Question #1 **ANSWER=D**

Urethral atrophy results from chronic compression of the corpus spongiosum by the cuff and is the leading cause of urinary incontinence in this setting. However, urodynamic evaluation may reveal involuntary detrusor contractions or decreased bladder compliance. Deactivation will not permit improved sphincter function. Surgical exploration is not indicated if the cause of the incontinence is unrelated to the device (e.g., detrusor overactivity or impaired compliance). Alpha-blockers would not be expected to have any effect on urinary incontinence in this case regardless of the underlying cause. Antimuscarinics would not treat causes of incontinence related to device malfunction. Treatment options for this patient would include downsizing the cuff movement to a more proximal or distal location or the addition of a second cuff placed in tandem.

Wessells H, Peterson AC: Surgical procedures for sphincteric incontinence in the male: The artificial genitourinary sphincter and perineal sling procedures, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 79, pp 2294-2295.

Question #2 **ANSWER=D**

The AUA Best Practices Policy on DVT prophylaxis stated that early ambulation is recommended for the vast majority of men undergoing TURP. Those men who are at increased risk for DVT (such as previous DVTs, malignancy, immobility, paresis, etc.) may benefit from pneumatic compressive stockings, subcutaneous low dose unfractionated heparin, or low molecular weight heparin (LMWH). However, the use of LMWH is contraindicated in a patient who receives spinal or epidural anesthesia as this is a FDA black box warning due to risk of spinal hematoma. Aspirin and other antiplatelet drugs, while highly effective at reducing vascular events associated with atherosclerotic disease, are not recommended for DVT prophylaxis in surgical patients. There is no indication for obtaining preoperative LE-duplex studies in an otherwise healthy male.

Forrest JB, Clemens JQ, Finamore P, et al: Best practice policy statement for the prevention of deep vein thrombosis in patients undergoing urologic surgery. PREVENTION OF DVT AFTER UROLOGIC SURGERY BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2008. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/dvt.pdf

Question #3 **ANSWER=C**

In female urethral cancers, treatment recommendations are primarily dependent on tumor location and clinical stage. Local excision may be sufficient for the relatively uncommon small,

superficial, distal urethral tumors, and can result in excellent functional results. For more proximal and advanced urethral tumors, a more aggressive approach is warranted. Small, exophytic, superficial tumors arising from the urethral meatus or anterior urethra (as in this case) may be surgically treated with circumferential excision of the distal urethra including a portion of the anterior vaginal wall. The distal third of the urethra may be excised while still maintaining urinary continence. Tumors in the distal urethra tend to be low stage, and cure rates of 70% to 90% have been achieved with local excision alone. 5-FU cream has been utilized in the treatment of carcinoma-in situ of the penis, but does not have a defined role in female urethral cancers. Although XRT has been effectively used for female urethral cancers, the addition of prophylactic lymphadenectomy in this choice makes it incorrect. Recommendations for performing groin dissection have been made only for patients who present with positive inguinal or pelvic lymphadenopathy without distant metastasis, or patients who develop adenopathy during surveillance. Anterior pelvic exenteration is employed for patients with proximal urethral cancers often as part of a multimodal approach including chemotherapy and XRT.

Sharp DS, Angermeier KW: Surgery of penile and urethral carcinoma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 35, p 934.

Question #4 **ANSWER=D**

Cisplatin nephrotoxicity is due to a direct toxic effect of the drug on renal tubular cells. Azotemia and dehydration are predisposing conditions which increase the risk of this complication. Cisplatin is not precipitated in the renal tubules nor does it affect glomerular hemodynamics.

Goldfarb DA, Poggio ED: Etiology, pathogenesis, and management of renal failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 43, pp 1197-1198.

Question #5 **ANSWER=D**

Most cases of ureteroarterial fistulas are reported in patients with a prior history of vascular disease, radiation therapy, or pelvic surgery, especially in the setting of indwelling ureteral stents. In fact, ureteroarterial fistulas are highly associated with indwelling stents. The routine urologic and radiologic evaluation of hematuria will not generally provide evidence of ureterovascular fistula. Even in suspected or proven cases, preoperative radiologic investigations including nonselective arteriography and pyelography are often nondiagnostic. This is especially true in patients with intermittent hematuria in whom there is no active bleeding at the time of the radiographic investigation, presumably because of thrombus over the site of the fistula. Selective or subselective arteriography of the iliac vessels may be more

revealing in suspected cases, and provocative maneuvers such as stent removal or mechanical friction of the ureteral lumen by manipulation of the stent may be necessary to demonstrate the fistulous connection in patients without active bleeding undergoing angiography. These adjuvant maneuvers should be performed only with extreme caution in an appropriate setting where immediate angiographic or surgical intervention is possible. In a review, retrograde pyelography was diagnostic in only 6 of 10 patients in whom it was performed, and arteriography diagnosed a ureterovascular fistula in only 4 of 14 cases. Indirect evidence of a ureteroarterial fistula can be found on CT, but findings are usually nonspecific and suggestive only in retrospect after a confirmed diagnosis by other means. Nevertheless, in a stable patient with a suspected ureterovascular fistula, a full radiographic evaluation may be pursued, not only for diagnostic purposes but also to evaluate potential reconstructive options and in select cases to perform therapeutic angiographic embolization procedures. As these patients may present in extremis with hypotension and severe hemorrhage, surgical intervention must be considered early, especially since radiographic evaluation may be nondiagnostic. In this stable patient, an attempt at angiography and placement of an endovascular graft is warranted. Open exploration may be needed if hematuria persists. Replacement of the ureteral stent or percutaneous nephrostomy will not stop the hemorrhage. Ureteroscopy with fulguration will be unsuccessful with an arterial-ureteral fistula.

Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, pp 2259-2260.

Question #6 **ANSWER=A**

The pneumoperitoneum used in laparoscopy will have an effect on the cardiovascular, renal and respiratory systems. With pressures = 20 mmHg (most commonly used pressure for laparoscopy is 15 mmHg), heart rate, mean arterial pressures and systemic vascular resistance are all increased. Alterations in venous return and cardiac output are variable and are dependent on the hydration of the patient. In the hypovolemic or euvolemic state both venous return and cardiac output are decreased due to compression of the vena cava, however if the patient is hypervolemic, (fluid overloaded) the vena cave will resist the increase in the intraabdominal pressure and both venous return and cardiac output increased. The GFR is decreased due to compression of the renal vein and renal parenchyma by the elevated intraabdominal pressure.

Eichel L, Clayman RV: Fundamentals of laparoscopic and robotic urologic surgery, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 9, p 231.

Question #7 **ANSWER=E**

This patient has genital herpes (herpes simplex virus, HSV), of which 85-90% are caused by HSV-2 and 10-15% are caused by HSV-1. Initial genital herpes infection is often associated with constitutional flu-like symptoms. While vesicular eruptions can be found on physical exam, women especially may present with atypical lesions such as abrasions, fissures or itching. Empiric treatment may be initiated. Diagnosis can be helped by serology tests for antibodies to HSV-2 and HSV-1. Antiviral creams are not helpful for genital herpes. Oral acyclovir has been shown to prevent recurrence of genital herpes and associated symptoms. Hydrocortisone cream is not recommended for the treatment of genital herpes, however, recent studies suggest that a combination of topical acyclovir and hydrocortisone cream may reduce the recurrence of herpes labialis. Ceftriaxone is an appropriate treatment for chancroid but not genital herpes. Topical imiquimod is not recommended for treatment of routine genital herpes but is being used to treat recalcitrant cases of acyclovir-resistant herpes in immunocompromised hosts.

Frenkl TL, Potts JM: Sexually transmitted infections, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 13, p 405.

Perkins N, Nisbet M, Thomas M: Topical imiquimod treatment of aciclovir-resistant herpes simplex disease: Case series and literature review. SEX TRANSM INFECT 2011;87:292-295.

Question #8 **ANSWER=D**

About two-thirds of the glomerular ultrafiltrate is reabsorbed in the proximal tubule with little change in the osmolality or sodium concentration of the unreabsorbed fraction. In other words, fluid reabsorption in the proximal tubule is nearly isosmotic and is coupled to the active transport of sodium. Since chloride and bicarbonate are the primary anions in the extracellular fluid, most of the filtered sodium is reabsorbed with these anions. Because of the high water permeability of the proximal tubule, sodium transport occurs against a minimal concentration gradient. Aldosterone regulates sodium-potassium exchange in the collecting duct.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, pp 1032-1033.

