Urology

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Case 1: A 63-year-old man complains of a 6-month history of difficulty voiding and feeling as though he cannot empty his bladder completely. Shortly after voiding, he often has the urge to urinate again. He reports waking up from sleep at least three to four times each night to urinate. He denies urethral discharge or history of sexually transmitted diseases. He has mild hypertension and takes hydrochlorothiazide. The patient reports that he has had two bouts of urinary tract infections during the past year, and these infections have been treated with outpatient antibiotics. His vital signs are normal, and his cardiopulmonary and abdominal examination is unremarkable.

- What is the most likely diagnosis?
- What is the best initial therapy for this patient?

Most likely diagnosis: Lower urinary tract symptoms (LUTS), which in men occurs most commonly as the result of benign prostatic hyperplasia (BPH).
Best initial therapy: Initial treatment includes lifestyle modification and pharmacologic treatment with either an α-1-blocker or a 5-α reductase inhibitor if the patient is bothered significantly by his symptoms.

1. A 57-year-old asymptomatic patient is noted to have a normal prostate shape and size on digital rectal examination. His laboratory study revealed a PSA of 38 ng/mL (normal ≤ 2.5 ng/mL). Which of the following choices is the best next step for this patient?
A. Continued observation and monitoring for symptoms
B. Repeat the PSA in 6 months
C. CT scan of the abdomen and pelvis
D. Transrectal ultrasound with prostate biopsy
E. Prescribe a low-dose doxazosin (α-blocker) treatment

2. A 72-year-old man without prior history of renal disease has a mildly tender firm lower abdominal mass and constant urinary dribble. His serum creatinine is 2.0 mg/ dL (nL for adult male 0.8-1.2 mg/ dL). Which of the following is the best next step?
A. CT of the pelvis
B. Enema
C. Placement of a urinary (Foley) catheter
D. Referral to a general surgeon for the abdominal mass and a neurologist for the urinary incontinence
E. Trans-rectal ultrasonography

3. A 58-year-old man who is employed as a commercial airline pilot has a confirmed diagnosis of BPH. He is currently taking an α-1 blocker for this problem and has recently presented to the emergency department for dizziness that is affecting his ability to continue as a commercial pilot. Which of the following is the most likely problem?
A. Parkinson's disease causing neurologic symptoms and neurogenic bladder
B. Metastatic prostate cancer
C. Chronic renal insufficiency
D. Medication side-effect
E. Urosepsis from untreated urinary tract infection

4. A 49-year-old man presents with moderately severe LUTS and physical examination finding of minimally enlarged prostate size and normal PSA. After detailed discussions with the patient, it appears that his main complaint is noctural urinary frequency (2-3 times/ night). He has already reduced his nighttime fluid intake with only minor improvement in symptoms. Which of the following is the most appropriate next step in management?

A. Serial monitoring of PSA and prostate size by digital rectal examination
B. Prescribe nighttime desmopressin therapy
C. Bladder catheterization prior to bed
D. Initiate diuretic therapy with morning medication administration

5. A 44-year-old man requests a laboratory prostate "test" because his father was recently found to have prostate cancer. This patient's digital rectal examination reveals a normal-sized, smooth, prostate gland. A serum PSA is drawn approximately 10 minutes following his office visit because the patient is anxious and insists that he wants the results as soon as possible. The PSA result returned 5 days later at 3.2 ng/ dL (normal < 2.5 ng/ dL). Which of the following is the best next step?

A. CT scan of the abdomen and pelvis to identify and stage his prostate cancer
B. Transrectal ultrasonography and biopsy of the prostate
C. Repeat the PSA
D. Radical prostatectomy with pelvic lymph node dissection
E. Reassure that mild elevation can occur and schedule a follow-up in one year

6. A 72 yo male presented to you with a complaint of mild right lower back pain and one episode of blood in his urine 2 weeks ago. He denies voiding symptoms. He quit smoking 5 years ago. His creatinine is 0.8.

What are the next steps in management?

A. Urine culture, noncontrast (stone protocol) CT abdomen/pelvis
B. Urine culture,urine cytology, renal/bladder ultrasound
C. Renal bladder ultrasound, cystoscopy with bilateral retrograde pyelogram
D. Urine culture, urine cytology, CT urogram, cystoscopy
E. No workup needed unless he has another episode of hematuria

7. A 45-year-old woman with a history of diverticulitis comes to the Emergency Room (ER) with a 2-day history of left lower-quadrant pain and vomiting. She has mild leukocytosis with a white blood cell (WBC) count of 15. Her creatinine is mildly elevated to 1.3, consistent with dehydration. In the ER, she develops a fever of 38.5ºC. Urinalysis shows positive leukocyte esterase but no nitrites. A CT scan reveals a 6-mm left ureteral stone with mild to moderate hydronephrosis. What are the next best step(s) in management?

