FULL-LENGTH PRACTICE TEST 14

Practice Test 14: Urology

35 Questions — Recommended Time: 35 Minutes

1. A 68-year-old man presents with urinary frequency, nocturia, weak urinary stream, hesitancy, incomplete emptying, and post-void dribbling that have progressively worsened over the past two years. Digital rectal examination reveals a symmetrically enlarged, firm, smooth, non-tender prostate. PSA is 2.8 ng/mL. Post-void residual volume is 150 mL. Which of the following is the most likely diagnosis?

A. Prostate cancer

B. Acute bacterial prostatitis

C. Benign prostatic hyperplasia (BPH)

D. Urethral stricture

2. A 70-year-old man with a 10-year history of BPH presents with acute inability to urinate for the past 12 hours. He is in significant distress with suprapubic pain and a palpable, distended bladder. He recently started a new medication containing diphenhydramine for a cold. Which of the following is the most appropriate immediate management?

A. Urethral catheterization for bladder decompression

B. Oral tamsulosin and observation

C. Emergent transurethral resection of the prostate (TURP)

D. Suprapubic aspiration

3. A 30-year-old man presents with acute onset of severe left scrotal pain, nausea, and vomiting for the past 3 hours. The pain began suddenly during sleep. Physical examination reveals a high-riding left testicle with a transverse lie, absent cremasteric reflex on the left, and significant scrotal swelling. Prehn sign is negative (elevation of the testicle does not relieve pain). Which of the following is the most appropriate next step?

A. Scrotal ultrasound with Doppler before any intervention

B. Oral antibiotics and outpatient follow-up

C. CT scan of the abdomen and pelvis

D. Emergent surgical exploration (do not delay for imaging)

4. A 22-year-old sexually active man presents with gradual onset of left scrotal pain over 3 days, low-grade fever, dysuria, and urethral discharge. Physical examination reveals a tender, swollen left epididymis with an intact cremasteric reflex. Urinalysis reveals pyuria. Nucleic acid amplification testing (NAAT) is positive for Chlamydia trachomatis. Which of the following is the most likely diagnosis?

A. Testicular torsion

B. Acute epididymitis

C. Testicular cancer

D. Inguinal hernia

5. A 55-year-old man presents with painless gross hematuria on three separate occasions over the past month. He has a 35-pack-year smoking history. He denies dysuria or urinary frequency. CT urogram reveals a 3-centimeter enhancing mass arising from the lateral wall of the urinary bladder. No hydronephrosis or distant metastases are identified. Which of the following is the most likely diagnosis?

A. Bladder cancer (urothelial/transitional cell carcinoma)

B. Bladder stone

C. Acute cystitis

D. Renal cell carcinoma

6. A 45-year-old man presents with difficulty achieving and maintaining an erection sufficient for satisfactory sexual intercourse for the past six months. He has a history of type 2 diabetes (HbA1c 8.5%), hypertension on atenolol and hydrochlorothiazide, depression on sertraline, and smokes one pack of cigarettes per day. Which of the following is the most appropriate first-line pharmacologic treatment?

A. Intracavernosal alprostadil injection

B. Testosterone replacement therapy

C. Phosphodiesterase-5 inhibitor (sildenafil, tadalafil)

D. Penile prosthesis implantation

7. A 32-year-old man presents with a painless, firm, non-tender mass within the right testicle that he noticed while showering one week ago. The mass does not transilluminate. Scrotal ultrasound reveals a 2.5-centimeter solid, hypoechoic intratesticular mass. Serum AFP is 280 ng/mL (elevated), beta-hCG is 12 mIU/mL (mildly elevated), and LDH is elevated. Which of the following is the most appropriate initial management?

A. Transscrotal biopsy of the testicular mass

B. Observation with repeat ultrasound in 3 months

C. Fine needle aspiration

D. Radical inguinal orchiectomy

8. A 5-year-old boy is brought to the clinic because his mother noticed that his right testicle is not palpable in the scrotum. On examination, the right hemiscrotum is underdeveloped and the testicle cannot be palpated in the scrotum or inguinal canal. The left testicle is normal. Which of the following is the most likely diagnosis?

A. Testicular torsion

B. Cryptorchidism (undescended testicle)

C. Retractile testicle

D. Inguinal hernia with testicular displacement

9. A 72-year-old man presents with an elevated PSA of 8.5 ng/mL on routine screening. Digital rectal examination reveals a firm, asymmetric nodule on the right lobe of the prostate. He underwent a transrectal ultrasound-guided prostate biopsy, which reveals adenocarcinoma with a Gleason score of 7 (3+4). Bone scan and CT scan reveal no evidence of metastatic disease. Which of the following best describes his cancer classification?

A. Localized prostate cancer

B. Locally advanced prostate cancer

C. Metastatic hormone-sensitive prostate cancer

D. Castration-resistant prostate cancer

10. A 28-year-old man presents with a dull, dragging sensation in his left scrotum that worsens with prolonged standing and resolves when lying down. Physical examination reveals a palpable "bag of worms" superior to the left testicle that decompresses in the supine position. Right testicle and scrotum are normal. Scrotal ultrasound confirms dilated pampiniform plexus veins greater than 3 mm with reflux during Valsalva. Which of the following is the most likely diagnosis?

A. Hydrocele

B. Varicocele

C. Spermatocele

D. Epididymal cyst

11. A 60-year-old man presents with gross painless hematuria on two occasions. He has a history of chronic cyclophosphamide use for granulomatosis with polyangiitis. Cystoscopy reveals a large, sessile, hemorrhagic mass on the posterior bladder wall. Biopsy reveals squamous cell carcinoma of the bladder. Which of the following is the strongest risk factor associated with squamous cell carcinoma of the bladder in this clinical context?

A. Tobacco smoking

B. Occupational exposure to aromatic amines

C. Chronic Schistosoma haematobium infection

D. Chronic cyclophosphamide exposure and resultant hemorrhagic cystitis

12. A 35-year-old man presents with a sudden onset of severe right flank pain radiating to the right groin, nausea, and hematuria. He is writhing in pain. Non-contrast CT reveals a 4-mm stone in the right distal ureter with mild hydronephrosis. He has no signs of infection and is able to tolerate oral fluids. Which of the following is the most appropriate management?

