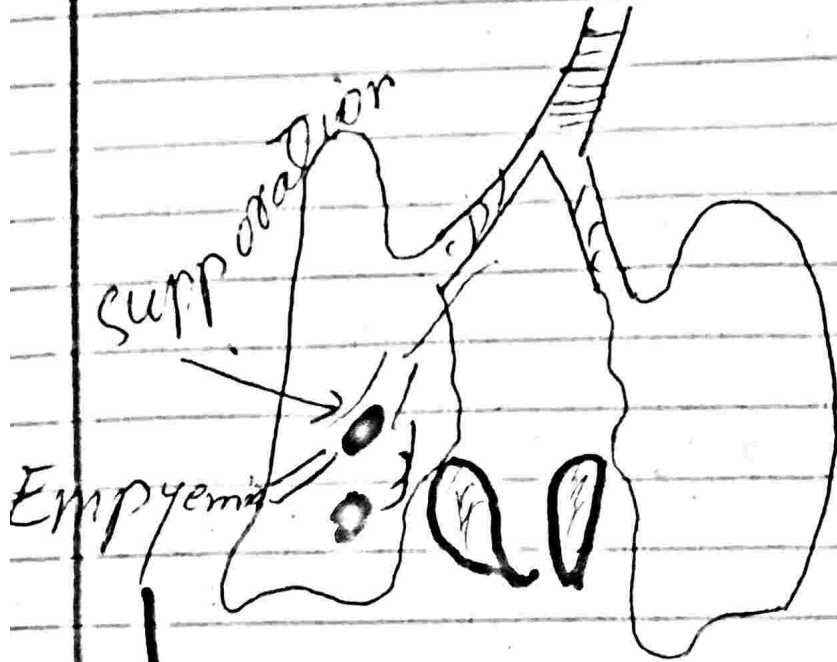


capfuls of
pus
→ foul
smelling

(11)

(67) (59)

Suppuration



pyemia.



Organs.

brain
abscess

(60)

Etiology of Bronchiectasis

(1) cystic Fibrosis (CF)

(2) infection

* TB

* severe pneumonia

* Bordetella pertussis

3) Immotile ciliary syndrome
Kartagener

(4) ABPA → airway



mucus impaction
or
Bronchiectasis

(61) ~~(63)~~

(67)

(5) Focal bronchial
obstruction

(6) Toxin inhalation

(7) Yellow nail syndrome

Diagnosis of Branchistasis

→ chest x-ray

→ CT scan

→ sputum culture

→ Clinical -

→ pulmonary function
test

→ purified protein
derivative (PPD)

(62)

Treatment of Bronchiectasis

- pulmonary rehabilitation
- Antibiotic to treat and prevent infection.
- Bronchodilator.
- Oxygen Therapy.
- Vaccination.
- Chest physiotherapy.

== x ==

3) Pneumonia ::

Definition ::

→ Pneumonia is the inflammation of lung parenchyma.

→ Alveoli rather than bronchi.

→ It is most common infection

→ It is usually characterized by consolidation.

(b4) (b6)

Classification of pneumonia

(1) Type 1

→ morphological
classification

→ Bronchopneumonia

→ lobar pneumonia

(2) Type 2

→ clinically classification

→ community - acquired
pneumonia (CAP)

→ Hospital - acquired
pneumonia (HAP)

Morphological Stages

Four morphological stages of lobar pneumonia:

