UROLOGY
Questions&Answers

Q-1

A 58 year old man has renal colic for the past 12 hours. In the last two years, he has presented with three episodes of acute onset of pain in his right knee. What is the SINGLE most likely cause of his renal colic?

A. Systemic lupus erythematosus associated glomerulopnephritis
B. Hypercalcaemia
C. Hyperuricaemia
D. Chlamydia trachomatis
E. Hyperoxaluria

ANSWER:
Hyperuricaemia

EXPLANATION:
Hyperuricaemia is the only one of the choices that has links to both a gouty arthritis and formation of renal stones which causes renal colic.

Q-2

An 85 year old war veteran complains of loss of appetite and says that he has lost weight over the past few months. He says that he has passed some blood in his urine however, there was no pain. He finds it difficult to empty his bladder completely and complains of having to urinate more often than usual. He also states that he has worsening pelvic pain over the past 3 months. A recent report shows that PSA is 9.5 ng/ml. What is the SINGLE most likely reason for his symptoms?

A. Benign prostatic hyperplasia
B. Renal cell carcinoma
C. Bladder stones
D. Prostate cancer
E. Urinary tract infection

ANSWER:
Prostate cancer

EXPLANATION:
These are the features of prostate cancer. The raised PSA would be a reason to investigate further for prostate cancer.

The pelvic pain could be a sign of bone metastasis or it could be obstructive symptoms due to prostate cancer.

PROSTATE CARCINOMA

Risk factors

- Increasing age is the most important risk factor
- Men of black African-Caribbean family origin
- First-degree relative with prostate cancer

Presentation

- Lower urinary tract symptoms (LUTS) do not particularly raise suspicion of prostate cancer because LUTS are common in older men and are rarely the presenting symptom of prostate cancer. However, locally advanced prostate cancer may cause obstructive LUTS

Local disease:

- Raised PSA on screening
- Weak stream, hesitancy, sensation of incomplete emptying, urinary frequency, urgency, urge incontinence
- Urinary tract infection

Locally invasive disease:

- Haematuria, dysuria, incontinence
- Haematospermia
- Perineal and suprapubic pain
- Obstruction of ureters, causing loin pain, anuria, symptoms of acute kidney injury or chronic kidney disease

Metastatic disease:

- Bone pain or sciatica
- Paraplegia secondary to spinal cord compression
- Lymph node enlargement
- Lethargy (anaemia, uraemia)
- Weight loss

Q-3

An 81 year old Afro-Caribbean man presents with pain in his lower back and hip. He complains of waking up in the middle of the night to go to the washroom and often he wets himself before reaching the toilet. He also has to urinate much more frequent than in the past and has terminal dribbling. What is the SINGLE most likely underlying diagnosis?

A. Benign prostatic hyperplasia
B. Prostatitis
C. Bladder carcinoma
D. Prostate carcinoma
E. Urinary tract infection

ANSWER:
Prostate carcinoma

EXPLANATION:
His age, ethnicity and urgency points towards a prostatic pathology. Metastasis to the bones could explain the pain in his back and hips.

Frequency, urgency and terminal dribbling are features of prostate cancer. Black men are at greatest risk for prostate cancer.

The most frequent sites of metastasis for prostate carcinoma are bone and lymph nodes of the obturator fossae, internal, external and common iliac arteries, and presacral regions.

Q-4

A 14 year old boy presents with a 3 hour history of severe left testicular pain. He has no urinary symptoms and is otherwise well. On examination, the right testis looks normal but the left hemiscrotum is swollen and acutely tender. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate initial step?

A. Mid stream urine
B. Ultrasound scan of the testes
C. Urethral swab
D. Exploratory surgery
E. Computed tomography scan of the testes

ANSWER:
Exploratory surgery

EXPLANATION:
This boy is having a testicular torsion.

Testicular torsion
Key features of testicular torsion include:

- Severe, sudden onset testicular pain
- Typically affects adolescents and young males
- On examination testis is tender and pain not eased by elevation. *Remember: In testicular torsion, lifting the testis up over the symphysis increases pain, whereas in epididymitis this usually relieves pain.*
- Urgent surgery is indicated

Management:

- Urgent exploratory surgery is needed to prevent ischaemia of the testicle

Colour Doppler USS (reduced arterial blood flow in the testicular artery) and radionuclide scanning (decreased radioisotope uptake) can be used to diagnose testicular torsion, but in many hospitals, these tests are not readily available and the diagnosis is based on symptoms and signs. Scrotal exploration should be undertaken as a matter of urgency. Delay in relieving the twisted testis results in permanent ischaemic damage to the testis, causing atrophy.

This is a very high yield question and in most cases if you suspect testicular torsion the answer would be exploratory surgery (or urgent surgery).

REMEMBER: if clinical suspicion is high, surgical intervention should not be delayed for the sake of further investigation!

Q-5

A 22 year old sexually active male comes into the hospital with a 2 day history of fever with increasing pain in the scrotal area. He also describes painful micturition. There is no history of trauma. On examination, the scrotal skin is red and tender. He has a temperature of 37.8 C. What is the SINGLE most likely diagnosis?

A. Testicular torsion
B. Torsion of a pedunculated cyst of Morgagni
C. Haematocele
D. Epididymo-orchitis
E. Spermatocele

ANSWER:
Epididymo-orchitis

EXPLANATION:
The history here is of epididymo-orchitis. The two major things you need to look out for when someone presents with testicular/scrotal pain is epididymo-orchitis and testicular torsion. Epididymo-orchitis would have a more gradual onset of symptoms like in this case. It is quite clear that this is actually epididymo-orchitis especially with the gradual onset and the fever.

Remember, dysuria is also a symptom of acute epididymo-orchitis although not very frequently seen.

Epididymo-orchitis
Epididymo-orchitis describes an infection of the epididymis with or without an infection of the testes resulting in pain and swelling. It is most commonly caused by local spread of infections from the genital tract (such as Chlamydia trachomatis and Neisseria gonorrhoeae) where there is a retrograde spread from the prostatic urethra and seminal vesicles.

The most important differential diagnosis is testicular torsion. This needs to be excluded urgently to prevent ischaemia of the testicle. Epididymo-orchitis has similar presenting symptoms as testicular torsion. Tenderness is usually localized to the epididymis (absence of testicular tenderness may help to distinguish epididymo-orchitis from testicular torsion, but in many cases, it is difficult to distinguish between the two).

Another feature that can help distinguish epididymo-orchitis from testicular torsion is that the tenderness may be relieved by elevating the scrotum (positive Prehn's sign) in epididymo-orchitis. Whereas this same action would exacerbate pain or show no relief in pain if one had a testicular torsion (negative Prehn's sign)

Features
- unilateral testicular pain and swelling

- urethral discharge may be present, but urethritis is often asymptomatic
- factors suggesting testicular torsion include patients < 20 years, severe pain and an acute onset

Management
- Antibiotics.

In PLAB part 1, it is unlikely you would need to know which type of antibiotics to treat epididymo-orchitis.

Note: One important differential is testicular torsion. Look out for factors suggestive of testicular torsion which includes patients under the age of 20 years having severe testicular pain and an acute onset.

Q-6

A 74 year lady who has had a stroke in the past has an indwelling catheter for 10 months. She presents with bluish-purple discolouration of the catheter bag. What is the SINGLE most likely explanation for this?

