# Urology Portion BLOCK L

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# KMC Batch 26

MCQ Points For Urology Portion (Block L)\_

\*CONGENITAL DISORDERS OF THE KIDNEY AND URETER\*

✓ Congenital absence of one kidney.

\*Pelvic kidney.\*
 Often associated with reflux or PUJO(Pelvi-ureteric junction obstruction) Large pelvic kidney may interfere with childbirth.

\*Horseshoe kidney\*
The combined kidney lies lower than normal. Renal pelvis rotated anteriorly and the lower pole medially. Usually associated with reflux. undescended testes.

\*Congenital hydronephrosis\*
 Lower pole vessel may aggravate but rarely responsible for condition.
 Failure to thrive, recurrent UTI,mass, hypertension. Often discovered on prenatal USS.

✓ Infantile polycystic disease. Rare, autosomal recessive.

#### \*Adult polycystic disease\*

Autosomal dominant, involving both kidneys. Patients usually present aged 30-40 with hypertension, mass, haematuria, renal failure. May be associated with cysts in the liver.

\*Medullary sponge kidney\*
 Characterized by congenital dilatation or cysts of the distal collecting ducts. May be associated with hypercalciuria, impaired urinary concentration.

✓ \*Ureteric duplication\* . Often bilateral. The upper pole ureter lies medial and inferior to the lower pole ureter at the bladder.

#### ✓ \*Ureterocele\*

Dilatation of the submucosal portion of the ureter. Filling defect.

#### \*Megaureter\*

Secondary to either dysplastic (non-obstructed) or obstructed ureter. May be associated with stones, UTI. reflux.

✓ \*Vesicoureteric reflux.\* Reflux is the abnormal passage of urine from bladder to the ureter. Primary reflux is due to a defect of the vesicoureteric junction.Secondary reflux is usually due to outflow obstruction - 20% of children presenting with recurrent UTI have reflux.

\_Diagnosis\_: voiding micturating cystourethrogram. \_Treatment\_: antibiotics. regular voiding, ureteric reimplantation

#### \*BLADDER\*

\*Ectopia vesica (exstrophy of the bladder)\*

 $\checkmark$  more common in the male.

✓ The anterior wall of the bladder fails to close. The posterior bladder wall the trigone and posterior urethra are exposed and urine leaks onto the skin.

Associated anomalies include wide separation of the pubic symphysis with waddling gait ,epispadias, umbilical and inguinal hernias, imperfectly descended testes, and rectal prolapse.

Complications: ureteric dilatation and pyelonephritis.

#### Treatment:

Reimplantation of the ureters into an ileal loop conduit with excision of the bladder and repair of the abdominal wall defect.

\*Urachal abnormalities\*

Defects may result from the primitive urachal connections between bladder and umbilicus. If the tract persists, urine may discharge from the umbilicus.

### \*Urachal cyst\*

May occur if part of the urachus persists but is closed off above and below. Infection may occur.

Treatment :excision

# 🌟 \*URETHRA\*

The urethra may terminate on the ventral aspect of the penis \*hypospadias\* .Results in difficulty with intercourse.

✓ Txt: Plastic reconstruction

The urethra may terminate on its dorsal aspect \*epispadias\* .It may be associated with incontinence.

✓ Txt:Plastic reconstruction

Urethral valves may occur in the posterior urethra. 50% of cases occurring under 1 year of age. They cause dilatation of the prostatic urethra, bladder, ureters and pelvis.

# VDx:prenatal USS

Rarely there may be uraemia with palpable bladder and kidneys at birth. Milder cases present later in childhood with difficulty in voiding, recurrent UTIs and uraemia. VTxt: transurethral resection of the valves

🌟 \*HAEMATURIA\*

🔰 \*KEY POINTS\*

✓ Haematuria is the passage of red blood cells in the urine.

Detected on stix' testing

✓ Painless haematuria is suggestive of neoplasia.

✓ Loin pain or ureteric colic suggests stone or clot colic associated with tumour.

✓ Suprapubic discomfort suggests bladder stone.

✓ Terminal bleeding ( at end of micturition) with pain suggests bladder calculus.

✓ Urethral bleeding independent of micturition suggests a urethral lesion.