A. Conservative management with analgesics, hydration, and tamsulosin (medical expulsive therapy) with expectation of spontaneous passage

B. Emergent ureteroscopy

C. Percutaneous nephrostomy tube placement

D. Extracorporeal shock wave lithotripsy as the immediate first-line intervention

13. A 55-year-old woman presents with recurrent urinary tract infections (5 episodes in the past year), urinary urgency, frequency, and stress urinary incontinence. She is postmenopausal and not on hormone replacement therapy. Physical examination reveals vaginal mucosal atrophy. Post-void residual is 30 mL. Urinalysis reveals no current infection. Which of the following is the most appropriate initial treatment for her recurrent UTIs in addition to behavioral modifications?

A. Long-term daily ciprofloxacin

B. Chronic nitrofurantoin prophylaxis without addressing underlying risk factors

C. Vaginal estrogen therapy plus low-dose antibiotic prophylaxis or post-coital prophylaxis

D. Immediate surgical referral for urethral dilation

14. A 40-year-old man presents with perineal pain, dysuria, urinary frequency, and high fevers (103°F) with chills for 3 days. Digital rectal examination reveals an exquisitely tender, boggy, swollen prostate. Urinalysis reveals pyuria and bacteriuria. Urine culture grows Escherichia coli. Which of the following is the most appropriate treatment?

A. Oral trimethoprim-sulfamethoxazole for 3 days

B. Prolonged course of oral fluoroquinolone (ciprofloxacin or levofloxacin) or trimethoprim-sulfamethoxazole for 4-6 weeks

C. Vigorous prostatic massage to express purulent material

D. Transurethral resection of the prostate

15. A 65-year-old man with BPH on tamsulosin presents with persistent lower urinary tract symptoms despite maximum-dose alpha-blocker therapy for 6 months. His prostate volume is estimated at 55 grams by transrectal ultrasound. PSA is 3.5 ng/mL. Post-void residual is 200 mL. Which of the following is the most appropriate next step in medical management?

A. Add a 5-alpha-reductase inhibitor (finasteride or dutasteride) for combination therapy

B. Switch to oral oxybutynin

C. Immediate surgical referral for TURP

D. Discontinue tamsulosin and observe

16. A 14-year-old boy presents with sudden onset of severe left scrotal pain 2 hours ago. Physical examination reveals a tender, swollen left hemiscrotum, absent cremasteric reflex, and horizontal lie of the testicle. Doppler ultrasound is obtained and reveals absent blood flow to the left testicle. Testicular torsion is confirmed. Which of the following is the recommended time window for surgical detorsion to maximize testicular salvage?

A. Within 24 hours

B. Within 12 hours

C. Within 48 hours

D. Within 6 hours of symptom onset

17. A 50-year-old woman presents with involuntary loss of urine when she coughs, sneezes, laughs, or exercises. She has had three vaginal deliveries. She denies urgency or frequency symptoms. She reports no incontinence at night. Physical examination reveals urethral hypermobility and a positive cough stress test. Post-void residual is 10 mL. Which of the following is the most likely diagnosis?

A. Urge incontinence (overactive bladder)

B. Overflow incontinence

C. Stress urinary incontinence

D. Mixed incontinence

18. A 60-year-old woman presents with severe urgency, frequency, nocturia (6 times per night), and urge incontinence with involuntary urine loss triggered by the sensation of urgency. She has no stress incontinence symptoms and no evidence of UTI. Urodynamic studies confirm detrusor overactivity. Which of the following is the most appropriate first-line pharmacologic treatment?

A. Alpha-1 blocker (tamsulosin)

B. Anticholinergic/antimuscarinic medication (oxybutynin or tolterodine)

C. Desmopressin (DDAVP)

D. Mirabegron as the only first-line option

19. A 75-year-old man is diagnosed with low-risk localized prostate cancer (Gleason 3+3=6, PSA 5.2 ng/mL, clinical stage T1c, 2 of 12 cores positive with less than 50% core involvement). He has multiple comorbidities including COPD, heart failure, and diabetes, with a life expectancy estimated at less than 10 years. Which of the following is the most appropriate management strategy?

A. Immediate radical prostatectomy

B. External beam radiation therapy with androgen deprivation

C. Chemotherapy with docetaxel

D. Active surveillance with periodic PSA monitoring, DRE, and repeat biopsies

20. A 45-year-old man presents with a painless, non-tender, translucent scrotal swelling surrounding the right testicle. The mass transilluminates freely with a penlight. The testicle is palpable within the fluid collection and is normal. He has no pain, fever, or constitutional symptoms. Scrotal ultrasound confirms a collection of fluid surrounding the testicle within the tunica vaginalis. Which of the following is the most likely diagnosis?

A. Testicular torsion

B. Testicular cancer

C. Hydrocele

D. Inguinal hernia

21. A 30-year-old woman presents with recurrent episodes of right flank pain and UTIs. CT urogram reveals a dilated right renal pelvis and proximal ureter with abrupt narrowing at the ureteropelvic junction. No stone is identified. Renal scintigraphy (MAG3 scan) with furosemide reveals a T1/2 washout greater than 20 minutes on the right, consistent with obstruction. Which of the following is the most likely diagnosis?

A. Nephrolithiasis

B. Ureteropelvic junction obstruction

C. Vesicoureteral reflux

D. Retroperitoneal fibrosis

22. A 62-year-old man presents with a 4-centimeter enhancing solid mass in the upper pole of the left kidney discovered incidentally on CT scan performed for abdominal pain evaluation. He is asymptomatic. The mass demonstrates heterogeneous enhancement with areas of necrosis. No lymphadenopathy or distant metastases are identified. Which of the following is the most appropriate management?

A. Partial nephrectomy (nephron-sparing surgery) or radical nephrectomy

B. Percutaneous renal mass biopsy as the mandatory first step before any treatment

C. Observation with repeat CT in 12 months

D. Systemic chemotherapy as first-line treatment

23. A 52-year-old man presents with difficulty voiding, a sensation of incomplete emptying, and a weakened urinary stream. He has a history of urethral trauma from a pelvic fracture 15 years ago. Retrograde urethrogram reveals a 2-centimeter narrowing of the bulbar urethra. Post-void residual is 250 mL. Uroflowmetry reveals a maximum flow rate of 5 mL/sec (severely reduced). Which of the following is the most likely diagnosis?