A. Normal change due to long use
B. Catheter degradation
C. Acidic urine
D. Alkaline urine
E. Bacterial colonization of the urinary tract

ANSWER:
Bacterial colonization of the urinary tract

EXPLANATION:
Purple urine bag syndrome
Purple urine bag syndrome is a medical syndrome where purple discoloration of urine occurs in people with urinary catheters and co-existent urinary tract infection. It is a rare phenomenon. Bacteria in the urine produce the enzyme indoxyl phosphatase. This converts indoxyl sulfate in the urine into the red and blue colored compounds indirubin and indigo. One of the most common bacteria implicated is Providencia stuartii.

Q-7

A 72 year old man brought to the emergency department with onset of paraplegia following a trivial fall. He was treated for prostatic malignancy in the past. What is the SINGLE most likely diagnosis?

A. Paget's disease
B. Osteoporotic fracture of vertebrae
C. Secondary metastasis
D. Multiple myeloma
E. Spondylosis

ANSWER:
Secondary metastasis

EXPLANATION:
As patient had prostatic malignancy, pathological fracture from secondary metastasis to bone is more likely the option.

Q-8

A 33 year old woman complains of having urinary urgency for the past year. She urinates more than 8 times a day. She gives a history of having suprapubic pain if her bladder is full, resulting in the need to urinate frequently as suprapubic pain is relieved by voiding. A urine culture was sent and results have come back negative. On cystoscopy, Hunner's ulcers were seen on the bladder wall. What is the SINGLE most likely diagnosis?

A. Endometriosis
B. Sexually transmitted infection
C. Overactive bladder
D. Bladder cancer
E. Interstitial cystitis

ANSWER:
Interstitial cystitis

EXPLANATION:
Interstitial cystitis (Bladder pain syndrome)

- A chronic and debilitating disorder characterized by urinary frequency, urgency, nocturia, and suprapubic or pelvic pain
- Remains a diagnosis of exclusion after all other causes for the symptoms have been ruled out
- The term 'interstitial cystitis' is usually reserved for patients with typical cystoscopic features

Presentation

- Persistent or recurrent pain perceived in the urinary bladder region
- Suprapubic pain worsening with bladder filling
- Pain relieved by voiding but returns when bladder fills again
- Urinary frequency and urgency
- In women the symptoms are often worse during menstruation

It presents in a similar fashion to symptoms of a urinary tract infection (urgency, frequency, dysuria, suprapubic pain). This is why it is important to send a midstream
urine for urine cultures to rule out a UTI.

Investigations

- Cystoscopy for the sole reason of excluding bladder malignancy:
  - Around 10% of people with interstitial cystitis have Hunner's ulcers. They are reddened mucosal areas associated with small vessels radiating towards a central scar

Management

- First line
  - Bladder training

    - Pelvic floor relaxation techniques (avoid pelvic floor exercises)
    - Avoid triggers like coffee, citrus fruits, smoking which can exacerbate symptoms
    - Analgesics such as NSAIDS
- Second-line
    - Amitriptyline →has anticholinergic effects
    - Oxybutynin
    - Gabapentin

Other management unlikely to be asked at this stage

Q-9

A 77 year old man has a long term indwelling urinary catheter. A recent catheter urine sample was sent for culture and sensitivity and was found to have heavy growth of Escherichia coli. What is the SINGLE most appropriate management?

A. Reassure the patient
B. Prescription for antibiotics
C. Bladder washout
D. Repeat midstream specimen of urine in 2 weeks
E. Change the urinary catheter

ANSWER:
Change the urinary catheter

EXPLANATION:
It is important to note that the stem has not provided symptoms of a urinary tract infection. There is no fever, dysuria or pelvic discomfort. Although patients who have an indwelling urinary catheter are at increased risk of getting an infection there are no signs of any infection at the moment. Changing the catheter would prevent an ascending infection. The usual hospital protocols for long term indwelling urinary catheters would include antibiotics only if the patient has symptoms of a urinary tract infection.

A bladder washout is an incorrect answer. It is a technique used to flush out the bladder by introducing saline through your catheter and into your bladder. It is usually used when the catheter is not draining correctly.

Q-10

A 70 year old man with a history of prostatic cancer has severe acute back pain waking him up at night for the past 4 weeks. This pain radiates to his lower limbs and he has slight difficulty in walking. On examination, he is tender at the lumbar spine. What is the SINGLE most appropriate investigation?

A. Magnetic resonance imaging (MRI) of the spine.
B. Isotope bone scan
C. Dual energy X-ray absorptiometry (DEXA) scan
D. Serum ALP concentration
E. Serum calcium concentration

ANSWER:
Magnetic resonance imaging (MRI) of the spine

EXPLANATION:
This patient has neurological signs of a metastatic spinal cord compression. An urgent MRI would be suitable in this case to look for cord compression caused by osteoporotic collapse of which surgical decompression may be required.

Isotope bone scan would be appropriate to identify bone metastasis in prostate cancer as well but not as an emergency. Isotope bone scans involve a small amount of radiation dye injected into the vein which collects in parts of the bone where there are abnormalities.

An MRI scan serves no purpose in managing stage 4 prostate cancer as there is no surgical intervention for these type of cancers however decompression may still be an option of which can prevent further paraplegia in this scenario.

PROSTATE CANCER AND METASTATIC SPINAL CORD COMPRESSION
Questions are occasionally based on your knowledge of prostate cancer with spinal metastases. It is very important to rule out metastatic spinal cord compression as if you did suspect metastatic spinal cord compression, it is an oncological emergency and an urgent MRI should be requested and performed within 24 hours.

Features of metastatic spinal cord compression include:
- Neurological symptoms like radicular pain, limb weakness, difficulty in walking, sensory loss or bladder or bowel dysfunction
- Neurological signs of spinal cord or cauda equina compression

Do not confuse metastatic spinal cord compression and spinal metastases. Spinal metastases presents with pain in the thoracic or upper cervical spine, progressive lumbar spine pain, or nocturnal spinal pain preventing sleep. Although managing spinal metastases is urgent, it is not considered an emergency like it is for metastatic spinal cord compression which presents in up to 20% of patietns with spinal metastases.

Q-11

A 32 year old woman presents with severe intermittent right sided abdominal pain radiating to the groin which has lasted for 3 hours. She is writhing in pain and vomited twice in the last hour. WBCs are 14 x 10^9/L and CRP is 83 mg/l. A urine HCG was negative. What is the SINGLE most likely cause of her abdominal pain?

A. Appendicitis
B. Ruptured ectopic pregnancy
C. Salpingitis
D. Ureteric colic
E. Strangulated hernia

ANSWER:
Ureteric colic

EXPLANATION:
The intermittent right sided abdominal pain radiating to the groin indicates a stone at the lower ureter.

Urinary tract stones
Clinical features
- 'Ureteric/renal colic'. Severe, intermittent, stabbing pain radiating from loin to groin.
- Microscopic or, rarely, frank haematuria.
- Systemic symptoms such as nausea, vomiting, tachycardia, pyrexia.
- Loin or renal angle tenderness due to infection or inflammation.
- Iliac fossa tenderness if the calculus has passed into the distal ureter.

Investigations
- Raised WCC and CRP suggest superadded infection (should be confirmed by MSU);
- Stones often visible on plain abdominal X-ray ('kidneys/ureters/bladder' (KUB)).
- Non-contrast spiral CT is the gold standard for locating stones and assessing evidence of complications.
- VU will locate stones and show any proximal obstruction.
- Renal ultrasound scan for hydronephrosis

Q-12

A 42 year old woman has recently returned from working in the Middle East. She has episodes of loin pain, urinary frequency, dysuria and has passed a urinary stone in the past. She plans to return to the Middle East in a month's time. What is the SINGLE best advice to give to prevent recurrent stone formation?