Question #9 **ANSWER=A**

The unexpected finding of renal lymphoma at the time of renal cortical tumor surgery is rare. Ninety percent of these cases are not primary renal lymphoma but rather systemic

lymphoma with renal manifestation. Non-Hodgkin's lymphomas are the most common subtype. Multifocal masses, bilaterality and regional lymphadenopathy are all more common in renal lymphoma than in renal cortical tumors. In this patient the presence of diffuse renal infiltration by lymphoma will make post-operative systemic therapy necessary. In the setting of compromised renal function every attempt should be made to spare the remaining nephron mass in preparation for systemic chemotherapy. Therefore further surgical intervention is not warranted and completion of the operation and subsequent postoperative discussion regarding systemic therapy is the most logical next step.

Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, pp 1471-1472.

Question #10 **ANSWER=C**

The MRI scan shows evidence of a distended upper vagina and presence of a uterus which is most consistent with either a transverse vaginal septum or distal vaginal agenesis. Transverse vaginal septa are believed to arise from a failure in fusion or canalization (or both) of the urogenital sinus and Müllerian ducts. Many of the patients present at puberty with primary amenorrhea and a distended upper vagina. A complete transverse vaginal septum may be located at various levels in the vagina, but there is a higher frequency in the middle and upper third of the vagina. Transperineal, transrectal, and abdominal ultrasonography and MRI scan may be beneficial in establishing the diagnosis and determining the location and thickness of a transverse vaginal septum. Vaginal atresia occurs when the urogenital sinus fails to contribute to formation of the lower (distal) portion of the vagina. Mayer-Rokitansky syndrome is characterized by either partial or complete absence of the vagina and coexisting uterine abnormalities, with the uterus either partially or completely absent. In Mayer-Rokitansky syndrome, the fallopian tubes and ovaries are present but may be either normal or hypoplastic. Two types exist, type I that involves only the Müllerian structures (vagina and uterus) and type II that will involve concurrent abnormalities of either the cardiac, renal or otologic systems. Androgen insensitivity syndrome is characterized by the absence of a uterus, salpinx, and upper 2/3 of the vagina, these structures regress under the active influence of MIF secreted from the testes. CAH infant will manifest an enlarged clitoris and genital ambiguity, with variable lengths of a urogenital sinus present dependent upon the degree of androgen secretion from the adrenal glands. An imperforate hymen should demonstrate a visible bulging membrane at the vaginal introitus.

Rink RC, Kaefer M: Surgical management of disorders of sexual differentiation, cloacal malformation, and other abnormalities of the genitalia in girls, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 134, pp 3631-3632.

Question #11 **ANSWER=C**

Microvascular reconstruction involves reanastomosis of the dorsal arteries, dorsal vein, and nerves. Macroscopic replantation is the simple anastomosis of the corpora cavernosum and urethra. Erectile function after either microvascular reconstruction or macroscopic replantation of the penile shaft is roughly 50%. Penile skin loss, urethral stricture formation, and loss of penile sensation are all greater with macroscopic replantation as compared to microvascular reconstruction of the penile shaft. Infection of the penile shaft after either technique has not been studied to date.

Morey AF, Dugi DD III: Genital and lower urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 88, p 2509.

Question #12 **ANSWER=E**

This patient has a T2 (invasion into the corpus spongiosum or cavernosum) N3 (palpable fixed inguinal lymph nodes or nodal mas, either bilateral or unilateral) disease. In patients with unresectable primary tumors or bulky regional lymph node metastases, neoadjuvant treatment with a cisplatin-containing regimen is the most effective treatment modality and may allow curative resection. A phase 2 study using four courses of neoadjuvant paclitaxel, ifosfamide and cisplatin chemotherapy for TxN2-3 disease followed by bilateral inguinal lymph node dissections, and unilateral or bilateral pelvic lymph node dissections revealed excellent response with an objective response rate of 55% and complete pathologic response rate of 10%, toxicity was acceptable with no treatment-related deaths. This treatment is superior to single agent chemotherapy and has less toxicity than the previous multi-agent chemotherapeutic regimen of cisplatinum, bleomycin, and methotrexate. The optimal chemotherapy regimen however has yet to be determined. In this patient with bilateral bulky fixed nodes not responding to antibiotics, a needle biopsy of the lymph nodes could be considered for pathologic diagnosis. However, neither pelvic lymph node biopsy, sentinel inguinal lymph node biopsy, nor bilateral pelvic inguinal and inguinal lymph node dissection would be curative and would predispose the patient to non-healing surgical incision sites. Similarly, XRT to the inguinal nodes would not be curative for this extensive disease.

Trabulsi EJ, Hoffman-Censits J: Chemotherapy for penile and urethral carcinoma. UROL CLIN N AM 2010;37:467-374.

Pagliaro LC, Williams DL, Daliani D, et al: Neoadjuvant paclitaxel, ifosfamide, and cisplatin chemotherapy for metastatic penile cancer: A phase II study. J CLIN ONC 2010;28:3851-3857.

Question #13 **ANSWER=D**

Persistent vesicourethral fistula occurs frequently with bladder neck closure where vascularized tissue is not interposed between the bladder neck and urethra. Omentum is the most commonly used tissue for interposition but occasionally is not available or cannot be brought down to the level of the bladder neck closure. When this is not possible, or in high risk cases (radiated patients, persistent vesicourethral fistulae, etc.) a rectus abdominus pedicle flap can be used for interposition. Tube vesicostomy will not help this patient as he will continue to be incontinent and it has been a lengthy interval since his surgery. Permanent nephrostomy tubes are undesirable and the patient may well continue to be incontinent. An ileal conduit can be considered but would be significantly more extensive than repeating the bladder neck closure.

Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, p 2238.

Question #14 **ANSWER=A**

There are an estimated 60-70 million CT scans performed in the USA, perhaps with 33% being unnecessarily performed. CT scans generate ionizing radiation with resulting DNA damage that could result in the induction of cancer. The cancer risk of CT scans is higher in the pediatric population. Furthermore, the digestive organs are more sensitive to radiation injury than the brain. Newer CT scans have automatic exposure-control option which will decrease the radiation exposure. An abdominal x-ray results in a dose of 0.25 mSv to the stomach whereas a single CT scan of the abdomen can result in a radiation dose 50 times or greater to the stomach.

Brenner DJ, Hall EJ: Computed tomography: An increasing source of radiation exposure. NEJM 2007;357:2277-2284.

Question #15 **ANSWER=C**

There is about 75% concordance between retroperitoneal pathology and pulmonary mass pathology, however approximately 25% of cases will have discordant pathology (i.e. retroperitoneal fibrosis and active tumor or teratoma in the lung field). Therefore, post-chemotherapy thoracotomy yields important prognostic information and is curative in patients with resected teratoma and a subset of patents with viable tumor.

PET scanning is a valuable decision making tool for retroperitoneal post-chemotherapy seminoma for residual masses greater than or equal to 3 cm. In this patient population,

provided the PET scans are performed six weeks after the last chemotherapy cycle (decreased false positives), PET scans have a negative predictive value of 96% and a positive predictive value of 78% for active seminoma. This helps identify patients who merit additional treatment for post-chemotherapy seminoma retroperitoneal masses. PET scans usefulness, however, for the evaluation of supra-diaphragmatic, residual pulmonary nodules or mediastinal masses has not been extensively studied and recommendations for its use in this clinical situation have yet to be determined.

Sheinfeld J, Bosl GJ: Surgery of testicular tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 32, p 871.

Question #16 **ANSWER=B**

A common intraoperative complication with penile prosthesis surgery is crural perforation. If this occurs with insertion of an inflatable device with attached tubing, placing a tunica albuginea closure suture on either side of the exit tubing to keep the cylinder in place has worked sufficiently without requiring a more extensive repair. A more significant perforation injury, including damage to the urethra, would require termination of the procedure. Placement of a malleable prosthesis is not advised as it cannot be secured and will be more likely to erode.

Montague DK: Prosthetic surgery for erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 27, p 787.