A. Benign prostatic hyperplasia

B. Prostate cancer

C. Neurogenic bladder

D. Urethral stricture

24. A 6-month-old boy is brought for evaluation of recurrent urinary tract infections. Voiding cystourethrogram (VCUG) reveals bilateral reflux of contrast from the bladder into the ureters and renal collecting systems (grade III vesicoureteral reflux). Renal ultrasound shows no scarring. Which of the following is the most appropriate initial management?

A. Immediate bilateral ureteral reimplantation surgery

B. Observation alone without any intervention

C. Continuous low-dose antibiotic prophylaxis with close monitoring (most low-grade VUR resolves spontaneously with growth)

D. Endoscopic subureteral injection as the initial first-line treatment

25. A 40-year-old woman presents with sudden onset of severe right flank pain, nausea, and gross hematuria. She has a history of recurrent calcium phosphate kidney stones and is found to have a serum calcium of 11.5 mg/dL and a PTH of 95 pg/mL (elevated). Phosphorus is low. 24-hour urine calcium is elevated. Which of the following is the most likely underlying cause of her recurrent stones?

A. Medullary sponge kidney

B. Primary hyperparathyroidism

C. Renal tubular acidosis type 1

D. Idiopathic hypercalciuria

26. A 78-year-old man with advanced metastatic castration-resistant prostate cancer presents with severe lower back pain, bilateral lower extremity weakness, urinary retention, and saddle anesthesia that have developed over 48 hours. MRI of the spine reveals epidural spinal cord compression at T10-T11 from metastatic disease. Which of the following is the most appropriate immediate management?

A. High-dose IV dexamethasone followed by urgent radiation therapy or surgical decompression

B. Oral analgesics and outpatient MRI in 2 weeks

C. Chemotherapy with docetaxel as the initial urgent treatment

D. Hormonal therapy alone with observation

27. A 35-year-old man and his partner present for infertility evaluation after 14 months of unprotected intercourse without conception. Semen analysis reveals oligospermia (sperm count 5 million/mL), reduced motility, and increased abnormal morphology. Physical examination reveals a left-sided grade III varicocele. FSH is mildly elevated. Testosterone is low-normal. Which of the following is the most appropriate initial management to improve fertility potential?

A. Clomiphene citrate as first-line medical therapy

B. Immediate in vitro fertilization (IVF) without further evaluation

C. Varicocelectomy (surgical repair of the varicocele)

D. Testosterone replacement therapy

28. A 55-year-old diabetic woman presents with high fever (104°F), right flank pain, and rigors. She has a known 8-mm obstructing right ureteral stone with hydronephrosis identified on CT. Urinalysis reveals pyuria and bacteriuria. Blood cultures are drawn. Serum lactate is elevated. She is hemodynamically unstable despite fluid resuscitation. Which of the following is the most critical urgent intervention?

A. Emergent decompression of the obstructed collecting system (ureteral stent or percutaneous nephrostomy) plus IV antibiotics

B. Oral antibiotics and outpatient follow-up in 1 week

C. ESWL of the obstructing stone

D. Conservative management with tamsulosin for stone passage

29. A 50-year-old man with a history of neurogenic bladder from a spinal cord injury presents with recurrent urinary retention and UTIs despite clean intermittent catheterization. Urodynamic studies reveal detrusor overactivity with high intravesical pressures and detrusor-sphincter dyssynergia. Renal ultrasound reveals bilateral hydronephrosis. Which of the following is the greatest long-term concern for this patient?

A. Bladder cancer

B. Erectile dysfunction

C. Urethral stricture

D. Upper urinary tract deterioration (hydronephrosis progressing to renal failure)

30. A 25-year-old uncircumcised man presents with inability to retract the foreskin over the glans penis. He reports recurrent episodes of balanitis (inflammation of the glans) and difficulty with hygiene. Physical examination reveals a tight, fibrotic, whitish ring at the distal foreskin that prevents retraction. There is no paraphimosis (the foreskin is not trapped behind the glans). Which of the following is the most likely diagnosis?

A. Paraphimosis

B. Phimosis

C. Peyronie disease

D. Balanitis xerotica obliterans

31. A 60-year-old woman presents with microscopic hematuria discovered on routine urinalysis. She has no symptoms, no history of UTI, and no recent vigorous exercise. She is a non-smoker. Repeat urinalysis one week later confirms persistent microscopic hematuria (greater than 3 RBCs per high-power field). Urine cytology is negative. Which of the following is the most appropriate next step in evaluation?

A. Observation with repeat urinalysis in 1 year

B. No further workup needed since cytology is negative

C. CT urogram and cystoscopy

D. Immediate renal biopsy

32. A 48-year-old man presents with an incidentally discovered 2-centimeter angiomyolipoma of the right kidney on CT scan performed for unrelated reasons. The mass contains macroscopic fat (negative Hounsfield units). He is asymptomatic. Which of the following is the most appropriate management?

A. Observation with periodic imaging (angiomyolipomas less than 4 cm with no symptoms are monitored)

B. Immediate radical nephrectomy

C. Percutaneous biopsy to rule out malignancy

D. Systemic chemotherapy

33. A 42-year-old man presents with a painless, firm mass palpated in the left testicle during routine physical examination. Scrotal ultrasound reveals a 1.5-centimeter solid, hypoechoic intratesticular mass. Serum AFP is normal, beta-hCG is mildly elevated at 15 mIU/mL, and LDH is normal. He undergoes radical inguinal orchiectomy. Pathology reveals classic seminoma confined to the testicle with no lymphovascular invasion. CT scan of the abdomen and pelvis reveals no retroperitoneal lymphadenopathy. Which of the following is the appropriate staging?

A. Stage IIIA

B. Stage I seminoma

C. Stage IIA

D. Stage IIB

34. A 65-year-old man presents with progressive lower urinary tract symptoms and a PSA of 12 ng/mL. Prostate biopsy reveals high-grade prostatic intraepithelial neoplasia (HGPIN) in 4 of 12 cores, with no invasive carcinoma identified. Which of the following is the most appropriate management?

A. Immediate radical prostatectomy

B. Radiation therapy

C. Androgen deprivation therapy

D. Close follow-up with repeat prostate biopsy within 6-12 months (HGPIN is a premalignant lesion with increased risk for concurrent or future carcinoma)

35. A 28-year-old woman who is 30 weeks pregnant presents with right flank pain, fever of 102°F, and costovertebral angle tenderness. Urinalysis reveals pyuria and bacteriuria. Urine culture grows Escherichia coli greater than 100,000 CFU/mL. She has no drug allergies. Which of the following is the most appropriate antibiotic treatment?