A. Drink less dairy products
B. Increase fibre in diet
C. Increase fluid intake
D. Decrease consumption of calcium related products
E. Decrease protein in diet

ANSWER:
Increase fluid intake

EXPLANATION:
Dehydration is a risk factor for renal stones. Protein, calcium and fibre consumption have no relevance to urinary stone formation.

Q-13

A 43 year old woman who has just undergone an abdominal hysterectomy and bilateral salpingo-oophorectomy 5 days ago has severe right flank pain and lower abdominal pain. She is seen to be nauseous and has been vomiting. She has a persistent ileus. On examination, her abdomen is distended and there are sluggish bowel sounds. She has a temperature is 38 C. Her blood results show:

Haemoglobin 120 g/L
White cell count 14 x 10^9/L
CRP 48
Urea 9 mmol/L
Creatinine 490 micromol/L

What is the SINGLE most appropriate investigation?

A. Renal ultrasound
B. Intravenous urography (IVU)
C. Computed tomography with intravenous contrast
D. Retrograde urethrogram
E. Abdominal X-ray

ANSWER:
Renal ultrasound

EXPLANATION:
She is likely suffering from a ureteric injury that occurred during the surgery. As she is suffering from right flank pain, it is likely that the ipsilateral kidney is prevented from draining into the bladder. Since a complete ligation is suspected, hydronephrosis would be seen on an intravenous urogram. An intravenus urogram would also be an option if there is clinical suspicion of a urine leakage from a transected ureter.

Fever and sepsis may present when the urine in the obstructed system becomes infected.

Postoperative ureteric injury
May presetn in the first few days following surgery but it may also be delayed by weeks. It is one of the most serious complications during gynaecological surgeries.

Clinical features:
- Ileus due to urine within the peritoneal cavity
- Fever
- Flank pain (if the ureter has been ligated)
- Abdominal pain
- Abdominal distension
- Retroperitoneal urinoma (a collection of urine)
- Urinary leakage (vaginally or via abdominal wound)

Investigation:
- Intravenous urography (IVU)
  - Shows an obstructed ureter or occasionally, extravasation of the dye from the site of injury
  - *While IVU has fallen out f favor in the evaluation of kidney stones, IVU is the best imaging study to evaluate the continuity of the ureter in cases of ureteral injury after an operation*
  - *An IVU can assess hydronephrosis, ureteral integrity and extravasation*

- Renal ultrasound
  - Is the best non-invasive method to visualise the kidney
  - This can demonstrate hydronephrosis or retroperitoneal urinomas however hydronephrosis may be absent when urine is leaking from a transected ureter into the retroperitoneal or peritoneal cavity
  - *A renal ultrasound cannot assess the continuity of the ureter*
- Computed tomography with intravenous contrast
  - Is also able to visualis ureteric integrity like IVU however, it is more difficult compared to an IVU as CT images are a series of cross sections.
- Retrograde urethrogram
  - This is used if the results of an IVU or a CT scan are inconclusive. This is because a retrograde urethrogram is more invasive than either an IVU or a CT scan and requires a cystoscope.

Q-14

A 15 year old boy was woken up from sleep with severe, sudden pain in the testis. There was no history of trauma. On examination, the testis is tender on palpation. He is afebrile. Analgesia has been given. What is the SINGLE most appropriate next step in management?

A. Uretheral swab
B. Antibiotics
C. Refer urgently to a surgeon
D. Reassurance
E Discharge with analgesics

ANSWER:
Refer urgently to a surgeon

EXPLANATION:
There is a possibility of testicular torsion in this question thus exploratory surgery would be the next course of action. Thus, referral to a surgeon would be appropriate.

The key here is to explore the possibility of testicular torsion. The main differential is usually epididymo-orchitis in which the onset of pain is much more gradual. In a patient
in whom the onset is dramatic and sudden, then torsion becomes the favourite. Once torsion tops the list, treatment is surgery (for detorsion and orchidopexy). The sooner this happens, the greater the chance of the testis being saved.

Q-15

A 20 year olf woman 6 hurs post-lower segment Caesarean section has not passed urine since her operation. She denies any urinary symptoms preoperatively. She appears unwell. She has a temperature of 37.5 C, a pulse of 110 beats/minute, a blood pressure of 94/60 mmHg and a respiratory rate of 23 breaths/minute. Her abdomen is distended with tenderness in the left flank and suprapubic region. Bowel sounds are not audible. What is the SINGLE most likely postoperative complication?

A. Urinary tract infection
B. Urinary tract injury
C. Pleurisy
D. Acute pyelonephritis
E. Paralytic ileus

ANSWER:
Urinary tract injury

EXPLANATION:
Ureteric injuries
Ureteric injuries can occur during pelvic or abdominal surgery, e.g. hysterectomy, colectomy.

The ureter may be divided, ligated, or angulated by a suture; a segment excised or damaged by diathermy.

Internal (iatrogenic) injury diagnosis
- The injury may be suspected at the time of surgery, but injury may not become apparent until some days or weeks post-operatively.

Postoperative diagnosis
- The diagnosis is usually apparent in the first few days following surgery, but it may be delayed by weeks, months, or years
- It may present with flank pain or post-hysterectomy incontinence (a continuous leak of urine suggests a ureterovaginal fistula)

Q-16

A 33 year old man presents with bilateral flank pain. He is later diagnosed to have bilateral kidney stones. His medical history includes sarcoidosis. What is the SINGLE most likely cause that attributed to the development of his urinary stones?

A. Hypercalcaemia
B. Hyperuricaemia
C. Diet
D. Recurrent urinary tract infection
E. Hyperparathyroidism

ANSWER:
Hypercalcaemia

EXPLANATION:
Hypercalcaemia is seen commonly in sarcoidosis. It is due to increased circulation of vitamin D produced by macrophages.

Renal stones risk factors
There are certain risk factors or drugs that may precipitate renal stones that you need to know for PLAB part 1 as these are the most commonly asked. These are:
- Dehydration

- Hypercalcaemia
- Polycystic kidney disease
- Gout
- Loop diuretics

Q-17

A 31 year old presents with sudden onset of flank pain, nausea and vomiting. He recently passed a 4 mm stone in his urine. Urine microscopy reveals microscopic haematuria. On ultrasuond, a 3 mm stone is found in the renal pelvis. What is the SINGLE most appropriate management?

A. Extracorporeal shock-wave lithotripsy
B. Percutaneous nephrolithotomy
C. Open Surgery
D. Advise to increase fluid intake
E. Urethral catheterisation

ANSWER:
Advise to increase fluid intake

EXPLANATION:
Renal stones (Kidney stones) management
The key question in kidney stones is: When to watch and wait and when not to?

There is no specific rule of how we treat renal stones. As a rule of thumb, the younger the patient, the larger the stone and the more symptoms it is causing, the more inclined we are to recommend treatment. Because it is so subjective, it is often hard to answer management questions for renal stones. Nonetheless, below are some pointers that will help guide you when answering PLAB questions:

- Stones < 0.5 cm → Just increase fluid intake. Likely to pass spontaneously
- Stones 0.5 cm to 2 cm - Extracorporeal shock-wave lithotripsy (ESWL) or Ureteroscopy using dormia basket
- Stones > 2 cm → Percutaneous nephrolithotomy

Q-18

A 46 year old man presents to clinic with a scrotal swelling. The swelling is cystic and non-tender. It developed slowly and it lies above and behind the testis. What is the SINGLE most appropriate diagnostic test?

A. Ultrasound
B. Pen torch
C. Exploratory surgery
D. Biopsy
E. Serum AFP and beta HCG

ANSWER:
Ultrasound

EXPLANATION:
The most probable diagnosis here is an epididymal cyst. This is confirmed with an ultrasound.