Question #17 **ANSWER=C**

The likelihood of obstructive azoospermia is 96% with testis longitudinal axis greater than 4.6 cm and FSH less than 7.6 IU/l. However, the most significant predictor of any form of reproductive intervention is maternal age, with female fecundity declining precipitously after age 37. The decision to perform microsurgical scrotal ductal reconstruction or to obtain sperm from the testis for IVF and intracytoplasmic sperm injection rests on evaluation of the female partner, especially after age 37. Transrectal ultrasound is not necessary if semen volumes are normal (> 1.5 ml) as ejaculatory ductal obstruction is unlikely.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, pp 619, 635.

Question #18 **ANSWER=D**

According to the 2010 TNM AJCC staging, renal cancers greater than 7cm and less than or equal to 10 cm are now categorized as pT2a. Lesions greater than 10 cm are pT2b. Adrenal gland involvement depends on whether there is contiguous involvement (T4) or non-contiguous involvement (M1). The M1 designation is true even if the adrenal gland is on the ipsilateral side as the nephrectomy. When there are no pathologic lymph nodes available, the pathologic staging is designated as NX.

Edge SB, Byrd D, Compton C, Fritz A: AJCC Staging Manual, ed 7. New York, Springer-Verlag, 2010, chap 43, pp 479-490.

Question #19 **ANSWER=C**

Duplex ultrasound of the renal arteries is a useful noninvasive anatomic study for the diagnosis of renal artery stenosis (RAS). Although an altered flow pattern distal to the stenosis, including decreased diastolic flow and a turbulent systolic jet, can be suggestive of RAS, the most important single indicator is a peak systolic velocity (PSV) > 180 cm/sec. The renal aortic ratio (RAR) is the ratio of renal PSV to the aortic PSV. A RAR > 3.5 indicates > 60% stenosis. The renal resistive index does not directly assess renal artery flow.

Fergany A, Novick AC: Renovascular hypertension and ischemic nephropathy, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 39, p 1061.

Question #20 **ANSWER=D**

Kallmann syndrome, anosmia or hyposmia associated with hypogonadotropic hypogonadism is commonly diagnosed due to a delayed onset of puberty. Most patients are treated with exogenous testosterone at the time of their diagnosis for virilization. Testosterone is easy and cost effective to administer compared to daily injections of alternative hormones. Azoospermia in these patients results from the combination of inadequate levels of intratesticular testosterone, and the patient's natural absence of stimulatory pituitary hormones. When the patient desires to father children, spermatogenesis can be brought about by discontinuing parenteral testosterone and beginning daily IM or SQ injections of hCG and recombinant FSH. If the response is insufficient, GnRH administration may be considered but is expensive and requires I.V. administration. In patients with low ejaculate volume (< 1.5 ml), a post-ejaculate urine is useful to diagnose retrograde ejaculation, this patient's ejaculate volume is normal. Assay of testosterone, LH and FSH is not needed in this patient in whom a diagnosis of Kallmann syndrome has already been made. It would be inappropriate to proceed with

testicular sperm extraction without first giving the hormonal treatment necessary to stimulate spermatogenesis.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 639.

Question #21 **ANSWER=E**

This patient has developed upper tract deterioration following cystectomy and ileal conduit diversion. This has been reported in some series to occur in over 50% of patients with long-term followup. The renogram in this instance demonstrates no obstruction to the right renal unit with hydronephrosis likely the result of chronic reflux. The renogram also demonstrates no significant function of the left renal unit. Because there is no reflux into the left system it cannot be monitored as to the possible development of upper tract urothelial carcinoma. In this setting, nephroureterectomy is recommended. Looposcopy will not add to the evaluation as it will not provide access to the left system. Bilateral percutaneous nephrostomy is not indicated because there is no evidence of obstruction of the right side. Similarly, there is no evidence of stomal stenosis. Revision of left ureteroileal anastomosis should not be undertaken for a non-functioning kidney. Another option would be left nephrostomy tube placement, antegrade studies, and selective cytology to further risk stratify the patient prior to making a final decision.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 85, p 2411.

Question #22 **ANSWER=B**

Finasteride is an effective option for the management of gross hematuria after TURP for BPH. None of the other listed treatments (e.g., tamsulosin and bicalutamide) have efficacy or have been evaluated in this setting. It is known that one of the early effects of finasteride is the intraprostatic suppression of vascular endothelial growth factor. Clinically, finasteride has been shown to effectively treat post-prostatectomy hematuria, especially in the presence of friable prostate tissue. If hematuria does not resolve with this therapy then evaluation of the upper urinary tract should be considered to rule it out as the source of bleeding. Prolonged antibiotics would only be indicated in the setting of UTI suspected to be of prostatic origin.

McVary KT, Roehrborn CG, Avins AL, et al: Update on AUA guideline on the management of benign prostatic hyperplasia. J UROL 2011;185:1798.

McNicholas TA, Kirby RS, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 92, p 2638.

Question #23 **ANSWER=A**

Elevated serum prolactin from a pituitary tumor that causes clinical symptoms such as low libido, infertility and gynecomastia is usually accompanied by a low serum testosterone. A mildly elevated prolactin, especially accompanying a serum testosterone in the normal range, is rarely clinically significant. Because prolactin has high interassay variability, an elevated prolactin should first be verified by repeat testing. With a normal testosterone, LH assay is unhelpful and exogenous testosterone is not indicated. Likewise, a man with mildly elevated prolactin and normal testosterone is unlikely to benefit from bromocriptine, and MRI is unlikely to reveal a clinically significant anatomic pituitary lesion. The most common cause of low libido in a man with a normal physical exam and adequate testosterone is psychological.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 639.

Question #24 **ANSWER=A**

The prostate is covered with three distinct and separate fascial layers: Denonvilliers' fascia, the prostatic fascia, and the levator fascia. Denonvilliers' fascia is a filmy, delicate layer of connective tissue located between the anterior walls of the rectum and prostate. The neurovascular bundle on the prostate contain the cavernosal nerves and are located between the layers of the levator fascia and prostatic fascia.

Schaeffer EM, Partin AW, Walsh PC: Radical retropubic and perineal prostatectomy, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 102, p 2801.

Question #25 **ANSWER=C**

Although the majority of patients do not have difficulties voiding following injection of a bulking agent, when retention does occur, it should be treated with CIC using a small (10- 14 Fr) catheter. Larger catheters, indwelling catheters. or large urethral sounds will push the mucosal blebs apart or cause molding of the bulking agent around the catheter. Suprapubic cystotomy can be used if long term catheterization is needed, although this is very rare.

Herschorn S: Injection therapy for urinary incontinence, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 74, p 2172.

Question #26 **ANSWER=A**

Between 66% and 85% of women with ureteral colic will spontaneously pass their calculi with hydration and analgesic therapy. If the calculus fails to pass with conservative therapy, a ureteral stent should be placed cystoscopically with sonography or minimal radiographic imaging, as the first trimester presents the period of greatest risk of teratogenicity and spontaneous abortion. Ureteroscopy is an acceptable alternative. Fluoroscopy should be avoided. Pregnancy is an absolute contraindication for the use of SWL.

Ferrandino MN, Pietrow PK, Preminger GM : Evaluation and medical management of urinary lithiasis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 46, p 1322.

Question #27 **ANSWER=A**

PET imaging is useful to assess post-chemotherapy residual masses after treatment of seminoma. Lesions that are less than 3 cm or non-enhancing can be safely observed as over 90% of seminoma postchemotherapy masses are fibrosis. Percutaneous biopsy is not reliable since the masses can be heterogeneous. Resection of non-enhancing masses is not necessary and resection of seminoma post-chemotherapy masses can be technically difficult or impossible. Resection of the mass and bilateral RPLND would be appropriate for NSGCT post-chemo masses but are not necessary in the post-chemo seminoma setting because of the low risk of cancer or teratoma in the remainder of the retroperitoneum. Salvage chemotherapy is not necessary and is highly toxic.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 31, p 837.

Question #28 **ANSWER=E**

The main determinants of compliance are the elastic and viscoelastic properties of the bladder. When these are destroyed as in fibrosis of the bladder, poor compliance results. Neurogenic influences may be operative in late stages of filling. Bladder smooth muscle maintains a steady level of contractility and tone that is dependent on the activity in the autonomic nerves,

circulating hormones, local metabolites, locally secreted agents such as nitric oxide, and temperature.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, pp 1909-1912.