A. Oral trimethoprim-sulfamethoxazole (contraindicated in third trimester)

B. Oral ciprofloxacin (contraindicated in pregnancy)

C. Intravenous ceftriaxone or cephalosporin-based therapy (safe in pregnancy) with transition to oral therapy upon clinical improvement

D. Nitrofurantoin (not recommended for pyelonephritis due to poor tissue penetration and contraindicated near term)

PRACTICE TEST 14: ANSWER KEY WITH EXPLANATIONS

Urology

1. C. Benign prostatic hyperplasia (BPH). BPH is the most common cause of lower urinary tract symptoms (LUTS) in men over 50, resulting from non-malignant proliferation of stromal and epithelial cells in the transitional zone of the prostate surrounding the urethra. Progressive enlargement compresses the urethra, producing obstructive symptoms (weak stream, hesitancy, intermittency, incomplete emptying, post-void dribbling) and irritative symptoms (frequency, urgency, nocturia). DRE reveals a symmetrically enlarged, firm, smooth, non-tender prostate — distinguishing BPH from prostate cancer (asymmetric nodularity, induration) and prostatitis (tenderness, bogginess). PSA may be mildly elevated from increased prostatic tissue volume but is typically less than 4 ng/mL. First-line medical therapy includes alpha-1 blockers (tamsulosin, alfuzosin) for symptom relief and 5-alpha-reductase inhibitors (finasteride, dutasteride) for prostatic volume reduction in larger glands (greater than 30-40 grams).

2. A. Urethral catheterization for bladder decompression. Acute urinary retention is a urologic emergency requiring immediate bladder decompression via urethral catheterization. This patient's BPH predisposed him to retention, precipitated by diphenhydramine — an anticholinergic/antihistamine that reduces detrusor muscle contractility and increases bladder outlet resistance. Other medications that precipitate retention in BPH patients include sympathomimetics (pseudoephedrine, which increases alpha-mediated smooth muscle contraction at the bladder neck), opioids, and anticholinergics. After catheter placement, monitoring for post-obstructive diuresis is essential. Following decompression, a trial of voiding (TWOC) after starting an alpha-blocker (tamsulosin) is attempted. If TWOC fails, surgical intervention (TURP — the gold standard surgical treatment for BPH) or clean intermittent catheterization may be necessary.

3. D. Emergent surgical exploration (do not delay for imaging). Testicular torsion is a urologic emergency caused by twisting of the spermatic cord, compromising testicular blood flow and leading to ischemia and infarction if not promptly corrected. When clinical findings strongly suggest torsion — sudden onset of severe scrotal pain, high-riding testicle with transverse (horizontal) lie, absent cremasteric reflex, and negative Prehn sign — emergent surgical exploration should not be delayed for imaging studies. Testicular salvage rates are approximately 90-100% if detorsion occurs within 6 hours but drop dramatically thereafter (less than 10% after 24 hours). During surgical exploration, the affected testicle is detorsed and assessed for viability, and bilateral orchiopexy (fixation of both testicles to the scrotal wall) is performed to prevent recurrence on either side.

4. B. Acute epididymitis. Acute epididymitis is inflammation of the epididymis, typically caused by ascending infection from the urethra or bladder. In sexually active men under 35, Chlamydia trachomatis and Neisseria gonorrhoeae are the most common causative organisms, while in men over 35, gram-negative enteric organisms (E. coli, Pseudomonas) predominate. Key features distinguishing epididymitis from testicular torsion include gradual onset (versus sudden), intact cremasteric reflex, positive Prehn sign (pain relief with testicular elevation), and associated urethritis symptoms (dysuria, discharge). Doppler ultrasound shows increased blood flow to the epididymis (versus absent flow in torsion). Treatment for sexually transmitted epididymitis is ceftriaxone 500 mg IM plus doxycycline 100 mg orally twice daily for 10 days. For enteric organisms, fluoroquinolones are appropriate.

5. A. Bladder cancer (urothelial/transitional cell carcinoma). Painless gross hematuria in an adult smoker is bladder cancer until proven otherwise. Urothelial (transitional cell) carcinoma accounts for approximately 90% of bladder cancers. Cigarette smoking is the single most important risk factor, increasing risk 2-4 fold and accounting for approximately 50% of cases. Other risk factors include occupational exposure to aromatic amines and aniline dyes (rubber, textile, and dye industries), cyclophosphamide exposure, chronic Schistosoma haematobium infection (associated with squamous cell carcinoma), and chronic indwelling catheters. Cystoscopy with biopsy is the gold standard for diagnosis and staging. Most bladder cancers are non-muscle-invasive at presentation (approximately 75%), treated with transurethral resection of bladder tumor (TURBT) followed by intravesical therapy (BCG immunotherapy for high-grade non-muscle-invasive disease). Muscle-invasive disease requires radical cystectomy.

6. C. Phosphodiesterase-5 inhibitor (sildenafil, tadalafil). Erectile dysfunction (ED) affects approximately 50% of men aged 40-70 and has both organic and psychogenic causes. This patient has multiple contributing risk factors — diabetes (the most common medical cause, from both vascular disease and autonomic neuropathy), smoking (endothelial dysfunction), beta-blocker (atenolol — associated with ED), thiazide diuretic, SSRI (sertraline — commonly causes sexual dysfunction), and depression itself. PDE5 inhibitors are the first-line pharmacologic treatment, working by inhibiting the breakdown of cyclic GMP in the corpus cavernosum, enhancing the vasodilatory effect of nitric oxide released during sexual stimulation. They are effective in approximately 60-70% of patients across all etiologies. PDE5 inhibitors are absolutely contraindicated with nitrate use (risk of severe hypotension). Lifestyle modifications (smoking cessation, exercise, weight loss, glycemic control) and medication review are important adjunctive measures.