Epididymal cyst

- Derived from the collecting tubules of the epididymis and contains clear fluid. They develop slowly, lie within the scrotum. They are often multiple (multiloculated)
- Most common cause of scrotal swellings seen in primary care.

Key features that you need to know for PLAB

- Painless
- Lie behind and above testis

Diagnosis

- Ultrasound

Management

- Usually supportive but surgical removal may be attempted for larger or symptomatic cysts

DIFFERENTIATING EPIDIDYMAL CYST AND HYDROCELE

Another painless scrotal swelling commonly asked in PLAB is hydrocele. But in these questions, they usually state that it "transilluminates with a pen torch". Hydrocele is also usually anterior to and below the testicle.

Both epididymal cyst and hydrocele transilluminates. So sometimes the only clue in the stem would be ***"the testis is palpable separately from the cyst (or swelling)"*** *which indicates epididymal cyst. In hydrocele, the testis is palpable within the fluid filled swelling.*

Q-19

A 60 year old patient had a cystoscopy for painfless, gross haematuria and pathology revealed transitional cell carcinoma of the bladder. He has smoked a pack a day for the last 15 years and currently works in a coal factory. What is the SINGLE greatest risk factor for transitional cell carcinoma in this patient?

A. Coal dust exposure
B. Smoking
C. Family history
D. Lung cancer
E. Anatomical defect

ANSWER:
Smoking

EXPLANATION:
Whenever you see painless, gross hematuria in an elderly male, you should immediately be thinking of cancer.

Bladder Cancer
Cancer of the bladder (transitional cell cancer in most cases) has a very close correlation with smoking, and usually presents with painless visible haematuria.

Risk factors

- Men: are 2.5 times more likely to develop the disease than women
- Age: increases risk, most commonly diagnosed in the eighth decade and rare below age 50.
- Smoking: is the major cause of bladder cancer in the developed world.
- Occupational exposure: to carcinogens, in particular aromatic hydrocarbons like aniline, is a recognized cause of bladder cancer. This type of occupational exposure occurs mainly in industrial plants processing paint, dye, metal and petroleum products.
- Other risk factors include industrial exposure to aromatic amines in dyes, paints, solvents, leather dust, inks, combustion products, rubber and textiles.

Q-20

A 15 year old boy presents with testicular pain for 3 days. The pain had a grdual onset. There is no history of trauma. On examination, his right hemiscrotum is tender, swollen and red. He has a temperature of 38.5 C. What is the SINGLE most appropriate treatment?

A. Administer antibiotics
B. Administer analgesia
C. Reassure
D. Blood culture
E. Exploratory surgery

ANSWER:
Administer antibiotics

EXPLANATION:
The history here is of epididymo-orchitis. The two major things you need to look out for when someone presents with testicular pain is epididymo-orchitis and testicular torsion. Epididymo-orchitis would have a more gradual onset of symptoms like in this case. His age here is quite misleading as a young boy below the age of 20, the first thought that usually comes to your mind is testicular torsion but as you go on reading, it becomes quite clear that this is actually epididymo-orchitis especially with the gradual onset and the fever.

Antibiotics would be the best option here. Obviously analgesia would be given too but more important management would be antibiotics.

Q-21

A 25 year old man collapsed during a football match and was brought in by the paramedics. There was no trauma during the football game and he was only found to be unconscious for less than a minute. On taking a history in the hospital, he says that he has been experiencin shortness of breath for the past two weeks. His only past medical history is surgery at the age of 4 years old for maldescended tested. A chest x-ray demonstrates multiple well circumscribed, round pulmonary masses. A computed tomography of his chest, abdomen and pelvis were requested. Which tumour marker is likely to be raised?

A. Alpha-fetoprotein (AFP)
B. Human chorionic gonadotropin (hCG)
C. Lactate dehydrogenase (LDH)
D. Carcinoembryonic antigen (CEA)
E. CA 129-9

ANSWER:
Lactate dehydrogenase

EXPLANATION:
Being born with unilateral or bilateral undescended testicles (cryptorchidism) increases the risk of testicular cancer (particularly seminomas) by up to 10 times higher than that in the general population. The most common type of testicular cancer occuring in undescended testes is seminoma (a type of germ cell tumour).

The management of an undescended testicle is usually a surgical orchiopexy, perforemd at 6 months of age.

The symptoms of shortness of breath experienced by the patient is secondary to metastases, presumably from a testicular cancer.

Whilst tumour markers such as beta-HCG, AFP and LDH are an indicator of disease activity and would be requested in a clinical setting, the question here specifically asks which of them is likely to be elevated. As the likely diagnosis here is a seminoma, LDH is most likely to be elevated. In some seminomas, LDH may be the only tumour marker seen to be elevated.

Testicular cancer
- Majority of testicular tumours arise from the germ cells.

Testicular germ cell tumours can be subdivided into seminoma and nonseminomatous germ cell tumours however this is unlikely a need to know for this exam. The presentation is the more important information to remember.

Presentation
- Painless lump in the body of the testis → *This is the most common presentation*

Diagnosis
- Ultrasound is first line → *This should be first line for any scrotal lump*
- CT scan is used for staging
- Appropriate tumour markers should be ordered

Secondary spread is to the para-aortic lymph nodes rather than the inguinal lymph nodes. Metastases to the testis are rare however if they did occur, the most common location of metastases is the prostate and the second most common location is the lung.

Q-22

A 20 year old rugby player comes in with severe pain in his left scrotum after he was struck in the groin during the game. The left testes is placed higher than the right testes. The pain is not eased by elevation of the testes. What is the SINGLE most appropriate next course of action?

A. Ice pack
B. Analgesics
C. Exploratory surgery
D. Reassure
E. Antibiotics

ANSWER:
Exploratory surgery

EXPLANATION:
There is a possibility of testicular torsion in this question thus exploratory surgery would be the most appropriate next course of action.

The key here is to explore the possibility of testicular torsion. The main differential is usually epididymo-orchitis in which the onset of pain is much more gradual. In a patient in whom the onset is dramatic and sudden, then torsion becomes the favourite. Once torsion tops the list, treatment is surgery (for detorsion and orchidopexy).The sooner this happens, the greater the chance of the testis being saved.

Q-23

A 79 year old man who is being treated with GnRH antagonist for a diagnosed prostate adenocarcinoma attends the clinic. What is the SINGLE most appropriate follow-up investigation?

A. Serum AFP
B. Serum PSA
C. Serum acid phosphatase concentration
D. Serum ALP isoenzyme concentration
E. Prostate cancer antigen 3

ANSWER:
Serum PSA

EXPLANATION:
Serum PSA is currently the best method of detecting localised prostatic cancer and monitoring response to treatment but it lacks specificity, as it is also increased in most patients with benign prostatic hyperplasia. The level of PSA over time would determine the next management of treatment.

Q-24

A 47 year old woman has had 3 urinary tract infections confirmed with urine culture in the past 8 months. She has been started on cefalexin for prophylaxis. A kidney ureter bladder X-ray has been performed and no renal stones were identified. Ultrasound of the kidneys and ureter shows no evidence of hydronephrosis or renal stones. Post voiding residual volume is minimal on a bladder ultrasound. What is the SINGLE most appropriate investigation?

A. Cystoscopy
B. High vaginal swab
C. Low vaginal swab
D. Repeat MSU culture and sensitivity
E. Dimercaptosuccinic acid (DMSA) scanning

ANSWER:
Cystoscopy

EXPLANATION:
Flexible cystoscopy would be the next investigation looking for possible causes of recurrent urinary tract infections.

