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Course : Clinical Medicine I

Q. 2.3

Ans.:

Hydronephrosis:

Hydronephrosis is a condition in which one or both kidney become swollen due to incomplete emptying of the urinary tract. It can be sudden or chronic, partial or complete, one sided or bilateral.

Causes:

Some common causes of hydronephrosis include:

(1) partial blockage in the urinary tract.

Urinary tract blockages often form where the kidney meets the ureter. Less commonly, blockages may occur where the ureter meets the bladder.

(2)

(2) vesicoureteral reflux: vesicoureteral reflux happens when urine flows backward through the ureter from the bladder up into the kidney. Urine flowing the wrong way makes it difficult for the kidney to empty properly and causes the kidney to swell.

⇒ Less Common Causes of hydronephrosis:

Kidney stone: Stones that may become lodged in the kidney or urinary tract.

Cancer Tumor in the bladder, prostate gland, uterus or other organs that are part of or near the urinary tract may cause blockages that disrupt the flow of urine.

Nerve or muscle problem: These problems can affect the kidney or ureter, such as from diabetes mellitus.

⇒ In women, hydronephrosis may occur as a result of:

- ★ Pregnancy
- ★ uterine prolapse
- ★ cystocele (fallen bladder).

Treatment → hydronephrosis is usually treated by addressing the underlying disease or cause such as a kidney stone or infection.

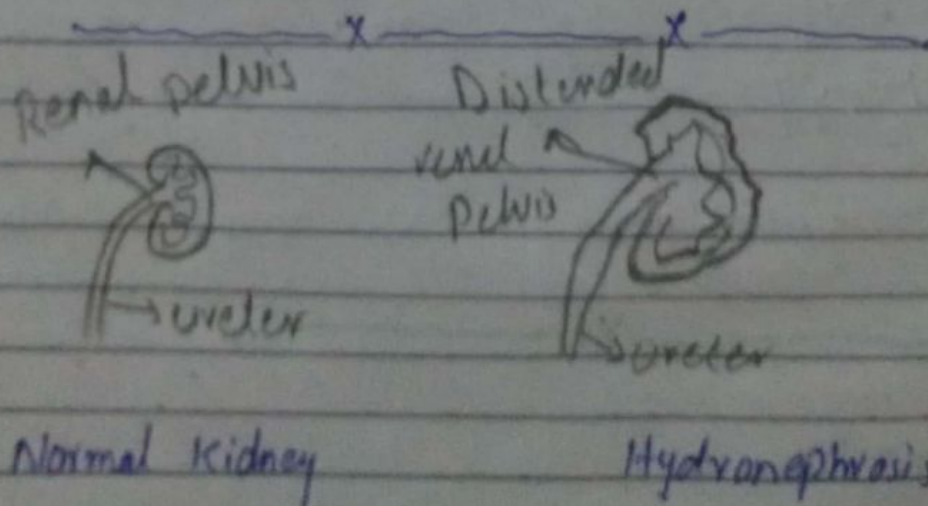
→ If the hydronephrosis is acute or sudden, a stent or soft tube (nephrostomy tube) may be inserted

→ If hydronephrosis is caused by stone in kidney or ureters, treatment option may include

- * Shock wave lithotripsy
- * ureteroscopy.
- * Surgery.

Medication used to treat hydronephrosis

- * Antibiotics
- * Analgesics



Diagnosis:

Hydronephrosis is usually diagnosed using an ultrasound scan.

← An ultrasound scan uses sound waves to create a picture of the inside of your kidney.

★ Blood test - used to check for infection.

★ Urine test - used to check for infection as well as traces of blood.

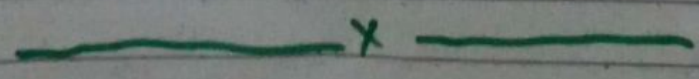
★ intravenous urography: → an X-ray taken of kidney after a special dye has been injected into your blood stream, which highlights the flow of urine through urinary tract.

★ CT scan: → similar to an X-ray, but uses multiple images and a computer to build up a 3-dimensional picture of the inside of your body.

★ cystoscopy

★ RGP

★ cystourethrogram.



Pathophysiology:

- ★ When pressure in the kidney pelvis = the filtration pressure in the glomerulus capillary, glomerular filtration stops. In response, blood pressure increases as the body attempts to increase the glomerular filtration pressure.
- ★ Metabolic acidosis results when the distal nephrons are impaired in their ability to secrete H^+ ions.
- ★ Impaired ability to concentrate urine results in polydipsia and polyuria.
- ★ Obstruction results in urinary stasis, promoting bacterial growth.
- ★ Chronic renal failure eventually results when hydronephrosis damages the renal parenchyma causing obstructive nephropathy.