7. D. Radical inguinal orchiectomy. A solid intratesticular mass that does not transilluminate in a young man is testicular cancer until proven otherwise. Testicular cancer is the most common solid malignancy in men aged 15-35. Radical inguinal orchiectomy (through an inguinal incision with high ligation of the spermatic cord at the internal inguinal ring) is both the diagnostic and initial therapeutic procedure. Transscrotal approaches (biopsy, aspiration, or orchiectomy) are contraindicated because they violate the scrotal skin and alter lymphatic drainage, potentially allowing tumor spread to inguinal lymph nodes (testicular lymphatics normally drain to retroperitoneal para-aortic nodes). Elevated AFP indicates a non-seminomatous germ cell tumor component. Post-orchiectomy staging with CT and serial tumor markers

determines the need for further treatment — surveillance, retroperitoneal lymph node dissection, or cisplatin-based chemotherapy (BEP regimen).

8. B. Cryptorchidism (undescended testicle). Cryptorchidism is the most common congenital genitourinary anomaly in boys, affecting approximately 3% of full-term and up to 30% of premature male neonates. Most undescended testes descend spontaneously by 3-6 months of age. If the testicle has not descended by 6 months, spontaneous descent is unlikely. Orchiopexy (surgical placement of the testicle into the scrotum) is recommended between 6-12 months of age to maximize fertility potential and allow testicular examination. Cryptorchidism significantly increases the risk of testicular cancer (4-8 fold), particularly seminoma, and this risk remains elevated even after orchiopexy. The risk applies to both the undescended and the contralateral normally descended testicle. Infertility risk is also increased, particularly with bilateral cryptorchidism. A retractile testicle (which can be manually brought into the scrotum and remains there) is a normal variant that does not require surgery.

9. A. Localized prostate cancer. Prostate cancer staging incorporates PSA level, Gleason score (histologic grading system based on the sum of the two most prevalent architectural patterns, each graded 1-5), clinical T-stage (from DRE and imaging), and the presence or absence of regional lymph node involvement or distant metastases. This patient has organ-confined disease (no extension beyond the prostate capsule, no lymph node involvement, no metastases), classifying it as localized prostate cancer. Gleason 3+4=7 represents intermediate-risk disease. Treatment options for localized prostate cancer include radical prostatectomy (open, laparoscopic, or robotic-assisted), external beam radiation therapy, brachytherapy (for low-risk disease), and active surveillance (for very low-risk disease). Choice depends on patient age, comorbidities, risk stratification, and patient preference.

10. B. Varicocele. A varicocele is an abnormal dilation of the pampiniform venous plexus within the spermatic cord, analogous to varicose veins. It occurs in approximately 15% of adult males and is the most common correctable cause of male infertility. Left-sided predominance (approximately 85-90%) results from the left gonadal vein draining into the left renal vein at a perpendicular angle (versus the right gonadal vein draining directly into the IVC at an oblique angle). The classic "bag of worms" palpable above the testicle that decompresses when supine and distends with Valsalva is pathognomonic. Varicoceles impair spermatogenesis through increased scrotal temperature from venous stasis. A new right-sided varicocele in an older adult that does not decompress when supine should raise concern for retroperitoneal mass (renal cell carcinoma) obstructing the right gonadal vein.

11. D. Chronic cyclophosphamide exposure and resultant hemorrhagic cystitis. While the most common worldwide cause of squamous cell carcinoma (SCC) of the bladder is chronic Schistosoma haematobium infection (endemic in Egypt and sub-Saharan Africa), in this clinical context, chronic cyclophosphamide exposure is the most relevant risk factor. Cyclophosphamide is metabolized to acrolein, a toxic metabolite that is concentrated in the urine and causes chronic hemorrhagic cystitis, urothelial damage, and increased risk of both transitional cell carcinoma and squamous cell carcinoma of the bladder. The risk is dose-dependent and cumulative. Mesna (2-mercaptoethane sulfonate) is administered

concurrently with cyclophosphamide to neutralize acrolein and reduce bladder toxicity. Long-term cyclophosphamide users should undergo regular cystoscopic surveillance.

12. A. Conservative management with analgesics, hydration, and tamsulosin with expectation of spontaneous passage. Stones less than 5 mm have approximately 90% spontaneous passage rate, and stones 5-10 mm have approximately 50% passage rate. A 4-mm distal ureteral stone (the ureter is narrowest at the ureterovesical junction, making distal stones more likely to pass than proximal stones) in a hemodynamically stable patient without signs of infection has an excellent chance of spontaneous passage. Medical expulsive therapy with tamsulosin (alpha-1 blocker that relaxes ureteral smooth muscle) increases passage rates by approximately 30%. Pain management with NSAIDs (ketorolac) is first-line, with opioids for breakthrough pain. Adequate hydration maintains urine flow. Patients should strain urine to capture the stone for analysis. Follow-up imaging in 2-4 weeks confirms passage. Indications for urgent intervention include concurrent infection, intractable pain, solitary kidney, bilateral obstruction, or failure to pass within 4-6 weeks.

13. C. Vaginal estrogen therapy plus low-dose antibiotic prophylaxis or post-coital prophylaxis. Recurrent UTIs in postmenopausal women are strongly associated with estrogen deficiency causing vaginal and urethral mucosal atrophy, increased vaginal pH, and loss of protective Lactobacillus colonization, which allows uropathogenic E. coli to colonize the vaginal introitus and periurethral area. Vaginal estrogen therapy (cream, tablet, or ring) restores the mucosal barrier, lowers vaginal pH, and re-establishes Lactobacillus dominance, reducing UTI recurrence by approximately 50%. Combined with low-dose antibiotic prophylaxis (nitrofurantoin 50-100 mg nightly or TMP-SMX half-strength nightly) or post-coital prophylaxis for sexually associated UTIs, this approach addresses both the underlying risk factor and provides infection prevention. Long-term fluoroquinolone use is avoided due to resistance concerns and adverse effects.

14. B. Prolonged course of oral fluoroquinolone or trimethoprim-sulfamethoxazole for 4-6 weeks. Acute bacterial prostatitis is a serious infection of the prostate gland, most commonly caused by gram-negative enteric organisms (E. coli accounts for approximately 80%). The hallmark is an exquisitely tender, boggy, swollen prostate on DRE — vigorous prostatic massage is absolutely contraindicated as it can cause bacteremia and sepsis. Systemic symptoms (high fever, chills, myalgias) are common. Fluoroquinolones (ciprofloxacin, levofloxacin) and TMP-SMX have excellent prostatic tissue penetration and are the antibiotics of choice. A prolonged 4-6 week course is necessary because the prostate's acinar structure creates a pharmacologic barrier making antibiotic penetration difficult, and inadequate treatment leads to chronic bacterial prostatitis. Urinary retention may require suprapubic catheterization (urethral catheterization may worsen prostatitis). Prostatic abscess requires drainage if present.