Question #29 **ANSWER=A**

The long arm of the Y chromosome harbors genes intrinsic to spermatogenesis, including the azoospermia factor (AZF). While males with AZFc deletions may or may not have sperm in the seminiferous epithelium, an AZFa and/or AZFb deletion in combination with an AZFc deletion uniformly results in a Sertoli cell only phenotype. Biopsy is unnecessary, and microsurgical testicular sperm extraction will not yield sperm. Endocrine therapy with clomiphene citrate to stimulate Leydig cell production of testosterone, or with recombinant follicle stimulating hormone to stimulate Sertoli cell function, will not yield sperm as no germ cells are present.

Jarow J, Sigman M, Kolettis PN, et al: The optimal evaluation of the infertile male. OPTIMAL EVALUATION OF THE INFERTILE MALE BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2010, p 24. http://www.auanet.org/content/media/optimalevaluation2010.pdf?CFID=1120045&CFTOKEN=56942911&jsessionid=84305f5f356fa2cff3663995324201d77126

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 641.

Question #30 **ANSWER=C**

The urinary FISH test identifies intranuclear chromosomal abnormalities that have been associated with bladder cancer. Specifically it detects aneuploidy for chromosome 3,7 and 17 and homozygous loss of chromosome 9p21. This test is currently FDA approved for the evaluation of microscopic hematuria and bladder cancer. In 2007 Yoder and colleagues reported that 35/56 (62.5%) patients with prior urothelial carcinoma who had a normal evaluation by cystoscopy and a positive FISH subsequently were detected to have recurrent disease. The appropriate workup of this patient population remains highly variable, however random bladder biopsies are considered the standard of care for patients with a positive urine cytology and negative cystoscopy and should be regarded as a minimum evaluation in this high risk patient. The yield of upper tract endoscopy and cytology in the setting of a normal CT urogram is low and should be discouraged as an initial diagnostic maneuver. Because the

patient has a history of bladder cancer, the most likely site of recurrence is in the bladder. Repeat FISH will not add anything to the evaluation, whether positive or negative.

Wood DP: Urothelial tumors of the bladder, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 80, pp 2327-2328.

Yoder BJ, Skacel M, Hedgepeth R, et al: Reflex UroVysion testing of bladder cancer surveillance patients with equivocal or negative urine cytology: A prospective study with focus on the natural history of anticipatory positive findings. AM J CLIN PATHOL 2007;127:295-301.

Question #31 **ANSWER=A**

According to the recently updated guidelines on management of BPH by the AUA Practice Guideline Committee, recommended components of the diagnostic algorithm for routine evaluation include history, assessment of LUTS with an AUA Symptom Score, physical examination including DRE and urinalysis. A frequency-volume chart should be obtained if nocturia is a predominant symptom. Urodynamics, cystoscopy and serum creatinine are not required as part of the initial evaluation.

McVary KT, Roehrborn CG, Avins AL, et al: Update on AUA guideline on the management of benign prostatic hyperplasia. J UROL 2011;185:1795.

Question #32 **ANSWER=B**

Delayed bleeding after percutaneous procedures is almost always secondary to pseudoaneurysms or arteriovenous fistulas. Both can present with delayed and intermittent bleeding. Arteriovenous fistula bleeding is more likely to be continuous compared with pseudoaneurysms. Management is renal angiography during active bleeding (with the aid of an arterial vasodilator such as papaverine if necessary) and highly selective angiographic embolization. Continued conservative therapy would be incorrect in the face of hemodynamic instability after appropriate resuscitative efforts. A tamponade catheter may be used as a temporizing measure if the nephrostomy tract is still present. The image presented demonstrates absence of a nephrostomy tube. An indwelling ureteral stent will not address the ongoing hemorrhage. Emergent exploration may lead to need for nephrectomy and a conservative approach is more appropriate.

Rastinehad AR, Andonian S, Siegel DN: Hemorrhagic complications associated with renal surgery, in Smith AD, Badlani GH, Preminger GM, Kavoussi LR (eds): SMITH'S TEXTBOOK OF ENDOUROLOGY, ed 3. Oxford, Blackwell Publishing Ltd, 2012, vol 1, chap 30, p 337.

Question #33 **ANSWER=A**

The first step in treatment of Kaposi's sarcoma in patients with HIV is to initiate HAART or to optimize the HAART regimen, which generally results in remission of Kaposi's sarcoma. Local treatment can include laser therapy, cryotherapy, surgical excision, application of topical retinoids. Disseminated or visceral Kaposi's sarcoma is treated with combination chemotherapy. The gold standard combination therapy of doxorubicin, bleomycin and vincristine has been replaced in recent years with liposomal anthracyclines, such as doxorubicin. Kaposi's sarcoma is also often seen in immunosuppressed patients, such as renal transplant patients, and in this setting the treatment is a reduction of the immunosuppressive regimen. In the current era of immunosuppression, the frequency of this is diminished.

Heyns CF, Groeneveld AE, Sigarroa NB: Urologic complications of HIV and AIDS. NAT CLIN PRACT UROL 2009;6:32-43.

Question #34 **ANSWER=B**

Leakage and fistula from urinary diversion occur in 2 to 9% of patients. However, 20 to 60% of these fistulae close spontaneously. Conservative management can be safely attempted assuming the patient is not septic and that adequate drainage is maintained. Leakage could be from the ureteral ileal anastomosis or from the butt end of the conduit. Bilateral ureteral stents are already in place, which should address any concerns about a ureteral ileal anastomotic leak. Therefore, the best initial therapeutic maneuver in this patient is placement of a catheter into the ileal loop to facilitate drainage. While hyperalimentation is important in malnourished patients and should also be initiated, this would not address the immediate issue of the leak. If the stomal catheter failed to decrease the fistulous output, bilateral percutaneous nephrostomy tubes could be placed to divert the urinary stream. If this failed, surgical intervention would be required to address the problem.

Skinner EC, Skinner DG, Stein JP: Orthotopic urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 87, p 2502.

Question #35 **ANSWER=B**

A small stone fragment pushed through the wall of the ureter, if completely outside the wall and uninfected, is rarely a clinical problem and no intervention, such as retroperitoneoscopy or basket extraction, needs to be directed towards it. The ureteral perforation through which this fragment passed is managed by ureteral stenting; observation without a stent would lead to

extravasation and a higher risk of stricture. Percutaneous nephrostomy and drain placement are not necessary if a stent can be inserted.

Johnson DB, Pearle MS: Complications of ureteroscopy. UROL CLIN AMER 2004; 31:157-171.

Question #36 **ANSWER=C**

Zoledronic acid and other bisphosphonates have become an important part of the management of patients with prostate cancer bone metastasis. These compounds reduce bone resorption by inhibiting osteoclastic activity and proliferation. In patients with progressive hormone refractory bone metastatic prostate cancer, zoledronic acid has been shown to reduce the incidence of skeletal events in a randomized prospective trial. Adverse events include fatigue, myalgias, fever, anemia and elevations in serum creatinine. Osteonecrosis of the mandibular bone is a severe complication of bisphosphonates usually associated with patients undergoing dental work or who have poor dentition or chronic dental disease. The bisphosphonates should be immediately discontinued in the setting of osteonecrosis or expected invasive dental procedures.

Antonarakis ES, Carducci MA, Eisenberger MA: Treatment of castration-resistant prostate cancer, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 110, p 2954.

Question #37 **ANSWER=E**

An integral part of the immune response involves the activation of T cells by dendritic or antigen presenting cells. This interaction occurs via the T cell receptor in the context of MHC (major histocompatibility complex) class II molecules. B cells, unlike T cells, can be directly stimulated by antigen, which then allows B cell differentiation into antibody producing plasma cells. TNF (tumor necrosis factor) and other cytokines are produced by activated T cells and augment the cellular and humoral immune response. An FDA-approved autologous dendritic cell therapy, sipuleucel-T, is currently available for the treatment of advanced prostate cancer.

Dahm P, Vieweg J: Evolving immunotherapeutic strategies for the treatment of prostate and renal carcinomas. AUA UPDATE SERIES 2004, vol 23, lesson 4.