① Congestion

② Red hepatization

③ Resolution

④ Grey hepatization

Bronchopneumonia

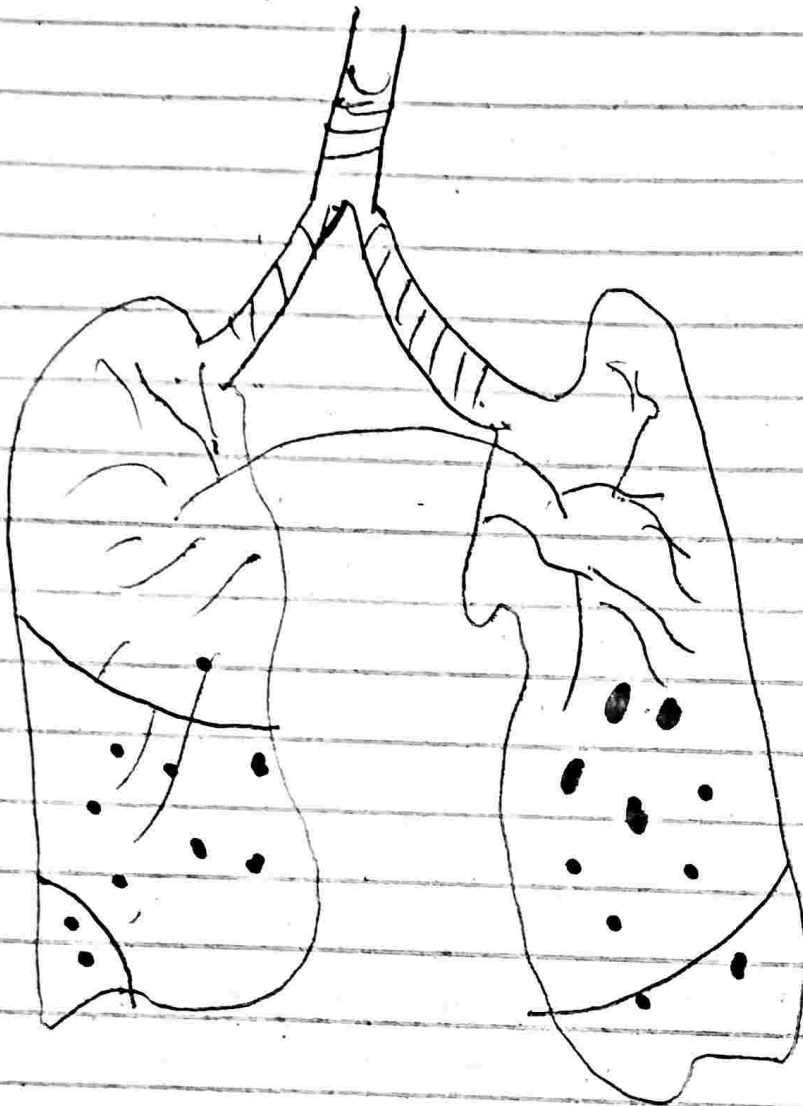
→ It is the infection

of terminal bronchioles

→ extend surrounding alveoli

(66)

→ Resulting Consolidation
of lung.



(67)

Complication

→ Acute respiratory distress syndrome

→ pleural effusion

→ lung abscesses

→ Sepsis

Diagnosis

→ History

→ signs and symptoms

→ chest x-ray

→ CT scan

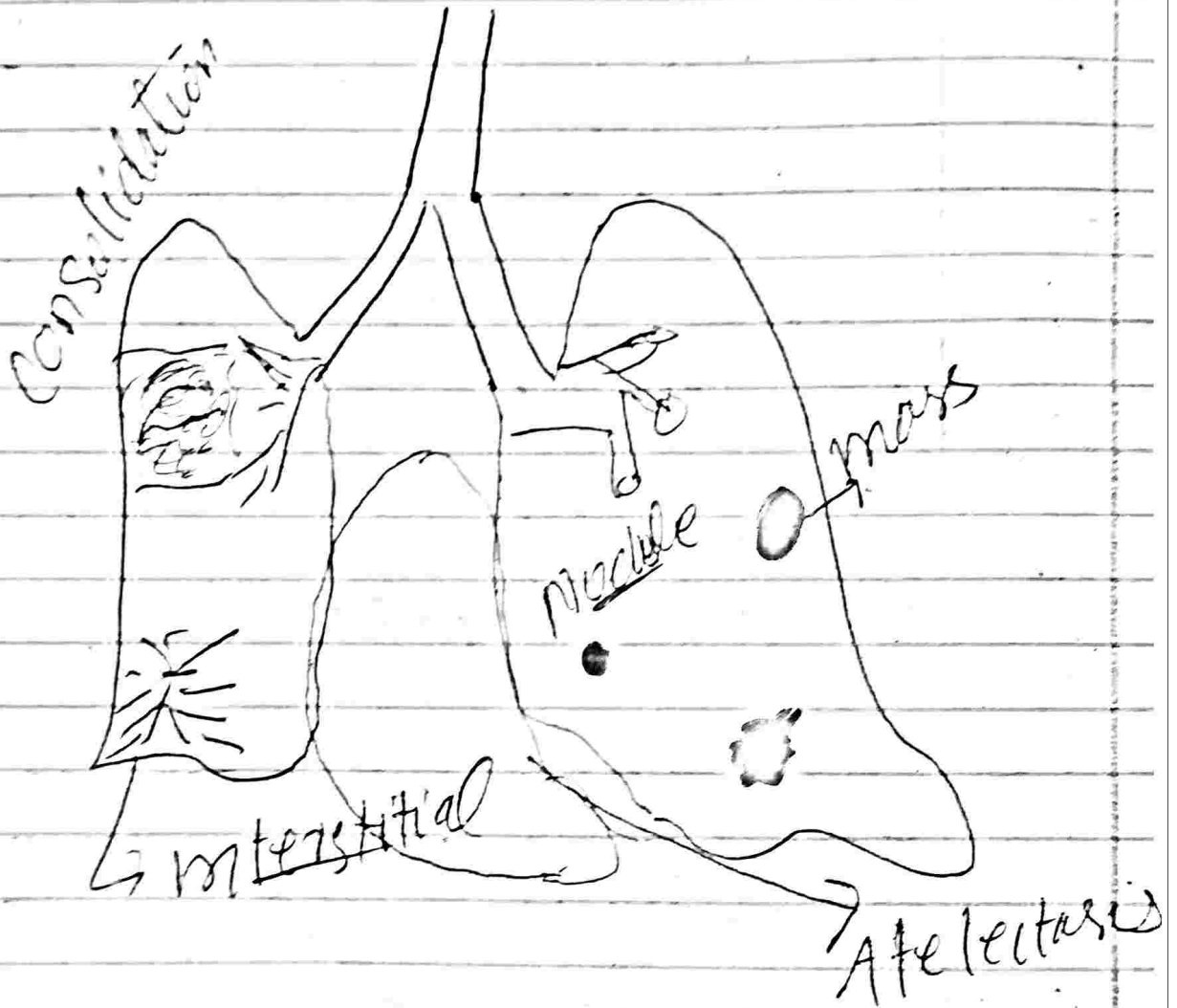
→ serology

→ sputum

(70)(68)

→ Bronchoscopy.

→ Blood culture.



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