15. A. Add a 5-alpha-reductase inhibitor (finasteride or dutasteride) for combination therapy. When alpha-blocker monotherapy provides insufficient symptom relief for BPH, combination therapy with a 5-alpha-reductase inhibitor (5ARI) is the evidence-based next step for men with enlarged prostates (greater than 30-40 grams). 5ARIs block the conversion of testosterone to dihydrotestosterone (DHT) — the primary androgen driving prostatic growth — reducing prostate volume by approximately 20-25% over

6-12 months. The landmark MTOPS and CombAT trials demonstrated that combination alpha-blocker plus 5ARI therapy was superior to either agent alone in reducing BPH progression, acute urinary retention, and need for surgery. Important side effects of 5ARIs include decreased libido, erectile dysfunction, ejaculatory disorders, and a reduction of PSA by approximately 50% (PSA values must be doubled when interpreting results in patients on 5ARIs). Surgical options (TURP, laser prostatectomy) are reserved for refractory symptoms or complications.

16. D. Within 6 hours of symptom onset. Testicular torsion is a true urologic emergency with a direct relationship between duration of ischemia and testicular viability. Testicular salvage rates are approximately 90-100% if detorsion occurs within 6 hours, 50% at 12 hours, and less than 10% after 24 hours. This time-dependent relationship mandates emergent surgical exploration when the clinical presentation strongly suggests torsion — delaying for confirmatory imaging when suspicion is high can result in loss of the testicle. Surgical exploration includes detorsion of the affected testicle, assessment of viability (color, bleeding, return of Doppler flow after detorsion), orchiectomy if the testicle is non-viable, and bilateral orchiopexy (fixation of both testicles with non-absorbable sutures to the dartos fascia) to prevent recurrence. The contralateral testicle is also fixed because the bell-clapper deformity predisposing to torsion is bilateral in approximately 80% of cases.

17. C. Stress urinary incontinence. Stress urinary incontinence (SUI) is the involuntary loss of urine during activities that increase intra-abdominal pressure (coughing, sneezing, laughing, exercising, heavy lifting) in the absence of detrusor contraction. It results from urethral hypermobility (weakened pelvic floor support allowing descent of the bladder neck and urethra during increased abdominal pressure) and/or intrinsic sphincter deficiency. Risk factors include vaginal childbirth (the most significant risk factor — multiparity, prolonged labor, large birth weight), pelvic surgery, menopause, obesity, and chronic cough. The positive cough stress test (observed urine leakage during cough) confirms the diagnosis. First-line treatment is pelvic floor muscle training (Kegel exercises), which strengthens the pelvic floor musculature. Surgical options for refractory SUI include midurethral sling (most common), Burch colposuspension, and urethral bulking agents.

18. B. Anticholinergic/antimuscarinic medication (oxybutynin or tolterodine). Overactive bladder (OAB) with urge incontinence results from involuntary detrusor muscle contractions (detrusor overactivity) causing urgency, frequency, nocturia, and urge incontinence. After behavioral modifications (bladder training, timed voiding, fluid management, pelvic floor exercises) as true first-line therapy, pharmacologic treatment includes anticholinergic/antimuscarinic agents (oxybutynin, tolterodine, solifenacin, darifenacin) that block muscarinic receptors on the detrusor muscle, reducing involuntary contractions. Beta-3 adrenergic agonists (mirabegron, vibegron) are alternative first-line pharmacologic agents that relax the detrusor through a different mechanism and may be preferred in elderly patients due to lower anticholinergic burden. Anticholinergic side effects include dry mouth, constipation, blurred vision, cognitive impairment, and urinary retention — caution is warranted in elderly patients and those with narrow-angle glaucoma.

19. D. Active surveillance with periodic PSA monitoring, DRE, and repeat biopsies. Active surveillance is the preferred management strategy for very low-risk and low-risk localized prostate cancer (Gleason 3+3=6, PSA less than 10, low tumor volume) in patients with limited life expectancy (less than 10 years) or significant comorbidities. Prostate cancer with Gleason 6 has an extremely low metastatic potential, and many men with low-grade prostate cancer will die with their disease rather than from it. Active surveillance avoids the morbidity of definitive treatment (radical prostatectomy side effects include incontinence and erectile dysfunction; radiation side effects include radiation proctitis and cystitis) while monitoring for disease progression through serial PSA measurements (every 3-6 months), periodic DRE, and confirmatory biopsies (typically at 1-2 years, then periodically). Intervention is recommended if there is evidence of grade progression or significant volume increase.

20. C. Hydrocele. A hydrocele is a collection of serous fluid within the tunica vaginalis surrounding the testicle. Positive transillumination (passage of light through the fluid-filled mass, producing a characteristic glow) is the key physical examination finding distinguishing a hydrocele from solid testicular masses (which do not transilluminate). Hydroceles can be communicating (patent processus vaginalis connecting to the peritoneal cavity, more common in children — the hydrocele fluctuates in size) or non-communicating (closed processus vaginalis, more common in adults — the hydrocele is stable in size). Most adult hydroceles are idiopathic, though secondary causes include infection (epididymitis), trauma, testicular torsion, and testicular cancer (always examine the testicle within the hydrocele and obtain scrotal ultrasound). Asymptomatic hydroceles require no treatment. Surgical repair (hydrocelectomy) is performed for large, symptomatic, or cosmetically concerning hydroceles.

21. B. Ureteropelvic junction obstruction. UPJ obstruction is the most common congenital cause of hydronephrosis, resulting from intrinsic narrowing or extrinsic compression (aberrant lower pole renal artery crossing the UPJ) at the junction between the renal pelvis and proximal ureter. It causes intermittent flank pain (often triggered by diuresis from increased fluid intake or diuretics), hydronephrosis, and predisposition to UTIs and stone formation from urinary stasis. MAG3 diuretic renography (furosemide washout study) is the functional study of choice — a T1/2 (half-time for radiotracer drainage) greater than 20 minutes after furosemide administration indicates significant obstruction, while less than 10 minutes is normal. The differential split renal function is also assessed to determine the contribution of each kidney. Surgical repair is pyeloplasty (Anderson-Hynes dismembered pyeloplasty), with success rates exceeding 95%.