Flechner SM, Finke JH, Fairchild RL: Basic principles of immunology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 17, pp 504-505.

Question #38 **ANSWER=C**

Observation is unacceptable in this symptomatic patient with a diverticular stone. Although SWL may be used successfully to treat a subset of patients with stones in calyceal diverticula that have a broad infundibular neck, the overall stone free rates with SWL are unacceptably low. Percutaneous nephrostolithotomy is not only associated with the highest stone-free rate, but also the procedure results in resolution of the diverticulum. However, anteriorly-located diverticula necessitate percutaneous access through the renal parenchyma with a high risk of bleeding complications. The ureteroscopic approach is ideal for upper pole calyceal diverticula with < 2 cm stones. Laparoscopic ablation would be indicated for an anterior calyceal diverticulum > 2 cm.

Canales B, Monga M: Surgical management of the calyceal diverticulum. CURR OPIN UROL 2003;13:255-260.

Chong TW, Bui MHT, Fuchs GJ: Calyceal diverticula. Ureteroscopic management. UROL CLIN N AM 2000;27:647-653.

Question #39 **ANSWER=C**

Patients with histologic variants of urothelial carcinoma including squamous differentiation and small cell component actually appear to respond better to neoadjuvant chemotherapy. Similarly patients with a p53 mutation and lymphovascular invasion are considered higher risk patients with urothelial cancer and are recommended to have neoadjuvant chemotherapy. Micropapillary variant of urothelial carcinoma is the one variant that does not appear to respond to chemotherapy and requires immediate cystectomy.

Scosyrev E, Ely BW, Messing EM, et al: Do mixed histological features affect survival benefit from neoadjuvant platinum-based combination chemotherapy in patients with locally advanced bladder cancer? A secondary analysis of Southwest Oncology Group-Directed Intergroup Study (S8710). BJU INT 2011;108:693-699.

Kamat AM, Dinney CP, Gee JR, et al: Micropapillary bladder cancer: A review of the University of Texas M. D. Anderson Cancer Center experience with 100 consecutive patients. CANCER 2007;110:62-67.

Question #40 **ANSWER=C**

Multiple sclerosis may involve the central and/or peripheral nervous systems. Depending on the location, level and extent of demyelination, a variety of urodynamic patterns may result. Pelvic floor EMG activity in this individual is increased during voiding which suggests striated

sphincter dyssynergia, a urodynamic finding that exists only with neurological lesions between the pons and the sacral spinal cord. Lesions at or distal to the sacral spinal cord would likely result in detrusor areflexia and lesions above the pons result in detrusor overactivity with synergistic activity of the proximal and distal sphincter mechanisms.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1920.

Question #41 **ANSWER=E**

A 9 mm stone in the proximal ureter has little chance of spontaneous passage; as such, observation is futile. Although SWL and ureteroscopy are both acceptable treatment options for management of a proximal ureteral stone, uncorrected bleeding diathesis frequently found in patients with liver dysfunction is a contraindication to SWL. Although it is optimal to correct bleeding diatheses prior to surgical intervention for stones, full correction of coagulation parameters often requires administration of multiple blood products and lengthy hospital stays. Ureteroscopy and Holmium:YAG laser lithotripsy has been shown to be safe and effective in patients with uncorrected bleeding disorders.

Watterson JD, Girvan AR, Cook AJ, et al: Safety and efficacy of holmium: YAG laser lithotripsy in patients with bleeding diatheses. J UROL 2002;168:442-445.

Turna B, Stein RJ, Smaldone MC, et al: Safety and efficacy of flexible ureterorenoscopy and holmium:YAG lithotripsy for intrarenal stones in anticoagulated cases. J UROL 2008;179:1415-1419.

Question #42 **ANSWER=D**

For post-operative bladder spasms refractory to the conventional pain management using opioids and antimuscarinics, intravenous ketorolac (NSAID) administered at 0.25 to 0.5 mg/kg every six hours is effective in reducing bladder spasms following bladder surgery. However, significant adverse effects have been reported including renal failure, prolonged bleeding and hypersensitivity reactions. It should be avoided in patients with renal insufficiency, NSAID sensitivity, persistent post-operative bleeding, and dehydration. Other treatments such as alpha blocker, benzodiazepine, rectal acetaminophen and caudal block do not provide any additional benefit.

Estrada CR Jr, Ferrari LR: Core principles of perioperative management in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 119, p 3206.

Question #43 **ANSWER=E**

Pregnancy is a risk factor for renal artery aneurysm rupture, regardless of size or calcification, therefore observation and serial imaging are not recommended. If this was not a woman of child-bearing age, the aneurysm could be followed, as it is not large and completely calcified. Lisinopril will not reduce the likelihood of rupture or ischemic damage. An endovascular stent is not recommended for someone in this age group, due to the risk of lifelong anticoagulation therapy. She should be counseled to undergo surgical treatment of her aneurysm prior to becoming pregnant.

Fergany A, Novick AC: Renovascular hypertension and ischemic nephropathy, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 39, pp 1078-1080.

Question #44 **ANSWER=B**

Acetazolamide is effective in increasing the urinary pH in patients with uric acid and cystine stone formation who are already taking potassium citrate. However, 50% of patients may discontinue the medication due to adverse effects. Acetazolamide, a carbonic anhydrase inhibitor, leads to an increase in urinary bicarbonate and increased H+ reabsorption. It has been shown to increase overnight urine pH when given at bedtime. Allopurinol is effective for uric acid stones but does not increase pH, and might be considered but only if urinary uric acid levels were high. Sodium citrate has been shown to be less effective than potassium citrate therapy. Hydrochlorothiazide may increase urine uric acid.

Sterrett SP, Penniston KL, Wolf JS Jr, Nakada SY: Acetazolamide is an effective adjunct for urinary alkalization in patients with uric acid and cystine stone formation recalcitrant to potassium citrate. UROL 2008;72:278-281.

Question #45 **ANSWER=A**

Excessive urinary frequency in children is occasionally seen. The diagnosis is made by noting that the patient is continent of urine day and night and the urinalysis is normal. The key to the diagnosis is that the frequency does not persist at night. In this child, his urinary frequency falls under the category of a nervous habit, and may be associated with emotional stress. Urinary frequency generally goes away over time averaging three to six months. It can return in some patients but eventually resolves. Antimuscarinics seldom help these patients whose bladders are normal. Invasive testing such as VCUG and cystoscopy are not indicated since the findings are almost always normal. In the presence of a normal urinalysis, glucose tolerance testing is not indicated.

MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, p 3431.

Question #46 **ANSWER=E**

Vesicouterine fistula (also known as, Youssef syndrome) is found to be the etiology for 2-4% of all genitourinary fistula. A vesicouterine fistula is a rare complication that classically develops following a Cesarean section. The mechanism of the injury occurs as a consequence of incorporating the bladder wall with the sutures used to close the Cesarean section site, hence, it is frequently a delayed complication noted only as the sutures dissolve. It is also occasionally seen to arise following a dilation and curettage (D&C) procedure or as a consequence of a vaginal delivery following a prior Cesarean section.

Due to the sphincteric like activity of the uterine cervix, these patients may not present with urinary incontinence. Indeed, 60% of the patients will present with intermittent or cyclical gross hematuria (menouria; menstrual tissue passed through the urine when voiding) as their only symptom, 20% with chronic urinary incontinence (incompetent uterine sphincter), and 20% with the classic Youssef triad: menouria, amenorrhea (all menstrual tissue passed into the urine) and chronic urinary incontinence.

Since radiographic and endoscopic studies may frequently be inconclusive, the diagnoses of this complication requires a high degree of clinical suspicion. Tests used will consist of cystoscopy in an attempt to visualize the fistula tract, ultrasonography, CT cystogram, MRI scan, or hysterosalpingogram, the latter of which is presumably the most certain diagnostic technique available. Once the diagnosis is made, additional tests to rule-out concurrent ureteral injuries must be performed.