✓ Signs:Spontaneous bruising. Palpable kidney. Palpable bladder. Enlarged prostate on examination

✓ Urine microscopy:granular casts suggest nephritis

\*OBSTRUCTIVE UROPATHY\*

### 🔰 \*KEY POINTS\*

✓ Hydronephrosis is the distension of the calyces and pelvis of the kidney owing to obstruction to the outflow of urine

\*Symptoms and signs\*
 Loin pain
 Upper abdominal pain.

Fever Rigors - if infection.
 Ureteric colic
 Hesitancy, poor stream
 distended bladder with suprapubic discomfort
 Uraemia may be presenting complain

✓ Palpable kidney, Palpable prostate O/E

🔰 \*Investigations\* :

✔USS: enlarged renal outline. opaque calculi

✓ IVU (intra venous urography):pelvic dilatation with clubbing of the calyces, site of obstruction

Cystoscopy: Cause of Bladder Outlet obstruction

Retrograde pyelogram: exact site of obstruction

🔰 \*Treatment\*

With a small ureteric stone the obstruction may be relieved with the passage of the stone.

The presence of acute infection or marked renal impairment requires urgent decompression of the urinary tract under antibiotic cover. This may be done by percutaneous nephrostomy, suprapubic cystostomy, ureteric catheter drainage or urethral catheter drainage.

✓ A non-functioning kidney, especially if infected, should be removed.

# \*TYPES OF CALCULI\*

🔰 \*Calcium oxalate\*

✓ Mulberry stones covered with sharp projections.

✓ They cause bleeding and are often black owing to altered blood on their surface.

V Because of their sharp surface they give symptoms when comparatively small

✓Occur in alkaline urine.

\*Phosphate\*

VUsually compound of calcium, magnesium and ammonium phosphate

✓ Smooth and dirty white

V They may enlarge rapidly and fill the calyces taking on their shape. i.e. staghorn calculus

✓ Occur in strongly alkaline urine.

🔰 \*Urate\*

✓Arise in acid urine

✔ Hard, smooth. faceted and light brown in colour

🔰 \*Cystine\*

✓ Usually multiple

✓Arise in acid urine

✔ Are of metabolic origin owing to decreased reabsorption of cystine from the renal tubules.

White and translucent (not visible on X rays)

\*Xanthine and pyruvate stones\*

Rare. Due to inborn error of metabolism.

\*Symptoms and signs\*

\*Renal calculi.\*

✔ May be asymptomatic

VLoin pain

✓ Haematuria, Dysuria

✓ Signs of uraemia. Colic if stone impacts

in pelviureteric junction

\*Ureteric calculi\*

✓ Severe colicky pain radiating from loin to groin.

✓ Sweating. Nausea. Vomiting.

\*Bladder calculi\*

VDull suprapubic discomfort, terminal haematuria, dysuria

\*Treatment\*
 Analgesics
 I/V fluids
 Stones<4mm and 4-6mm will pass spontaneously</li>
 Stones >6mm require surgical removal. Following options can be used:
 1. \*Percutaneous nephrolithotomy:\* stone grassped by small forceps, ultrasonic disintegration, suction
 2. \*Extracorporeal shockwave lithotripsy:\* external energy source focussed

✓3. Open surgery

✓ 4. Bladder stones removed cystoscopically and large stones >5 cm by suprapubic cystostomy

\*Prevention of reoccurrence:\*

✓1. Calcium stones---> low Ca diet, thiazide diuretics, acidify urine

2. Urate stones---> allopurinol, urinary alkalinzation

\*TUMORS OF RENAL TRACT\*

🔰 \*KEY POINTS\*

# **V** \*KIDNEY\*

Renal cell carcinoma:

- 1. Arises from renal tubular epithelium
- 2. Adenocarcinomas
- 3. Age>40 yrs
- 4. Haematuria, pain, Palpable mass, anemia, polycythemia

5. Others; hepatomegaly,

fractures, breathlessness etc

- 6. CT scan: standard investigation
- \*Txt\* : Nephrectomy

#### 🔰 \*RENAL PELVIS AND URETER\*

- 1. Transitional cell tumors or squamous cell carcinomas
- 2. Haematuria, infection sc to hydronephrosis, ureteric colic

\*Txt\* : Nephroureterectomy with excision of a cuff of Bladder wall

#### 🔰 \*BLADDER\*

- 1. Transitional cell carcinoma
- 2. Middle aged and elderly males (common)
- 3. Painless haematuria, dysuria, frequency and urgency
- 4. Hydronephrosis, CRF, pain from pelvic invasion
- 5. Filling defects

✓ \*T1\* : confined to mucosa and submucosa

\* Txt\* : Transurethral resection/ cystodiathermy. If multiple tumors, chemotherapy with mitomyocin.