Recurrent urinary tract infection in adults

- Recurrent UTI is defined as more than 2 infections in 6 months or 3 within 12 months
- Most commonly caused by reinfection with the original bacterial isolate
- Escherichia coli is the most common organism in all patient groups
- There is often an underlying functional or anatomical problem and infection will often not resolve until this has been corrected

Causes of recurrent UTIs

- Incomplete bladder emptying
- Renal or bladder stones
- Indwelling catheter
- Chronic bacterial prostatitis
- Vesicovaginal or colovesical fistula
- Bacteria within an obstructed or atrophic infected kidney

Presentation

- Dysuria
- Frequency
- Urgency
- Suprapubic pain or discomfort
- Cloudy foul-smelling urine

Investigations

- MSU microscopy and culture
- KUB X-ray to detect radio-opaque renal calculi
- Renal and bladder ultrasound
    - Looking for renal stones
    - To determine the presence or absence of hydronephrosis
    - To measure pre-void bladder volume and postvoid residual urine volume
- Flexible cystoscopy to identify abnormalities that may cause recurrent UTIs such as bladder stones, an underlying bladder cancer which is rare, urethral or bladder neck stricture, or fistula

Recurrent cystitis in a man is likely to be secondary to associated conditions like prostatitis, prostatic hyperplasia, calculi in the genitourinary tract, or vesicoureteric reflux.

Management

- Fix any underlying functional or anatomical abnormality if identified
- Low-dose antibiotic prophylaxis → Usually trimethoprim, nitrofurantoin or cephalexin
- If there is residual urine present → optimize bladder emptying by intermittent catheterization
- Oestrogen replacement in post-menopausal women → lack of oestrogen in post-menopausal women causes loss of vaginal lactobacilli and increased colonization by Escherichia coli

Q-25

A 26 year old sexually active male presents with severe pain in the left scrotum lasting for 4 hours. He complains of a past history with similar episodes of pain over the past 2 years but has never sought treatment before. His scrotum is extremely tender and examination is impossible because of the pain. What is the SINGLE best management for this patient?

A. Send home with antibiotic cover
B. Ultrasound of scrotum
C. Urgent surgical exploration
D. Urethral swab
E. Midstream urine culture and sensitivity

ANSWER:
Urgent surgical exploration

EXPLANATION:
In this stem, mentioning that this young man is sexually active is aiming to distract you from the correct choice. The history of severe pain with a past history of similar episodes of severe pain is indicative of testicular torsion (this is likely due to the testis swelling and then spontaneously resolving). The fact that examination is extremely painful is another hint toward testicular torsion as the diagnosis.

Q-26

A 78 year old man with a history of prostate adenocarcinoma has left loin pain. He says that he has been drinking fluid as usual but his urine output is decreased today. He feels extremely fatigued over the past 48 hours. On examination, there is no limb weakness or saddle paraesthesia. A rectal examination shows good anal tone.

His blood results show:
Haemoglobin 98 g/L
Creatinine 230 micromol/L
eGFR 50

What is the SINGLE most appropriate investigation?

A. Magnetic Resonance Imaging (MRI) scan of spine
B. Radionuclide bone scan
C. Transrectal ultrasound
D. Ultrasound of kidney, ureters and bladder
E. Abdominal X-ray

ANSWER:
Ultrasound of kidney, ureters and bladder

EXPLANATION:
Locally invasive disease of prostate cancers can present with an obstructive uropathy. The obstruction of the left ureter in this case is causing his symptoms of loin pain and anuria. An ultrasound of the kidney and ureters would be appropriate.

If there were symptoms of metastatic spinal cord compression in this stem, an MRI would be more suitable . However, since there are no neurological signs and symptoms of metastatic spinal cord compression included in this question, it is safe to pick ultrasound of the kidney, ureters and bladder would be more appropriate.

Q-27

An 85 year old male was admitted to the hospital with a six month history of nocturia, hesitancy and dribbling. Over the past three months, he has lost more than 5 kilograms. He also complains about lower back pain during this period. A prostate specific antigen (PSA) test was performed and showed a value of 150 ng/mL (normal 0-4 ng/mL). The patient was subsequently referred for a transrectal ultrasound of the prostate and for a biopsy. On the fourth day after the biopsy procedure, the patient noticed cloudy urine with a pungent smell. He also complained of a burning feeling during urination accompanied by lower abdominal pain. What is the SINGLE most likely organism that can cause these symptoms after a prostate biopsy?

A. Streptococcus faecalis
B. Streptococcus aureus
C. Escherichia coli
D. Pseudomonas aeruginosa
E. Clostridium difficile

ANSWER:
Escherichia coli

EXPLANATION:
The scenario depicted here describes a common biopsy related complication – an infection. Escherichia coli is one of the most common causal organisms causing prostatitis after prostate biopsy.

Pseudomonas aeruginosa most commonly affects immuno-compromised patients. There is nothing in the stem that gives a clue as to the immune status of this patient.

Q-28

A 47 year old man comes to the GP surgery with swelling on his left scrotum which disappears on lying down. The swelling was bluish in colour and felt like a "bag of worms". He also complains of a dull ache along the left loin along with painless haematuria occasionally. What is the SINGLE most likely diagnosis?

A. Left sided renal cell carcinoma
B. Varicosity secondary to liver disease
C. Testicular tumour
D. Inguinal hernia
E. Inferior vena cava obstruction

ANSWER:
Left sided renal cell carcinoma

EXPLANATION:
The bluish swelling that feels like a bag of worms is a perfect description of varicocele.

The most common secondary cause of left sided varicocele is renal cell carcinoma. Newly diagnosed varicocele over the age of 40 years are very much suggestive of renal cell carcinoma. Varicocele is common on left side as left testicular veins drain to the left renal vein, while the right testicular vein drain directly into inferior vena cava.

It is very common to hear complains of feeling heavy in the scrotal area. The blue appearance gives the clue that these are veins. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.

VARICOCELE
A varicocele is an abnormal enlargement of the testicular veins.

Aetiology
Incompetent valves in the internal spermatic veins lead to retrograde blood flow, vessel dilatation, and tortuosity of the pampiniform plexus.

Varicoceles are much more common on the left side (> 80%) because
- *The left internal spermatic (testicular) vein enters the left renal vein at right angles compared to the right testicular vein which enters the vena cava obliquely at a much lower level which has lower pressure.*

Features
- Classically described as a 'bag of worms'
- Subfertility
- Usually asymptomatic (rarely causes pain)

Why subfertility?
The relationship of varicocele and infertility is unclear. It is suggested that subfertility is due to elevated scrotal temperatures by blood pooling which has harmful effects on spermatogenesis.

Diagnosis

- Scrotal Doppler - USS: is diagnostic

Management

- usually conservative
- Occasionally surgery is required if the patient is troubled by pain. There is ongoing debate regarding the effectiveness of surgery to treat infertility
- In regards to management of infertility, there is still an ongoing debate if surgery is effective.

Always consider secondary varicocele which is where there is a pathological process blocking the flow of the testicular vein. One classic example is a tumour of the kidney that may involve obstruction of the left testicular vein. This is one of the very commonly asked questions in exams.

Q-29

A 64 year old man presents with the complaint of pain in his mid-thigh. He was diagnosed with prostate cancer a year ago and has since underwent a radical prostatectomy as treatment for his cancer. A few days ago, he began experiencing pain in his left mid-thigh region. He describes the pain as being dull and constant and complains of an inability to sleep at night due to the pain. The pain sometimes radiates to his back. He has taken an over-the-counter paracetamol for the pain, to no avail. He has no other complaints. Other than his prostate cancer history, he has no other significant medical history of note. A radioisotope bone scan reveals scattered and distant bony metastssis involving his left femur and left tibia. What is the SINGLE best method for managing this patient's pain?