If the diagnosis of a vesicouterine fistula is made within three to six months of the surgery, conservative treatment with a indwelling urethral catheter and endocrine suppression of menstrual flow has been successful in > 50% of patients. Once the tract has matured and epithelized as in this case, treatment is based on the future fertility desires of the patient. If the individual does not desire to have further children, the most definitive treatment is by transabdominal hysterectomy and repair of the bladder. If additional child bearing is requested, either transvaginal, or transabdominal approaches may be used dependent upon the location of fistula. Juxtaposition of adjacent tissue such as omentum or a labial fat pad (Martius flap) greatly reduces the likelihood of recurrence. These dissections are frequently complicated and placement of bilateral ureteral stents prior to the surgery to help identify the ureters is recommended.

Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, pp 2246-2268.

Question #47 **ANSWER=D**

Condyloma lata are a cutaneous manifestation of secondary syphilis. They appear as flesh colored or hypopigmented, macerated papules or plaques. They most commonly involve genital and anal areas. The lesions are typically smooth and moist. Condyloma lata resemble condyloma acuminata but are distinguished by their smooth, flat and moist appearance. Condyloma lata have not been associated specifically with cervical carcinoma, gonococcal urethritis, herpes simplex, or HIV.

Deshpande DJ, Nayak CS, Mishra SN, et al: Verrucous condyloma lata mimicking condyloma acuminata: An unusual presentation. INDIAN J SEX TRANSM DIS 2009;30:100-102.

Question #48 **ANSWER=A**

Both ketogenic diet and topiramate (Topamax®) can cause calcium phosphate stones. This child with small non-obstructing kidney stones, discovered after a single episode of painless gross hematuria, does not require surgical intervention at this time. Seeking alternative seizure pharmacotherapy by consulting a neurologist is the best next step. The stone is likely calcium-based, and thus medical therapy aimed at uric acid (raise the pH) or cystine (oral penicillamine) stones are not appropriate.

Ferrandino MN, Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 46, p 1320.

Question #49 **ANSWER=C**

Autonomic dysreflexia is a medical emergency caused by over stimulation of the sympathetic nervous system in individuals with spinal cord injuries at or above the 5th thoracic (T5) spinal cord levels, although patients with injuries between T6-10 maybe susceptible. Autonomic dysreflexia is classically stimulated by: an overfilled bladder, colonic distension (constipation), decubitus ulcer or silent orthopedic fracture. Patients exhibiting autonomic dysreflexia are symptomatic with complaints of a headache, flushing and diaphoresis (above the level of the spinal cord lesion), hypertension and bradycardia. Bradycardia occurs due to a reflex stimulated from stretch on the atrial ventricular node by the elevation in blood pressure. When seen in the office setting, the first step should be to empty the bladder and remove all noxious stimuli, i.e., cystoscope, urodynamic catheter, from the bladder. If the elevation in blood pressure does not respond, the patient should be treated with ½ to 1 inch of nitropaste to the chest wall. If rebound hypotension occurs the nitropaste maybe rapidly wiped off of the skin. Other options of pharmacologic therapy for autonomic dysreflexia in the office setting include

oral or sublingual nifedipine. However, rebound hypotension can be problematic and difficult to deal with.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1926.

Question #50 **ANSWER=C**

Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. Common causes of fistula are diverticulitis, carcinoma of the sigmoid colon, and regional enteritis (Crohn disease). Patients with diabetes mellitus may have gas-forming infections, with carbon dioxide formation from the fermentation of high concentrations of sugar in the urine. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60% of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Culture results showing multiple organisms is suggestive of a colovesical fistula.

Gerber GS, Brendler CB: Evaluation of the urologic patient: History, physical examination, and urinalysis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 3, p 79.

Question #51 **ANSWER=B**

The clitoral neural anatomy in the masculinized female patients with CAH is similar to that of the normal male or female phallus. At the mid-portion of the enlarged clitoral shaft, the nerves are found dorsally. This is the area which must be preserved for possible future genital sensation after the feminizing genitoplasty.

Rink RC, Kaefer M: Surgical management of disorders of sexual differentiation, cloacal malformation, and other abnormalities of the genitalia in girls, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 134, p 3652.

Question #52 **ANSWER=C**

The POP-Q (pelvic organ prolapse quantification) is a classification system used to quantify the degree of pelvic organ prolapse (POP). Nine points are measured in relation to the hymenal ring, which is designated as "0" (zero). Any points located above the hymenal ring

are given a negative value, corresponding to the number of centimeters (cm) the point is above the hymen, whereas points distal to the hymen are given positive values. Aa and Ap correspond to the point three cm up on the anterior and posterior walls, respectively, and will be -3 if there is no POP. Ba and Bp correspond to the distal-most aspect of the anterior and posterior walls, respectively. The well-supported vault (C) should be at about -7 to -9. This patient has a cystocele and no posterior or apical prolapse. The distal-most portion of her anterior vagina is at 0, the level of the hymenal ring. Ap, which corresponds to approximately the level of the bladder neck, is -3. The vault is supported at -7. This is stage 2, which is defined as the most distal point of the POP being between +1 and -1, or within 1 cm of the hymen. Other points of measurements in POP-Q include the genital hiatus (GH), perineal body (PB), and total vaginal length (TVH).

Kobashi KC: Evaluation of patients with urinary incontinence and pelvic prolapse, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 64, pp 1900-1901.

Question #53 **ANSWER=B**

Pyeloplasty may result in early or delayed failure. Failure is most likely secondary to an anastomotic stricture. Transmural endopyelotomy whether performed in a retrograde or antegrade approach is the treatment of choice. Ureterocalycostomy may be considered, but only after less invasive treatments. It should be reserved for patients with intrarenal pelvis, dilated lower calyces or a lengthy proximal ureteral stricture. Nephrectomy should be reserved for kidneys with minimal renal function. Balloon dilation is suboptimal therapy. Pyeloplasty, whether open or laparoscopic should be reserved for endoscopic failures.

Nakada SY, Hsu THS: Management of upper urinary tract obstruction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 41, p 1127.

Question #54 **ANSWER=A**

This boy has typical signs and symptoms of viral cystitis. Adenovirus is the most common virus although viral cultures are infrequently done in this setting. Supportive therapy is the mainstay of management. An ultrasound should be done to rule-out other serious causes of hematuria. Bladder wall thickening is to be expected in the acute phases of a viral infection. Symptoms usually resolve within two to four weeks. Antimuscarinics can be used when the urgency and frequency is more severe. Ribavirin can be considered in highly symptomatic patients, especially in those that are immunosuppressed. There is no indication for antibiotics. If his symptoms do not resolve after a few weeks, then one can get a VCUG or perform cystoscopy to rule out PUV or other pathology. However, doing this in the acute phase is premature since the clinical suspicion for valves is low. If he had valves, one would have expected symptoms

prior to this time. The clinical suspicion for a stone is also low given the ultrasound findings. Thus, getting a CT scan is not indicated especially in light of the unnecessary exposure to radiation which is a significant concern in children.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 116, p 3117.

Question #55 **ANSWER=B**

Sleep apnea is a recognized cause of nocturia and secondary, or adult-onset, nocturnal enuresis. It causes nocturnal diuresis by a cascade of events which are precipitated by hypoxia which occurs during the intermittent occlusion that occurs with obstructive sleep apnea. The hypoxia-induced increase in right atrial transmural pressure leads to elevated atrial natriuretic peptide, resulting in increased nocturnal urinary output. Atrial natriuretic peptide secretion is induced by elevated intrathoracic pressures due to diaphragmatic contraction against a closed upper airway.

Drake M: Nocturia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 67, p 1961.

Question #56 **ANSWER=D**

Ureteral obstruction is difficult to manage in transplant kidneys. Long-term nephrostomy tube drainage increases infectious risks especially in immunocompromised patients and requires frequent tube changes. Double-J stents are difficult to place and replace in a retrograde fashion since the common ureteral reimplantation site for a transplant ureter is on the dome of the bladder. Antegrade balloon dilation of all ureteral strictures has poor long-term success. Open exploration is difficult due to the marked fibrous reactive tissue surrounding transplant kidneys. A pyelovesicostomy will freely reflux and may increase the risk of recurrent infections. Drainage through a native ureter anastomosed to the proximal renal pelvis (transplant kidney) is the best option for long-term success.

Barry JM, Conlin MJ: Renal transplantation, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 44, p 1250.