✓ \*T2\* : Superficial muscle involved, rubbery thickening

- \* ✓ Txt\* : Radical cystectomy is gold standard
- ✓ \*T3:\* Deep muscle involved- mobile mass
- ✓ \*Txt\* : Radiotherapy, cystectomy or combination

✓ \*T4\* : Invasion beyond bladder

\*Txt\* : palliative Radiotherapy

\* \*UTIs ( Important Topic)\*

### 🔰 \*KEY POINTS\*

Common case presentation: In young, non-pregnant females, typical clinical features (e.g. dysuria, suprapubic pain) in the absence of vaginal symptoms, is highly suggestive of a UTI.
 Significant bacteriuria is defined as > 10\*5 colony forming units (CFU)/ml
 E.coli is the most common cause. Fimbriae attatch to urothelium and contribute to pathogenesis.

🔰 \*Types\* :

**V** \*Upper UTI:\* infection of the kidney (pyelonephritis)

✓ \*Lower UTI:\* infection of the bladder (cystitis) and urethra (urethritis)

**V** \*Uncomplicated UTI:\* if occurring in healthy non-pregnant adult women

\*Complicated UTI:\* the presence of factors that increase the risk of treatment failure
 (e.g diabetes, structural abnormalities, catheter and other devices and all UTIs in men)

✓ \*Other Organisms\* :

Proteus mirabilis

- Klebsiella pneumoniae
- Staphylococcus saprophyticus

\*Risk factors for the development of UTIs include:\*

• Recent sexual intercourse

- Diabetes
- History of UTIs
- Spermicide use
- Catheters (Major Risk Factor)



- Dysuria
- Frequency
- Urgency
- Incontinence
- Suprapubic pain
- Haematuria



- Fever
- Rigors
- Flank pain

• Confusion

• Costovertebral angle tendernes

\*Adverse Complication\*
Urosepsis

\* V Txt : Rule of 3 in and 3 out\*

**V**3 in:

1. Oxygen

2. Antibiotics

3. I.v fluids

✓3 out: To be taken and monitored

1. Urine output

2. Lactate

3. Blood cultures

\*Investigations for UTIs:\*

1. Urine dipstick: To measure leukocyte esterase released by WBCs

2. Urine microscopy, cultures and sensitivity

3. CBC,CRP

\*Management\* :

1. Drink plenty

2. Amoxicillin Usually prescribed. Change antibiotic according to culture

3. Acute Uncomplicated UTI: Trimethoprim (C/I in pregnancy) or nitrofurantoin (C/I In renal impairment)

4. Complicated cystitis: Fluoroquinolones

5. Urosepsis/Acute severe pyelonephritis: IV co-amoxiclav or ceftriaxone

\*URINARY TRACT TUBERCULOSIS\*

**\*KEY POINTS** 

Repeated UTIS with frequency, dysuria. haematuria

✓ Occasionally dull loin pain

✓Weight loss, fever, night sweats

**V**Epididymitis

✓ Scrotal sinuses.

✓ Urinalysis: pus cells, protein, red cells

✓MSU: sterile pyuria

✓ Urine microscopy and ZN staining of early morning specimen of urine may demonstrate acid-fast bacilli Culture of tubercle bacilli positive (takes up to 6 weeks)

✓ IVU: plain film may show calcification in the renal parenchyma:irregularity of the calyces, obliterated calyces, contractures of ureter or bladder, vesicoureteric reflux

Cystoscopy: small-capacity bladder with tubercles

**V**Treatment:

Antituberculous drugs

🌟 \*BPH\*

🔰 \*KEY POINTS\*

✓ Age above 50 yrs

V The cardinal symptoms are hesitancy (difficulty in starting) and a poor stream.