A. Chemotherapy
B. Bisphosphonates
C. Radiotherapy
D. Brachytherapy
E. Androgen deprivation therapy

ANSWER:
Radiotherapy

EXPLANATION:
The best treatment for palliative cancer-induced bone pain is radiotherapy.

Bone Pain

- Radiotherapy – First-line
- Bisphosphonates in conjunction with NSAIDs – second line

Q-30

A 48 year old woman complains of continuous leakage of small amount of fluid vaginally continuously throughout since she had a laparoscopic hysterectomy for a uterine fibroid 5 days ago. The discharge is clear without any distinct odour. What is the SINGLE most likely diagnosis?

A. Vesicovaginal fistula
B Stress incontinece
C. Reactionary fluid from vaginal wall
D. Candida due to recent antibiotic use
E. Vaginitis

ANSWER:
Vesicovaginal fistula

EXPLANATION:
She has a vesicovaginal fistula which is a fistulous tract extending between the bladder and the vagina that allows the continuous involuntary discharge of urine into the vaginal vault. In the developed world, gynaecological and uterine surgery is the most frequent cause of bladder lesions leading to the formation of a vesicovaginal fistula with hysterectomy carring the highest risk for fistulae formation.

A 3 swab test could help identify a veiscovaginal fistula. This involves 3 gauze swabs placed into the vagina that allows the continuous involuntary discharge of urine into the vaginal vault. In the developed world, gynaecological and uterine surgery is the most frequent cause of bladder lesions leading to the formation of a vesicovaginal fistula with hysterectomy carrying the highest risk for fistulae formation.

A 3 swab test could help identify a vesicovaginal fistula. This involves 3 gauze swabs placed into the vagina using a speculum. One at the tope, one in the middle, and one at the bottom. Blue dye is inserted to the bladder by passing through a catheter. The catheter is then removed and the patient is asked to walk around for an hour without urinating. After this, the swabs are taken out and evaluated for blue dye.

Q-31

A 30 year old man presents with dull pain and swelling in his left scrotum. He says that he feels a dragging pain that is particularly worse after playing sports or at the end of the day. This has been gradually worsening over the past few weeks. The sweling demonstrates a cough impulse. What is the SINGLE most likely cause of the swelling?

A. Hydrocele
B. Varicocele
C. Testicular tumour
D. Haematocele
E. Testicular torsion

ANSWER:
Varicocele

EXPLANATION:
One feature of varicocele is that patients may complain of a dull ache at the scrotal area at the end of a day or following sports. Another key hint is the fact that the question says “left scrotum”. Varicocele presents on the left more

commonly due to the anatomy of how the left testicular vein is drained. Swellings from varicocele may also demonstrate cough impulses much like a hernia and they also tend to disappear when lying down. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.

Q-32

A 16 year old boy complains of having a heavy feeling in the scrotal area. He is concerned by the appearance. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears like a 'bag of worms' and is less obvious when he is lying supine. What is the SINGLE most appropriate investigation?

A. Serum AFP and beta HCG levels
B. Urgent referrral to surgeon
C. Biopsy
D. Pen torch transillumination
E. Non urgent ultrasound doppler of scrotum

ANSWER:
Non urgent ultrasound doppler of scrotum

EXPLANATION:
The diagnosis here is varicocele. It is very common to hear complains of feeling heavy in the scrotal area. The blue appearance gives the clue that these are veins. Another key hint is the fact that the question says "left scrotum". Varicocele very commonly presents on the left. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.

Varicocele can be reliably diagnosed with ultrasound, which will show dilation of the vessels of the pampiniform plexus

Q-33

A 38 year old man has severe loin pain with nausea and vomiting. Ultrasound shows right hydronephrosis. A non-enhanced computerised tomography scan reveals a 3.2 cm in diameter stone at the level of the minor calyx. What is the SINGLE most appropriate management?

A. Percutaneous nephrolithotomy
B. Extracorporeal shock-wave lithotripsy
C. Increased fluid intake
D. Uretheral catheterisation
E. Stenting

ANSWER:
Percutaneous nephrolithotomy

EXPLANATION:
Please see Q-17

Q-34

A 59 year old man attends the clinic with complaints of obstructive urinary symptoms for the past 3 months. A digital rectal examination reveals a smoothly enlarged prostate. The patient is anxious about the diagnosis of prostate cancer as his father had died from prostate cancer. A prostate specific antigen (PSA) is requested. What is the SINGLE most appropriate advice to provide the patient in regards to the PSA test?

A. Avoid ejaculation before PSA test
B. Avoid fatty meals before PSA test
C. Avoid urination an hour before PSA test
D. Ensure adequate hydration before PSA test
E. PSA test is specific for prostate cancer

ANSWER:
Avoid ejaculation before PSA test

EXPLANATION:
Serum PSA increases immediately after ejaculation and if PSA is taken within 24 hours after ejaculation, it may lead to a false positive result.

The PSA test is a good screening tool for prostate cancer, but remember it is not specific for prostate cancer. This is because it can be found raised in many other conditions such as prostatitis, urinary tract infections or can be found high even from trauma from placing a catheter into the bladder.

It is also worth knowing that PSA can be found mildly elevated after a digital rectal examination however this mild elevation is usually not enough to make a significant difference clinically unless the serum PSA level is borderline.

Q-35

A 62 year old man has been waking up in the middle of the night to use the bathroom. He complains of having difficulty in initiating micturition and dribbling afterwards. A diagnosis of benign prostatic hyperplasia was made after a transrectal ultrasound guided biopsy was performed. He is due for a transurethral resection of the prostate (TURP) later this evening. What SINGLE most likely electrolyte abnormality should be expected after the procedure?

A. Hypokalemia
B. Hypocalcemia
C. Hyperkalemia
D. Hyponatremia
E. Hypernatremia

ANSWER:
Hyponatremia

EXPLANATION:
Transurethral resection of the prostate (TURP) is a treatment for benign prostatic hyperplasia. It involves insertion of a resectoscope via the penile urethra. The

bladder and prostate are irrigated and prostatic tissues are removed using diathermy.

TURP syndrome is rare but can potentially be life threatening that is characterised by hyponatremia. It occurs when irrigation fluid enters the systemic circulation. It is caused by venous destruction and absorption of the irrigation fluid.

The management usually involves fluid restriction to correct hyponatremia.

Q-36

A 34 year old man attends the GP surgery with a painless left testicular enlargement. He first noticed it 6 months ago. It has been gradually increasing in size. On examination, the left testicle is noted to be 3 times the size of the right testicle. A 4 mm firm, non-tender lump is felt within the body of the left testicle. There is no redness. What is the SINGLE most likely diagnosis?

A. Testicular cancer
B. Hydrocele
C. Epidymal cyst
D. Epididymo-orchitis
E. Scrotal haematoma

ANSWER:
Testicular cancer

EXPLANATION:
It is important to note where the enlargement is located. One can mistakenly answer epididymal cyst or hydrocele if one does not read the stem properly. Note that the enlargement (sometimes lump or swelling) is of the testical and not scrotum. If it was scrotal swelling, that you can think of hydrocele or epididymal cyst.