22. A. Partial nephrectomy or radical nephrectomy. A solid enhancing renal mass with heterogeneous enhancement and necrosis in an adult is presumed to be renal cell carcinoma until proven otherwise, and surgical excision is the standard of care without the need for pre-operative biopsy in most cases. For tumors 4-7 cm (T1b), either partial nephrectomy (nephron-sparing surgery, preferred when technically feasible to preserve renal function) or radical nephrectomy is appropriate. For tumors 4 cm or less (T1a), partial nephrectomy is strongly preferred. Percutaneous renal mass biopsy is reserved for specific situations — suspected lymphoma or metastatic disease to the kidney, patients being considered for ablative therapies, or when the diagnosis would change management. RCC is resistant to conventional

chemotherapy and radiation therapy. For metastatic disease, targeted therapies and immunotherapy are used.

23. D. Urethral stricture. Urethral stricture is a narrowing of the urethral lumen from scar tissue (fibrosis of the corpus spongiosum), resulting in obstructive voiding symptoms. Common causes include prior urethral trauma (pelvic fracture with posterior urethral disruption, as in this patient), prior urethral instrumentation (catheterization, cystoscopy, TURP), sexually transmitted infections (gonococcal urethritis), and lichen sclerosus (balanitis xerotica obliterans). The bulbar urethra is the most commonly affected segment. Retrograde urethrogram (RUG) is the diagnostic study of choice, demonstrating the location, length, and severity of the stricture. Uroflowmetry reveals a low maximum flow rate (normal greater than 15 mL/sec). Treatment options include urethral dilation, direct visual internal urethrotomy (DVIU) for short strictures, and urethroplasty (open surgical reconstruction — the gold standard for recurrent or complex strictures with the highest long-term success rates exceeding 90%).

24. C. Continuous low-dose antibiotic prophylaxis with close monitoring. Vesicoureteral reflux (VUR) is the retrograde flow of urine from the bladder into the ureters and renal collecting system, predisposing to pyelonephritis and renal scarring (reflux nephropathy). VUR is graded I-V based on the degree of reflux and ureteral/pelvic dilation on VCUG. Low-grade VUR (grades I-III) has a high spontaneous resolution rate as the child grows — the intramural ureter lengthens, improving the valve mechanism at the ureterovesical junction. Initial management for low-moderate grade VUR is conservative with continuous antibiotic prophylaxis (trimethoprim alone in infants, or TMP-SMX or nitrofurantoin in older children) to prevent UTIs while awaiting spontaneous resolution, with regular monitoring (periodic VCUG or radionuclide cystogram, renal ultrasound). Surgical intervention (ureteral reimplantation or endoscopic injection of bulking agent) is reserved for high-grade VUR (IV-V), breakthrough febrile UTIs, or failure to resolve.

25. B. Primary hyperparathyroidism. Primary hyperparathyroidism (PHPT) is the most common cause of hypercalcemia in the outpatient setting, caused by autonomous overproduction of PTH (most commonly from a single parathyroid adenoma, approximately 85%). Elevated calcium with inappropriately elevated PTH (should be suppressed by hypercalcemia) confirms the diagnosis. PHPT causes hypercalciuria (increased filtered calcium load overwhelms renal reabsorptive capacity), which promotes calcium-containing kidney stone formation — nephrolithiasis is one of the most common presentations of PHPT. Additional manifestations include osteoporosis (increased bone resorption), nephrocalcinosis, GI symptoms (peptic ulcers, pancreatitis, constipation), and neuropsychiatric symptoms. Recurrent calcium kidney stones, particularly calcium phosphate stones, should prompt evaluation for PHPT. The classic mnemonic is "bones, stones, abdominal groans, and psychic moans." Definitive treatment is parathyroidectomy.

26. A. High-dose IV dexamethasone followed by urgent radiation therapy or surgical decompression. Malignant epidural spinal cord compression (MESCC) is an oncologic emergency occurring in approximately 5-10% of cancer patients, most commonly from prostate, breast, and lung cancer metastases. Symptoms include progressive back pain, lower extremity weakness, sensory level,

and bowel/bladder dysfunction. Without urgent treatment, neurologic deficits become irreversible. High-dose IV dexamethasone (10 mg bolus followed by 4-16 mg every 6 hours) is initiated immediately to reduce vasogenic edema and cord compression. Definitive treatment is either surgical decompression (laminectomy) followed by radiation for patients with a single level of compression and reasonable prognosis, or radiation therapy alone for radiosensitive tumors, multiple levels of compression, or poor surgical candidates. Neurologic function at the time of treatment initiation is the strongest predictor of outcome.

27. C. Varicocelectomy. Varicocele is the most common identifiable and surgically correctable cause of male infertility, found in approximately 35-40% of men with primary infertility. The proposed mechanism involves increased scrotal temperature from venous stasis, reflux of adrenal and renal metabolites, and impaired testicular blood flow, all of which impair spermatogenesis. Indications for varicocelectomy in the infertility setting include palpable varicocele, abnormal semen parameters (oligospermia, reduced motility, abnormal morphology), and the couple's desire for fertility. Multiple studies demonstrate significant improvement in semen parameters (sperm count, motility, and morphology) in 60-70% of men following varicocelectomy, with natural pregnancy rates of approximately 30-40%. Testosterone replacement therapy is contraindicated in men desiring fertility because exogenous testosterone suppresses gonadotropins (FSH, LH), severely impairing spermatogenesis.

28. A. Emergent decompression of the obstructed collecting system plus IV antibiotics. An obstructed, infected urinary tract (pyonephrosis) is one of the few true urologic emergencies requiring immediate intervention. The combination of ureteral obstruction (from the stone) with infection creates a closed-space infection with rapidly escalating pressures, leading to bacteremia, sepsis, and potentially death if not urgently decompressed. The most critical intervention is emergent decompression of the collecting system — either retrograde ureteral stent placement (performed cystoscopically) or percutaneous nephrostomy tube placement (performed by interventional radiology) — combined with IV broad-spectrum antibiotics. Definitive stone treatment (ureteroscopy, ESWL) is deferred until the infection is controlled and the patient is stabilized (typically 2-4 weeks later). Attempting stone manipulation during active infection risks worsening sepsis.