✓ Nocturia, frequency, dribbling, incontinence, acute retention.

V Haematuria from ruptured dilated bladder neck veins.

✓ Smell of stale urine on patient

Enlargement of kidney (hydronephrosis).

✓ \*Examination PR\* - smooth enlarged

prostate, median sulcus. enlarged lateral lobes. Signs of uraemia.

✓ \*Investigations\* :

Hb. CBC ESR U&Es Creatinine PSA to exclude malignancy MSU USS: assess upper urinary tract(hydronephrosis), bladder, residual urine.

\*Treatment\* :TURP with Cystoscopy

🌟 \*PROSTATITIS\*

🔰 \*KEY POINTS\*

🔰 \*Acute bacterial prostatitis\*

✓ Fever

Vlow back pain, perineal pain

V bladder irritation, outflow obstruction.

✓ Enlarged tender prostate

**WBC** raised

✓MSU usually shows growth, Blood culture may be positive

✓ \*Txt\* :bed rest, antibiotics (often i.v.) and analgesia

\*Chronic prostatitis\*

Symptoms of UTI

✓ Dull perineal ache

✓ Normal or indurated irregular prostate.

✓ Prostatic massage may yield secretions containing white cells and occasionally organisms

VDo Culture for TB

✓ \*Txt:\* long-term antibiotics, e.g. ciprofloxacin for 4-8 weeks. Prostatic
 massage may be effective. Tuberculous prostatitis is treated with antituberculous therapy.

\* \*URETHRAL STRICTURES\*

🔰 \*KEY POINTS\*

✓ The causes include infection. trauma. foreign bodies, stones, iatrogenic, i.e. post catheterization or instrumentation, and tumours

Symptoms and signs*
Weak stream
dribbling
acute or chronic retention
UTI.

\*Investigations\* .
 Flexible cystoscopy under local anaesthetic
 Retrograde or antegrade cystourethrogram.

**\***Treatment\* :

Optical urethrotomy

Intermittent self-dilatation with Loferic catheters

Surgical reconstruction with skin flaps.

🔰 \*URINARY RETENTION\*

🔰 \*KEY POINTS\*

\*Acute Urinary Retention\*
 Poor urinary stream
 Frequency

✓ UTI
 ✓ Urethritis
 ✓ Ureteric colic,Backache
 ✓ O/E prostatic Enlargement

\*Txt\* : Attempt catheterization.If catheter not passed, attempt suprapubic catheterization

\*Post operative retention\*

V Due to anxiety, supine posture, pain, drugs etc.

V Before catheterization, attempt standing in warm room, bathing in warm water etc.

🔰 \*Chronic Retention\*

✓Overflow incontinence

**V**Uremia

✓ Painless Palpable bladder

✓ Txt: Bladder decompression with urethral, suprapubic or Intermittent self catheterization.

✔ Watch out for secondary diuresis.

✓ Fluid replacement in first 48hrs.

Videourodynamic assessment of detrusor muscle is must

IMPERFECTLY DESCENDED TESTES

**\*KEY POINTS** 

When testes are not found in scrotum, it may be because they are:

retractile

ectopic

incompletely descended.

\*Retractile Testis\*

A retractile testis is a normal testis associated with an active cremasteric reflex, the testis being drawn up to the superficial inguinal ring

# ✓ \*Ectopic Testis\*

An ectopic testis is one that has descended to an abnormal site and may be found in the superficial inguinal pouch, the perineum, the femoral triangle or at the root of the penis.

\*Incompletely descended\*

An incompletely descended testis lies in the normal course of descent ,lying anywhere from the posterior abdominal wall to the top of the scrotum.

✓ \*Note\* : If testes is Palpable easily along the line of inguinal canal, it is superficial to external oblique aponeurosis, therefore ectopic.

✔Absence of both testicles from scrotum is called \*cryptorchidism\* .

\*Complication of imperfec descent:\*

\_Hydrocele\_ : collection of fluid in tunica vaginalis

**\***Treatment\* :

Retractile testes are normal.Parental reassurance is all that is needed.

Orchidopexy for ectopic and incompletely descended testes.

The End