Q-37

A 15 year old boy complains of having a heavy feeling in the scrotal area. On physical examination, a soft painless swelling in the left scrotum is noticed. The swelling appears blue in colour and is less obvious when he is lying supine. He states that he has just become sexually active and fears that it is a sexually transmitted infection. What is the SINGLE most appropriate management?

A. Analgesia
B. Antibiotic
C. Biopsy
D. Immedite surgery
E. Reassurance

ANSWER:
Reassurance

EXPLANATION:
The diagnosis here is varicocele. Heaviness in the scrotal area is one of the major complaints for varicocele although majority may be asymptomatic and found during subfertility investigations. The blue appearance gives the clue that these are veins. Another key hint is the fact that the question says “left scrotum”. Varicocele very commonly presents on the left for anatomical reasons. The reason the mass is less obvious when lying supine is because gravity allows the drainage of the pampiniform plexus and thus the mass decompresses.

There are no features of an STI in this stem.

Reassurance is all that is needed as this boy is not experiencing any pain from the dilated pampiniform plexus

Q-38

A 77 year old eldery man has symptoms of poor and intermittent urinary flow. It takes him a few minutes to generate a pressure high enough to start the urine flow. In the last few months, he has been seen to be increasingly fatigued. He also complains of feeling thirsty most of the day. He has a blood pressure of 150/90 mmHg. On digital rectal examination , his prostate is firm, smooth wtihout nodules, and enlarged to about two finger breadths. His blood results show:

Haemoglobin 129 g/L
Prostate-specific antigen (PSA) 4.5 ng/mL
Urea 11 mmol/L
Creatinine 290 micromol/L
Serum calcium 2.1 mmol/L

What is the SINGLE most likely diagnosis?

A. Prostate cancer
B. Multiple myeloma
C. Chronic glomerulonephritis
D. Hypertensive nephropathy
E. Benign prostatic hyperplasia

ANSWER:
Benign prostatic hyperplasia

EXPLANATION:
A PSA level of 4.5 in a 77 year old man is considered an intermediate elevation that could be seen in multiple conditions including benign prostatic hyperplasia, old age, acute prostatitis, and prostate cancer.

There is no specific guidance on considering prostate cancer using an age-specific cut off values but this is a good guide especially in the PLAB exam. Consider prostate cancer if PSA is:

- ≥ 2 (ng/ml) at age 40-49 years
- ≥ 3 (ng/ml) at age 50-69 years
- ≥ 5 (ng/ml) at 70 years or older

His digital rectal exam findings and PSA that is not above the cut-off value for his age tells us that it is likely his lower urinary symptoms are due to benign prostatic hyperplasia rather than prostate cancer.

Although he has features of increasing fatigue and thirst, this does not correlate to any of the options given as he is not hypercalcaemic or anaemic.

The raised urea and creatinine in this question is to highlight the fact that there is no evidence of obstructive uropthy due to benign prostatic hyperplasia, although it is not uncommon to have an elderly man at this age group with associated chronic kidney disease.

Q-39

A 79 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. 3 months ago he suffered from a urinary tract infection. He also complains of back pain and suprapubic pain. He has lost significant weight and looks cachexic. What is the SINGLE most likely diagnosis?

A. Benign prostatic hyperplasia
B. Renal cell carcinoma
C. Bladder stones
D. Prostate cancer
E. Urinary tract infection

ANSWER:
Prostate cancer

EXPLANATION:
Urinary tract infectins can occur with local disease of prostate cancer. The back pain and suprapubic pain could be either from bone metastasis or from enlarged lymph nodes compressing the ureter or from the enlarged prostate cancer causing an obstructtive urine flow.

Q-40

A 79 year old African American male complains of thirst and fatigue. He has symptoms of frequency, urgency and terminal dribbling. He has lost 8 kg over the last 3 months. Laboratory findings show a calcium of 3.0 mmol/L and haemoglobin of 90 g/L. What is the SINGLE most likely underlying diagnosis?

A. Benign prostatic hyperplasia
B. Prostate carcinoma
C. Chronic pyelonephritis
D. Diabetes Mellitus
E. Osteosarcoma

ANSWER:
Prostate carcinoma

EXPLANATION:
Frequency, urgency and terminal dribbling are features of prostate cancer. Black men are at greatest risk for prostate cancer. Weight loss and anaemia is also a feature of prostate cancer.

The most frequent sites of metastasis for prostate carcinoma are bone and lymph nodes of the obturator fossae, internal, external and common iliac arteries, and presacral regions.

Metastasis to the bones could explain the high serum calcium which in turn results in the symptoms of thirst.

Q-41

A 25 year old man has a painful right testis, lower abdominal pain, vomiting and nausea. The testis is swollen, hot, and extremely tender. The onset of pain was dramatic and sudden. He complains of some pain on passing urine. What is the SINGLE most appropriate next course of action?

A. Mid stream urine
B. Ultrasound scan of the testes
C. Urethral swab
D. Urgent surgery
E. Antibiotics

ANSWER:
Urgent surgery

EXPLANATION:
There is a possibility of testicular torsion in this question thus exploratory surgery would be the most appropriate next course of action.

The key here is to explore the possibility of testicular torsion. The main differential is usually epididymo-orchitis in which the onset of pain is much more gradual. In a patient in whom the onset is dramatic and sudden, then torsion becomes the favourite. Whilst urinary symptoms are also more common in epididymo-orchitis, they may overlap as part of the general extreme lower abdominal pain seen in torsion. Once torsion tops the list, treatment is surgery (for detorsion and orchidopexy).The sooner this happens, the greater the chance of the testis being saved.

Q-42

A 75 year olf man has urinary symptoms of hesitancy, frequency and nocturia. A digital rectal examination reveals a large, irregular, hard asymmetric prostate gland. What is the SINGLE most appropriate investigation that will help with the diagnosis?

A. CA 125
B. CA 153
C. CA 199
D. CEA
E. PSA

ANSWER:
PSA

EXPLANATION:
A large, irregular, hard asymmetric prostate gland is indicative of prostate cancer. Serum PSA is currently the best method of detecting localised prostatic cancer and monitoring response to treatment but it lacks specificity, as it is also increased in most patients with benign prostatic hyperplasia.

Q-43

A 44 year old man presents with a scrotal swelling. The swelling is cystic and is non-tender. It is located in the upper pole of the posterior part of the testes. What is SINGLE most likely diagnosis?

A. Epididymal cyst
B. Testicular cancer
C. Hydrocele
D. Varicocele
E. Testicular torsion

ANSWER:
Epididymal cyst

EXPLANATION:
Please see Q-18

Q-44

A 77 year old African-Caribbean man comes in complaining of difficulty in passing urine. He has a weak stream, and says that he is unable to completely empty his bladder. He also has lower back pain and has lost 10 kg in the last 3 months. An ultrasound shows bilateral hydronephrosis. His blood results show the following:

Haemoglobin 105 g/L
CRP 25

What is the SINGLE most likely diagnosis?

A. Benign prostatic hyperplasia
B. Renal cell carcinoma
C. Bladder stones
D. Prostate cancer
E. Urinary tract infection

ANSWER:
Prostate cancer

EXPLANATION:
An elderly patient of 77 years with obstructive symptoms of lower urinary tract and bilateral hydronephrosis points towards prostate cancer or benign prostatic hyperplasia. Given that there is weight loss and back pain, one should consider prostatic cancer as a more likely answer.

Metastatic diseases can result in anaemia and also raised inflammatory markers.

Q-45

A 25 year old woman presents with urinary frequency, suprapubic pain and dysuria. She has a temperature of 38.5 C. Nitrites and leucocytes are positive on a dipstick. What is the SINGLE most likely diagnosis?