:→ 2

Ans:→

Categories of tuberculosis:

- ① Active TB:→ Active tb is a fatal and a multiorgan disease caused either by primary infection or as a re-activation of latent tuberculosis. In this TB disease the (micro-bacterium Tuberculosis) multiplies rapidly and attacks different organs of the body.

Symptoms:→

- cough.
- phlegm.
- chest pain
- Fever.
- Chills
- sweating at night.

Treatment:→ For treatment, the multi drug treatment is employed. The patient may be asked to take antibiotics under the supervision of its physician. This programed is called "Directly observed therapy".

(7)

(2)

Miliary tuberculosis :-

This a form of TB characterized by a wide dissemination into the human body.

In this form, the TB causing bacteria enters into the blood vessels. Thus, it spreads in the whole body in less time.

Symptoms :-

- * Fever.
- * hypercalcemia.
- * Choroidal tubercles.
- * cutaneous lesions.

Treatment :- Standard treatment includes isoniazid and rifampicin for six months. Then antibiotics are given for 9 to 12 ~~more~~ months.

Surgery is needed for some complications of miliary tuberculosis.

Latent Tuberculosis →

It is non-fatal TB disease and people who are infected do not develop overt disease. It is due to the persistence immune response to stimulation by micro. bacterium TB antigens.

Symptoms → They usually have no symptoms and their chest X-ray may be normal.

Treatment → As this disease is non-fatal, however there is risk of turning into active TB disease.

To protect against this a strategy of preventive therapy or Latent TB infection treatment is employed.

Pathophysiology of TB →

The tubercle bacilli are carried in the droplets to reach the alveolar spaces. If the defence system of the host fails to eliminate the infection, the bacilli starts multiplying inside the alveolar macrophages and eventually kill the cell.

If the bacterial replication is not controlled the tubercle enlarges and the bacilli enter local lymph nodes this leads to lymphadenopathy a characteristic clinical manifestation of primary tuberculosis. Unchecked bacterial growth may lead to haematogenous spread of bacilli to produce disseminated TB.



Q: 3:3

Ans: 3

Kidney stones form when your urine contain more crystal-forming substances - such as calcium, oxalate and uric acid than the fluid in your urine can dilute. At the same time, your urine may lack substance, that prevent crystals from sticking together, creating an ideal environment for kidney stones to form.

Types of renal stones:

(1) Calcium Oxalate stones:

Most kidney stones are calcium stones, usually in the form of calcium oxalate.

Calcium Oxalate stones are form when urinary oxalate is supersaturated with calcium ions. These account for upto 75% of stones formed.

(2) Calcium phosphate stones :->

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.

(3) Struvite stones :->

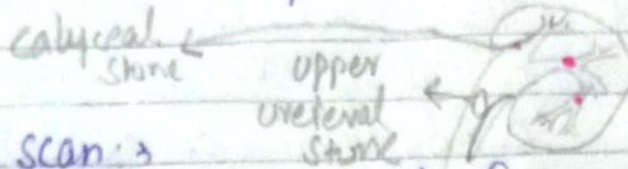
most common in women, struvite stones form in response to a urinary tract infection. These stones tend to grow quickly and become large, sometimes occupying the entire kidney. Sometimes few symptoms or little pain.

(4) Uric acid stones :-> More

common in men, uric acid stones can form in people who lose too much fluid because of chronic diarrhea.

(11)

Cystine Stones: These stones form in people with a hereditary disorder called cystinuria that causes the kidney to excrete too much of specific amino acid.



✓ CT scan:

unenhanced computed tomography of the abdomen and pelvis has become the first line test for evaluation of renal calculi in patient with acute flank pain.

⇒ CT has sensitivity and specificity of over 95% for the diagnosis of nephrolithiasis.

Ultra sound: The use of ultra sound for the evaluation of renal pathology is well established.

⇒ ultra sound is very effective in the detection of hydronephrosis, which may be related to an obstructing renal or ureteric stone.

⇒ ultrasound can detect large stone reliably, but it's difficult to detect small stone through ultrasound.

Q. 5

Ans:Atelactasis:

Atelactasis is a disease/condition in which the collapse or closure of lung occur which results in reduced or absent gas exchange.

This may include entire lung, a lobe, a segment, or subsegmental. When air sacs become deflated because of atelactasis, they cannot inflate properly or take in enough air and oxygen.

Causes:

★ Surgery: Surgery is the most common reason develop atelactasis. Anesthesia can affect your ability to breathe normally or cough.

★ Chest pressure:

pressure from outside the lung can make deep breathing difficult.