Question #57 **ANSWER=D**

Detrusor compliance may deteriorate in patients with spinal cord injury and detrusor areflexia. The development of incontinence suggests this occurrence. A detrusor LPP greater than 15 cm H_2O indicates that compliance is impaired. In the absence of intervention, renal deterioration may occur. The best treatment is an antimuscarinic agent, such as oxybutynin. Ephedrine would be contraindicated as it may increase sphincter tone and increase detrusor LPP. An alpha-1-blocker may lower the detrusor LPP, but increase the incontinence. Bethanechol would also be contraindicated since it may increase detrusor pressure. Dantrolene is used to treat detrusor external sphincter dyssynergia via relaxation of skeletal muscle.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1923.

Andersson KE, Wein AJ: Pharmacologic management of lower urinary tract storage and emptying failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 68, pp 1978-1979.

Question #58 **ANSWER=D**

The in-office dye test begins with prescribing oral phenazopyridine several days prior to office visit. As expected, this process will turn the urine orange. At time of office visit, the bladder is filled with dilute methylene blue via urethral catheter infusion. Thus, bladder fluid will have blue coloration, and ureteral urine is expected to have orange discoloration. Three gauze pads are placed in the vagina, the upper pad is near the cuff, and the middle pad is within the vagina, usually above the bladder neck. The lower pad is usually below the bladder neck and urethra. In this pattern of staining, orange urine in the upper pad is concerning for the presence of a ureteral source of drainage into the vagina, most commonly a ureterovaginal fistula. The appearance of blue staining on the lower pad is most consistent with urethral leakage. Thus this patient has results suggestive of a ureterovaginal fistula and urethral leakage. The presence of blue on the upper or middle pad without leakage on the lower pad would suggest a vesicovaginal fistula.

Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, p 2243.

Question #59 **ANSWER=E**

The usual first line approach for the problem of cutaneous stenosis of a Monti or Mitrofanoff channel is to leave a catheter through the stoma for some period of time. The concern with leaving a full-time indwelling catheter to "stent" the stoma for several days is that it may plug with mucous and introduce bacteria along its surface into the bladder. Mickelson, et. al., reported use of the "L-stent", a catheter with a knot tied just 1-2 inches from the tip, inserting it up to the knot at night with taping to hold it in place. This serves to stent only the cutaneous stoma and not enter the bladder itself. Their success with a modest period of nighttime stenting was excellent. None of the other approaches listed have shown particular impact on this problem.

Mickelson JJ, Yerkes, EB, Meyer T, et al: L stent for stomal stenosis in catheterizable channels. J UROL 2009;182:1786-1791.

Question #60 **ANSWER=D**

Multiple debridements of necrotic skin followed by skin graft coverage may eventually be needed with burn injuries to the genitalia. Early suprapubic urinary diversion simplifies wound care and prevents complications related to prolonged urethral catheterization. If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. Hyperbaric oxygen therapy has been used to promote overall wound healing however there is no evidence that it prevents urethral complications. Split or full thickness skin grafting is used once granulation tissue is present and all non-viable tissue has been removed.

Morey AF, Dugi DD III: Genital and lower urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 88, p 2512.

Question #61 **ANSWER=C**

The first step necessary in assessing the renal transplant patient with new onset of hydronephrosis is the placement of a urethral catheter and obtaining a cystogram, to assess for the presence of reflux. In the absence of reflux and if urine output is diminished or if the creatinine does not decrease with urethral catheter drainage (drop in creatinine following placement of catheter indicative of bladder dysfunction), assessment for ureteral stricture would be necessary. If the serum creatinine is above 2 mg/dl or twice normal for age, false positive MAG 3 Lasix washout renal scans for obstruction are highly probable due to the decreased renal function. In patients with an elevated creatinine, percutaneous nephrostomy placement is both effective for treatment and can be an excellent way to diagnosis ureteric

stenosis. The risks for complications of the ureter in renal transplantation is < 3% overall. The most common complications are those related to the vascular viability of the ureter and result in either urinary leakage or ureteral stenosis. Urinary leakage often occurs early after transplantation but ureteral stenosis can be insidious and late in the course. Risk factors for ureteral complications include advance donor age, delayed graft function, severe graft rejection and kidneys with two or more arteries. Cystoscopy and retrograde pyelography or placement of ureteric stents may be problematic due to the abnormal location of the ureteroneocystostomy following a renal transplant and should be considered only after confirmation that no vesicoureteral reflux is present and following the diagnosis of a ureteral stricture. A CT scan although confirmative for the diagnosis of hydronephrosis does not delineate the etiology for the radiographic finding.

Shoskes DS, Cranston D: Urological Complications after kidney transplantation, in Morris PJ, Knechtle SJ (eds): KIDNEY TRANSPLANTATION, PRINCIPLES AND PRACTICE, ed 6. Philadelphia, Saunders Elsevier, 2008, pp 465-466.

Question #62 **ANSWER=D**

An intussuscepted ureteral segment noted after ureteroscopic stone extraction is a dramatic complication. Retrograde realignment for such a large segment is unrealistic. Percutaneous nephrostomy drainage preserves renal function and minimizes urinary extravasation. Nephrectomy or ileal ureteral replacement may be appropriate actions only after a discussion with the patient and their family. Transureteroureterostomy reconstruction places both kidneys at risk especially with a history of urinary stone disease.

Matlaga BR, Lingeman JE: Surgical management of upper urinary tract calculi, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 48, p 1407.

Question #63 **ANSWER=D**

On antenatal ultrasound, if the fetus has VUR, then the degree of fetal bladder fullness at the time of any particular study will determine how much volume is being refluxed and, thus, how much hydronephrosis is noted. Since bladder fullness differs between studies, the varying degrees of hydronephrosis is suggestive of VUR. A fuller bladder should cause an increase in hydronephrosis. Upper pole hydroureteronephrosis suggests an obstructive etiology; bladder wall thickness and persistent bladder fullness suggests bladder outlet obstruction or several other possibilities. A two-vessel cord is unrelated to the risk of reflux.

Lee RS, Borer JG: Perinatal urology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 114, p 3054.

Question #64 **ANSWER=C**

High fat meals can inhibit the absorption of sildenafil and vardenafil but do not affect the absorption of tadalafil or the metabolism of PDE5 inhibitors. Ketoconazole, itraconazole, and protease inhibitors such as ritonavir can impair the metabolic breakdown of PDE5 inhibitors by blocking the CYP3A4 pathway. These agents may increase blood levels of inhibitors, requiring a PDE5 dose reduction. Agents such as rifampin may induce CYP3A4, enhancing the breakdown of inhibitors and requiring higher PDE5 doses. Warfarin and doxazosin have no effect on the metabolism of PED5 inhibitors. Doxazosin may exacerbate hypotensive changes with PED5 inhibitors.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 22, p 750.

Burnett AL: Evaluation and management of erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 24, p 742.

Question #65 **ANSWER=A**

The couple is infertile due to idiopathic male factor. Testicular biopsy is unlikely to be helpful in a patient with oligospermia. Any intervention used in this setting is considered empirical. The main choice is between attempts to improve the husband's fertility or assisted reproductive techniques to improve the chances of conception without altering sperm quality. It is controversial whether clomiphene citrate is occasionally effective in men with idiopathic oligospermia but it is definitely not effective in an individual with an elevated serum FSH. This leaves either intrauterine insemination (IUI) or in vitro fertilization (IVF). It is most reasonable to start with IUI in this couple since the wife is under 30 and the husband's total motile sperm count is well above 10 million. IVF would be the first therapeutic option if there were a significant female factor or his sperm count were extremely low. The patient's motility is above the reference value for motility and therefore there is no indication for antisperm antibody testing.

Demir B, Dilbaz B, Cinar O, et al: Factors affecting pregnancy outcome of intrauterine insemination cycles in couples with favorable female characteristics. J OBSTET GYN 2011;31:420-423.

Dorjpurev U, Kuwahara A, Yano Y, et al: Effect of semen characteristics on pregnancy rate following intrauterine insemination. J MED INVEST 2011;58:127-133.