A. Schistosomiasis
B. Kidney trauma
C. Ureteric calculus
D. Bladder calculi
E. Cystitis

ANSWER:
Cystitis

EXPLANATION:
Cystitis presents with frequency, dysuria, urgency, haematuria, suprapubic pain. Signs of fever and nitrates and leukocytes points towards a urinary tract infection.

Q-46

A 61 year old man, known smoker, comes to the hospital with complaints of painless frank haematuria. He has been worried about his loss of weight and reduced general activity. Urine microscopy shows red cells but no white cells. What is the SINGLE most diagnostic test?

A. Urine culture
B. Intravenous urogram
C. Transrectal ultrasound and biopsy
D. Cystoscopy with biopsy
E. Ultrasound of the kidnesy, ureters & bladder

ANSWER:
Cystoscopy with biopsy

EXPLANATION:
The two most important risk factors for transitional cell carcinoma of the bladder are:

1. Exposure to aromatic hydrocarbons, e.g. workers in the petrochemical, industrial dye, rubber industries, chimney sweeps.
2. Smoking

Here they give a history of smoking with loss of weight. The absence of white cells implies a non-infectious cause of the painless frank haematuria. In the elderly, one must always have transitional cell carcinoma of the bladder as part of a differential diagnosis when a patient presents with painless haematuria.

Cystoscopy is the most diagnostic test

Q-47

A 39 year old coal miner was recently diagnosed with bladder cancer. He is a smoker and has a family history of bladder cancer. He also has been diagnosed with benign prostatic hyperplasia. Which SINGLE risk factor is likely to be associated with transitional cell carcinoma of the bladder?

A. Family history
B. Smoking
C. Exposure to coal mine
D. Benign prostatic hyperplasia
E. Age

ANSWER:
Smoking

EXPLANATION:
Please see Q-46

Q-48

A 13 year old boy develops acute pain in his right testicle while playing football. Examination reveals a very tender mass in the right scrotum with reddening of scrotal skin. Lifting the testis causes more pain. What is the SINGLE most likely diagnosis?

A. Mumps
B. Testicular tumour
C. Scrotal abscess
D. Epididymo-orchitis
E. Testicular torsion

ANSWER:
Testicular torsion

EXPLANATION:
Acute swelling of the scrotum in a boy indicates torsion of the testis until proven otherwise. The history of pain developing during sports is very classical of testicular torsion.

“Pain worsening on elevation of testis” are key phrases commonly used in the stems that shout out testicular torsion as the answer

Q-49

A 57 year old chronic smoker reports three instances in the past 2 weeks when she has had painless, gross, total haematuria. Intravenous urograms (IVU) was done and was reported as normal. In the last month, she has been treated for irritative voiding symptoms, but has not been febrile, and urinary cultures have been negative. She complains of a long-standing urinary incontinence that is made worse when coughin. A urine dispstick done in clinic shows microscopic haematuria. What is the SINGLE most appropriate next step?

A. Ultrasound abdomen and pelvis
B. Flexible cystoscopy
C. Urodynamics
D. Three early-morning urine specimens for culture
E. CT-KUB

ANSWER:
Flexible cystoscopy

EXPLANATION:
The most feared diagnosis here is transitional cell carcinoma of the bladder. This needs to be addressed first before the urinary incontinence, especially in view of the haematuria and smoking history.

Q-50

A 67 year old man has a diagnosis of benign prostatic hyperplasia undergoes transurethral resection of the prostate (TURP). What SINGLE most likely electrolyte abnormality should be expected after the procedure?

A. Hypokalaemia
B. Hypocalcaemia
C. Hyperkalaemia
D. Hyponatraemia
E. Hypernatraemia

ANSWER:
Hyponatraemia

EXPLANATION:
Please see Q-35

Q-51

An 18 year old rugby player comes with sudden onset pain in his left scrotum which started while playing. On examination, there is swelling and tenderness noted. The left testis is placed higher than the right testis. Urine examination is positive for nitrites and leukocytes. What is the SINGLE most appropriate management for this patient?

A. Reassure
B. Ice pack
C. Urgent exploratory surgery for reduction of testis
D. Antibiotics
E. Analgesics

ANSWER:
Urgent exploratory surgery for reduction of testis

EXPLANATION:
This question has both features of testicular torsion and also epididymo-orchitis.

Features in this stem

Testicular torsion	Epididymo-orchitis
• Below 20 years old • Pain started while playing (possible trauma) • Sudden onset	• Leukocytes and nitrates positive

Given the debatable stem, the patient is likely suffering from testicular torsion.

Epididymo-orchitis is usually caused by a sexually transmitted pathogen, but remember that it also can be caused by non-sexually transmitted Gram-negative enteric organism causing urinary tract infections like Escherichia coli which could explain the leukocytes and nitrates that are positive. However, urinalysis is helpful but not diagnostic for epididymo-orchitis.

Since there are more points given towards testicular torsion, urgent exploratory surgery for reduction of testis is the answer.

Q-52

A 65 year old man presents with frank haematuria. He is afebrile and has no other urinary symptoms. There was no history of trauma and he has no relevant medical history. He looks well. Urinary cultures are negative. What is the SINGLE most appropriate investigation that would lead to a diagnosis?

A. Intravenous urograms (IVU)
B. Ultrasound abdomen
C. Cystoscopy
D. Urinary biomarkers
E. Transrectal ultrasound and biopsy

ANSWER:
Cystoscopy

EXPLANATION:
Painless haematuria at this age group must be treated as malignancy of the urinary tract until proved otherwise.

PLAB has very limited variations on questions regarding frank haematuria. The usual case is if you see frank haematuria that is asymptomatic, you should be thinking of bladder cancers.

Do not substitute urinary biomarkers for cystoscopy to investigate suspected bladder cancer or for follow?up after treatment for bladder cancer, except in the context of a clinical research study.

Q-53

A 49 year old man presents with sudden onset, severe colicky pain from his right flank radiating to his groin associated with nausea and vomiting. He subsequently develops rigors and a tender abdomen. His urinalysis reveals a trace of blood. What is the SINGLE most appropriate investigation to request?

A. Non-contrast CT scan of kidneys, ureters, and bladder
B. Kidneys, ureters, and bladder X-ray
C. Renal ultrasound
D. Intravenous pyelogram
E. Laparoscopy

ANSWER:
Non-contrast CT scan of kidneys, ureters, and bladder

EXPLANATION:
This is a typical presentation of a ureteric calculus. The pain is severe and associated with nausea and vomiting. Urinalysis or microscopy would reveal blood.

Non-enhanced CT scanning (spiral non-contrast CT) is the imaging modality of choice and has replaced intravenous pyelogram (IVP). It is a very accurate method of diagnosing renal and ureteric stones with up to 99% of them being visible. A CT scan also helps exclude other causes of an acute abdomen such as a ruptured abdominal aortic aneurysm which may present similarly. *Patietns who are suspected of having a renal stone who are not in terrible pain and have a normal renal function are often given an outpatient appointment for a CT KUB scan in the next few days with the view of a follow up with urology. This prevents long waits in A&E for a scan.*

X-rays are seldom used as an imaging modality for renal stones as it misses 20% of stones which are not radio-opaque however it is still the most cost-effective method in detecting stones. *In UK hospitals, Urologist and A&E doctors would order a CT KUB without even having an X-ray performed. The reason behind this is that it is much more accurate than an X-ray and CT scans are so readily available in this age.*

Renal Ultrasound scan has sensitivity for detecting renal calculi but sensitiviities vary. It is useful for identifying evidence of obstruction by looking for hydronephrosis or hydroureter.