★ Blocked airway: A blocked airway can also cause atelactasis. If air cannot get past the blockage, the affected part of the lung

Could collapse.

→ other lung condition such as lung cancer, pneumonia, pleural effusion and respiratory distress syndrome can also be associated with atelectasis.

Symptoms Trouble breathing
increased heart rate
Coughing
Chest pain
Skin and lips turning blue.

Diagnosis → To diagnose atelectasis, doctors usually start with X-ray.

Another test called (CT) scan can provide more detailed pictures.

Treatment → post surgical atelectasis is treated by physiotherapy focusing on deep breathing and encouraging coughing.

* Walking is also highly encouraged.

* Continuous positive airway pressure is used which delivers pressurized air to help ensure that the alveoli do not collapse.

Bronchiectasis → It is a long term condition where the airways of the lungs become abnormally widened, leading to a build up of excess mucus that can make the lungs more vulnerable to infection.

- In bronchiectasis one or more of the bronchi abnormally widened. This means more mucus than usual gathers there, which makes the bronchi more vulnerable to infection.

- If an infection does develop, the bronchi may be damaged again, so even more mucus gathers in them and the risk of infection increases further.

Etiology →

chronic infection with resulting parenchymal destruction, fibrosis can lead to Bronchiectasis.

following condition ^{may} lead to bronchiectasis.

- * Long lasting bronchial obstruction
- * congenital or hereditary condition
 - cystic fibrosis

Diagnoses

- * Chest X-ray
- * CT scan
- * Sputum culture
- * Immunoglobulin.

Treatment:

- * Chest physical therapy
- * Bronchodilators
- * Antibiotics.
- * Reverse airflow obstruction

* pneumonia → pneumonia is an inflammation of the air-spaces (alveoli) in the lung most commonly caused by infection.

Bacteria, viruses or fungi can cause the infection.

Types →

Sometimes types of pneumonia are referred to by the type of organism that causes the inflammation.

The specific organism name may also be used to describe the types of pneumonia such as

- * pneumonia
- * pneumococcal
- *

other types of pneumonia:

- * Aspiration pneumonia develops as a result of inhaling food or saliva or vomit into the lungs.
- * Several types of bacteria including Legionella pneumophila. Mycoplasma pneumonia causes atypical pneumonia.

Diagnosis

- Chest x-ray
- CT
- Blood culture

Symptoms

- * Difficulty breathing
- * Rapid, shallow breathing
- * Cough.
- * Wheezing.

Causes →

- * pleural effusion
- * tumor
- * scarring of lung tissue
- * Foreign body.
- * Mucus plug.

Q:4

Ans: → Types of goiter:(i) Colloid Goiter (Endemic)

This occurs when the thyroid gland can't fulfil the metabolic needs of body with sufficient hormone production.

The gland compensates by enlarging. People who get this type of goiter usually live in areas where iodine is less.

(ii) Nontoxic (Sporadic)

Nontoxic goiter don't effect the production of thyroid hormone, and thyroid function is healthy.

- The cause of a nontoxic goiter is usually unknown.
- They are also benign.

(iii) Toxic Nodular (Multinodular Goiter).

This type of goiter involves enlarged thyroid gland that contain a small rounded mass or masses called nodules which produce too much thyroid hormones.

Causes of Goiter:

Iodine deficiency is the main cause of goiters. Iodine is essential to helping your thyroid produce thyroid hormone.

Other causes are;

(i) Hyperthyroidism: An overactive thyroid gland, this leads to large thyroid. And is the condition are known as Graves Disease.

(ii) Hypothyroidism: An underactive thyroid gland.

The low thyroid hormone causes the pituitary gland to make more (TSH), which causes the thyroid to swell.

This condition is Hashimoto's Disease

(iii) Hormone changes during puberty, pregnancy or menopause.

(iv) Thyroiditis: An inflamed thyroid gland.

(v) Nodules: Often noncancerous.

Fluid containing cyst may appear on the thyroid cause swelling.

Treatment: Goiter is treated according to the cause.

If the thyroid glands is producing an excess of thyroid hormones (I_3 and I_4) radioactive iodine is given to patient to shrink the gland.

If goiter is caused by iodine deficiency small doses of iodine in the form of Lugol's iodine or KI solution given.

Diagnosis: Doctor will check for neck swelling. This will also order a number of diagnostic test that includes:

- (i) Blood test: To detect change in hormone level and increased production of antibodies.
- (ii) Thyroid scan: Scanning shows size and condition of goiter.
- (iii) Ultrasound: Produce images of neck, the size of goiter and whether there are nodules.
- (iv) Biopsy: By this procedure small samples of thyroid tissue are taken which then carried to laboratory.