A. Urine culture, antibiotics, IV fluids
B. Urine culture and stat Urology consult for left ureteral stent placement
C. Bowel rest (make NPO) and IV fluids
D. Urine culture, antibiotics, and Urology consult for a possible left ureteroscopy
E. Discharge home with oral antibiotics and follow up with Urology

8. A 62-year-old male presents with urinary retention and perirectal pain. He has had recent low-grade fevers, urinary urgency, and increasing difficulties voiding until he was unable to void at all this morning. Digital rectal exam reveals a swollen, boggy prostate that is tender on examination. What is the likely diagnosis?

A. Benign prostatic hyperplasia (BPH)
B. Urinary tract infection
C. Bacterial prostatitis
D. Prostatic abscess

9. A 12 year old boy presented to the ER department with sudden onset of severe testicular pain with no history of trauma and no fever. What is the most likely diagnosis?

A. Hydrocele
B. Testicular torsion
C. Tuberculosis Epididymitis
D. Varicocele

10. If the diagnosis is testicular torsion how would you further proceed with your work up?

A. Take the patient to do a CT scan
B. Give the patient analgesia and ask him to return to you in 3 days
C. Take the patient to the OR immediately for surgical exploration
D. Administer antibiotics as testicular torsion is an infectious emergency

11. A 25 year-old male presented to the ER in a stable condition after a motor vehicle accident. He complains of left flank pain. You suspect renal injury.
Which ONE of the following would be the best test to investigate renal injury?

A. CT scan Urography
B. Intravenous urography (IVU)
C. MRI
D. Renal ultrasound

12. Which ONE of the following is an indication for a surgical intervention in ureteric stones?

A. Gross Hematuria
B. If the stone is 6 millimetre in diameter
C. Impaired renal function due to obstruction
D. Stone in distal ureter

Answers:

1. D. A PSA of 38 is much higher than would be expected with the PSA abnormalities related to other non cancer causes. At this point, a transrectal ultrasound to evaluate the prostate and obtain biopsies of abnormal areas is indicated. Repeating the PSA in 6 month is an option for patients with benign prostate examination and mild PSA elevations. CT of the abdomen and pelvis is helpful for staging once cancer has been diagnosed but tissue biopsy is needed before that. α-Blocker treatment is only appropriate for patient with LUTS due to benign BPH.

2. C. This patient's clinical presentation is compatible with overflow incontinence and bladder outlet obstruction. Overflow incontinence occurs when the bladder's filling capacity is exceeded. Therefore, when the person coughs, stands, or increases the abdominal pressure, urine leaks outs in a dribbling fashion. The history and physical examination are sufficient to make the diagnosis, and placement of a urinary catheter is the best initial treatment.

3. D. Alpha-1 Blockers cause smooth muscle relaxation but are associated with side effects of dizziness and orthostatic hypotension.

4. B. Desmopressin at bedtime may be helpful for this patient with a primary complaint of nocturia and physical examination demonstrating minimal prostate enlargement. It is likely that his symptoms are the result of an overactive bladder rather than bladder outlet obstruction.

5. C. Transient mild elevation in the PSA can occur following digital prostate examination, therefore a mild PSA elevation found in a patient who just had a prostate examination does not necessarily indicate cancer. The PSA is best used to follow patients who have undergone treatment for prostate cancer. PSA screening per se has not been shown to be beneficial in reducing prostate cancer related mortality.

6. D, A complete hematuria workup should be performed with any history of hematuria, even if it has resolved. A noncontrast CT or renal/bladder ultrasound would be appropriate imaging modalities for a patient with confirmed kidney stones, but are inadequate for diagnostic hematuria workup. Patients with renal failure or an IV contrast allergy require renal ultrasound, cystoscopy, and retrograde pyelograms (performed in the OR) as well as a urine culture and cytology.

7. B, A patient with an obstructing stone and any signs of infection (fevers, chills, leukocytosis, urinalysis concerning for urinary tract infection [UTI]) is at high risk for developing urosepsis and needs an urgent Urology consult for either a ureteral stent or percutaneous nephrostomy tube to relieve the obstruction. Any patient with an obstructing stone should have a urinalysis with microscopic analysis and a urine culture sent immediately before starting antibiotics. In a patient with a stone and fever, it is appropriate to start an empiric antibiotic, usually a fluoroquinolone or third- or fourth-generation cephalosporin but this does not replace obtaining an urgent consult.

8. C, Urinary retention can be caused by any of the above. BPH alone does not present with systemic symptoms like fevers. The prostatic examination is typically normal with a urinary tract infection. Prostatic abscess typically presents with high fevers, leukocytosis, and significant pain. A periprosthetic fluid collection may be palpable. While this clinical scenario does not rule out a prostatic abscess, the most likely diagnosis is bacterial prostatitis which is treated with empiric antibiotics.

9. B

10. C

11. A

12. C