29. D. Upper urinary tract deterioration (hydronephrosis progressing to renal failure). The greatest long-term concern in neurogenic bladder is upper urinary tract deterioration from chronically elevated intravesical pressures transmitted to the kidneys. Detrusor overactivity combined with detrusor-sphincter dyssynergia (involuntary contraction of the external urethral sphincter during detrusor contraction) creates high-pressure voiding or inability to void, causing bilateral hydronephrosis that, if untreated, progresses to renal damage and eventually renal failure. Regular urodynamic monitoring is essential to identify high-pressure patterns early. Management includes clean intermittent catheterization (to ensure regular, low-pressure bladder emptying), anticholinergic medications (to reduce detrusor overactivity and lower intravesical pressure), botulinum toxin injection into the detrusor, and in severe cases, augmentation cystoplasty (to increase bladder capacity and compliance).

30. B. Phimosis. Phimosis is the inability to retract the foreskin (prepuce) over the glans penis, caused by a tight, fibrotic distal preputial ring. Physiologic phimosis is normal in infants and young children (the foreskin is naturally adherent to the glans at birth), with gradual spontaneous separation occurring by age 3-5 in most boys. Pathologic phimosis in older children and adults results from chronic inflammation, scarring (often from recurrent balanitis, forced retraction, or balanitis xerotica obliterans/lichen sclerosus), and infection. Complications include recurrent balanitis, UTIs, difficulty with hygiene, urinary obstruction, and increased risk of penile cancer. Conservative treatment includes topical corticosteroid cream (0.05% betamethasone applied to the phimotic ring with gentle stretching for 4-8 weeks), which is effective in approximately 80% of cases. Circumcision is the definitive treatment for refractory phimosis.

31. C. CT urogram and cystoscopy. Persistent asymptomatic microscopic hematuria (greater than 3 RBCs/HPF on two or more properly collected specimens) requires a thorough urologic evaluation to exclude malignancy (bladder cancer, renal cell carcinoma, upper tract urothelial carcinoma) and other significant pathology. The standard workup includes upper tract imaging (CT urogram is the preferred modality, providing detailed evaluation of the renal parenchyma, collecting system, ureters, and bladder) and lower tract evaluation (cystoscopy for direct visualization of the bladder mucosa). Urine cytology has low sensitivity for low-grade urothelial tumors and a negative result does not exclude malignancy. Risk factors for urologic malignancy that lower the threshold for evaluation include age over 40, smoking history, occupational chemical exposure, gross hematuria, and irritative voiding symptoms. Even in the absence of risk factors, persistent microscopic hematuria warrants complete evaluation.

32. A. Observation with periodic imaging. Angiomyolipomas (AMLs) are benign renal tumors composed of blood vessels, smooth muscle, and adipose tissue. The presence of macroscopic fat (negative Hounsfield units on CT) is virtually diagnostic, distinguishing AMLs from renal cell carcinoma (which rarely contains fat). Small, asymptomatic AMLs (less than 4 cm) are managed conservatively with periodic imaging surveillance (annual or biannual CT or MRI) because the risk of hemorrhage is low. Intervention is recommended for AMLs greater than 4 cm (due to increased risk of spontaneous hemorrhage from abnormal vasculature), symptomatic AMLs, or AMLs in women of childbearing age (risk of growth and rupture during pregnancy). Treatment options include selective arterial embolization (preferred for acute hemorrhage) and nephron-sparing surgery. AMLs are associated with tuberous sclerosis complex (bilateral, multifocal AMLs) and sporadic lymphangioleiomyomatosis.

33. B. Stage I seminoma. Testicular cancer staging uses the TNM system combined with serum tumor markers (S stage). Stage I indicates tumor confined to the testicle without evidence of lymph node involvement or distant metastases and with normalized or mildly elevated post-orchiectomy tumor markers. Seminomas represent approximately 50% of testicular germ cell tumors and carry an excellent prognosis. Pure seminomas characteristically have normal AFP (AFP elevation indicates a non-seminomatous component regardless of histology) and may have mildly elevated beta-hCG (produced by syncytiotrophoblastic giant cells present in some seminomas). Stage I seminoma has a cure rate exceeding 99%. Management options after orchiectomy include active surveillance (preferred for most stage I seminomas, with 15-20% relapse rate successfully treated with salvage therapy), single-agent carboplatin (one or two cycles), or adjuvant radiation therapy to the para-aortic lymph nodes.

34. D. Close follow-up with repeat prostate biopsy within 6-12 months. High-grade prostatic intraepithelial neoplasia (HGPIN) is a premalignant lesion characterized by cytologically atypical cells within architecturally benign-appearing prostatic acini. It is considered the precursor lesion to prostate adenocarcinoma. When HGPIN is found on biopsy, there is a 20-30% risk of concurrent prostate cancer being detected on subsequent biopsy (sampling error — the cancer may have been missed in the initial biopsy). The recommended management is close follow-up with repeat extended biopsy within 6-12 months, particularly when HGPIN is found in multiple cores (as in this patient with 4 of 12 cores positive). Neither radical prostatectomy nor radiation is appropriate because HGPIN itself is not invasive cancer. The elevated PSA should be monitored, and further evaluation is warranted if PSA continues to rise.

35. C. Intravenous ceftriaxone or cephalosporin-based therapy. Acute pyelonephritis in pregnancy is a serious condition requiring hospitalization and intravenous antibiotic therapy to prevent maternal sepsis and obstetric complications (preterm labor, preterm delivery). Antibiotic selection must consider both efficacy and fetal safety. Cephalosporins (ceftriaxone, cefazolin) are the preferred agents — they are pregnancy category B (no evidence of fetal harm), achieve excellent renal and tissue concentrations, and cover the most common uropathogens (E. coli). Trimethoprim-sulfamethoxazole is avoided in the third trimester due to risk of neonatal kernicterus (sulfonamides displace bilirubin from albumin) and potential folate antagonism. Fluoroquinolones are contraindicated throughout pregnancy due to risk of fetal cartilage damage. Nitrofurantoin achieves poor tissue penetration (inadequate for pyelonephritis) and is avoided near term (risk of hemolytic anemia in neonates with G6PD deficiency). IV antibiotics are continued until afebrile for 24-48 hours, then transitioned to oral therapy to complete a 10-14 day course.