Question #66 **ANSWER=A**

The ureteric bud arises off of the mesonephric duct. The segment distal to the ureteric bud is called the common excretory duct. The point of origin of the ureteric bud is the ureteral orifice. If the ureteral bud arises more distally than normal, the ureteral orifice enters the bladder earlier than usual and migrates cranially and laterally and will likely be associated with reflux. If the bud arises more proximally on the duct the orifice ends up medial and caudal. A very proximal origin leads to a persistent position on the mesonephric duct and termination outside the bladder. In the male this is either in the epididymis, vas deferens, seminal vesicles, and prostate. In the female, the mesonephric duct becomes the epoophoron, oophoron, and Gartner's duct. An ectopic ureter draining into these structures ruptures into the fallopian tube, uterus, upper vagina or vestibule.

Peters CA, Schlussel RN, Mendelsohn C: Ectopic ureter, ureterocele, and ureteral anomalies, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 121, pp 3238-3239.

Question #67 **ANSWER=A**

Intervention is not required for this patient at this time. Removal of the entire midurethral sling is not required for a small exposure of mesh. With partial sling excision, continence is maintained in the majority of patients; therefore, replacement of another sling would not be indicated. Removal of the entire midurethral sling is challenging, unnecessary and would likely lead to recurrent stress urinary incontinence. Transvaginal estrogen is thought to promote vaginal healing and is preferred over oral estrogen therapy due to other potential systemic effects. Extrusions that are larger or symptomatic should be treated. When a midurethral sling is eroded into or involves the urinary tract it should be treated with removal.

Dmochowski RR, Padmanabhan P, Scarpero HM: Slings: Autologous, biologic, synthetic, and midurethral, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 73, p 2148.

Question #68 **ANSWER=D**

The standard definition of significant bacteriuria for a clean voided urine is > 10^5 CFU/ml of a uropathogen. This criterion has stood the test of time for screening and epidemiological studies and for entering patients in clinical trials. However there are several important exceptions to its rigid use in clinical practice and one is in patients with a pyuria/dysuria syndrome. In these patients, a lower colony count may represent significant bacteriuria.

Certain bacterial species such as coagulase negative Staphylococci grow slowly in urine and significant infections may only have counts of 10^3 CFU/ml. Since the patient has a symptomatic, culture-proven UTI, treatment with phenazopyridine alone would be inappropriate. Repeat urine culture (midstream or catheterized) is not indicated. Mycobacteria culture is indicated only in sterile pyuria.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, p 271-272.

Question #69 **ANSWER=D**

This patient has developed acute renal failure (ARF). Children with a history of chronic renal insufficiency secondary to renal dysplasia are at significant risk for ARF after any major surgical procedure. Most cases are reversible. Patients with ARF can develop hyperkalemia, metabolic acidosis, hyperphosphatemia (from decreased renal excretion), and hyponatremia. The hypocalcemia that develops is due to several causes including hyperphosphatemia, decreased intestinal calcium reabsorption, and Vitamin D deficiency. The most important acute reason for the hypocalcemia is the hyperphosphatemia. When correcting the metabolic acidosis, it is important to monitor the ionized calcium level, since this can drop precipitously. Signs and symptoms of hypocalcemia include cramping, tetany, and prolonged QT interval on EKG.

Coplevitch L, Kaplan B, Meyers K: Acute renal failure, in Docimo SG, Canning DA, Khoury AE (eds): CLINICAL PEDIATRIC UROLOGY, ed 5. London, Informa Healthcare, 2007, pp 363-365.

Goldfarb DA, Poggio ED: Etiology, pathogenesis, and management of renal failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 43, pp 1203-1208.

Question #70 **ANSWER=C**

This patient has classic symptoms of spinal shock which usually lasts 6-12 weeks in complete suprasacral spinal cord lesions. Lower urinary tract function with spinal shock is usually a combination of an acontractile and areflexic bladder and a competent bladder neck. This patient likely has suprapubic fullness due to an elevated residual with leakage secondary to overflow incontinence. This could be managed with either an indwelling catheter or the initiation of regular CIC. As this patient should have normal upper extremity function with this level of injury, and therefore should be able to perform CIC, there is no reason to place a suprapubic catheter. Urodynamic studies are indicated once spinal shock has resolved and

bladder function has stabilized. The resolution of spinal shock is often heralded by the return of deep tendon reflexes.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1920.

Question #71 **ANSWER=A**

The findings described are characteristic of Clostridium perfringens wound infection. Clostridial infections should be considered in any patient with a wound infection, especially if there has been an injury to the colon. The organism is an anaerobe with a positive gram stain and a club shape. Clinically, the patient appears toxic and a bronze discoloration of the involved skin is characteristic. Crepitus may be absent. Empirical therapy must cover clostridial infection. As opposed to clostridium difficile, in cases of suspected C. perfringens myonecrosis or anaerobic cellulitis and necrotizing polymicrobial infection, two drug combination treatment is recommended. I.V. penicillin (2 to 3 million units every 3 hours or 3 to 4 million units every 4 hours) or ampicillin (2 g every 4 hours), plus I.V. clindamycin (0.6 g every 6 to 8 hours) or metronidazole (1 g loading dose followed by 0.5 g every 6 hours), provides coverage of the anaerobic organisms likely to be involved. Vancomycin, cefazolin and tetracycline do not provide effective coverage of anaerobic gram positive species. Fungal wound infection is not suspected with the clinical picture and thus fluconazole is not appropriate.

Pasternak MS, Swartz MN: Cellulitis, necrotizing fasciitis, and subcutaneous tissue infections, in Mandell GL, et al: MANDELL, DOUGLAS, AND BENNETT'S PRINCIPLES AND PRACTICE OF INFECTIOUS DISEASES, ed 7. Philadelphia, Churchill Livingstone Elsevier, 2010, pp 1289-1312.

Question #72 **ANSWER=C**

The TUR syndrome consists of mental confusion, nausea, vomiting, hypertension, bradycardia and visual disturbance. It is secondary to a dilutional hyponatremia from free water overload. Up to 20 ml/minute are absorbed during a resection. The risk increases with the size of the prostate and the length of the resection. Patients become symptomatic when the serum sodium concentration reaches 125 mEq/l. Ammonium intoxication has been suggested when glycine has been utilized as an irrigant. Alternative irrigants such as sorbitol, glycine and mannitol are isoosmolar and non-hemolytic, whereas water is a cheap irrigant but is hypoosmolar. Sorbitol is an inert sugar and would not lead to hyperglycemia. Sepsis in this scenario would usually be manifested with fever, hypotension and tachycardia. Hypovolemia would result in tachycardia and hypotension.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 93, pp 2683-2684.

Question #73 **ANSWER=B**

According to the 2009 Update for the Guideline on Surgical Management of Female Stress Urinary Incontinence, evaluation of the index patient should include the following components: focused history, focused physical examination, objective demonstration of SUI, assessment of PVR urine volume, urinalysis and urine culture if indicated. Additional diagnostic studies are not required but can be performed as needed and include pad testing, voiding diary, urodynamics, cystoscopy, and imaging.

Appell RA, Dmochowski RR, Blaivas JM, et al: Guideline for the surgical management of female stress urinary incontinence: 2009 update. INCONTINENCE. American Urological Association Education and Research, Inc, 2009. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/stress2009/page 16

Question #74 **ANSWER=B**

Respiratory alkalosis is a very early sign of septic shock and is caused by the initial tachypnea stimulated by the sepsis. As hypoperfusion occurs, metabolic acidosis develops. Tachycardia, oliguria, increased cardiac output, and increased plasma norepinephrine occur in early septic shock.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, p 314.

Question #75 **ANSWER=A**

Long-term use of NSAIDs such as ibuprofen may result in an acute interstitial nephritis (AIN). Clinically this presents as an acute renal failure with WBC casts. Proteinuria is common. Unlike other types of drug induced AIN; fever, and eosinophilia and eosinophiluria are uncommon. Lupus nephritis is characterized by red cell casts. Antibiotics are not indicated for AIN and culture will be negative. Immunosuppressants, such as steroids and cyclosporine, have no role in the therapy of AIN. Observation is appropriate as discontinuation of the offending agent, in this case, the NSAID, will likely result in resolution of the AIN. Renal biopsy is over aggressive in this patient unless he fails a course of observation.

Goldfarb DA, Poggio ED: Etiology, pathogenesis, and management of renal failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 43, p 1196.

Question #76 **ANSWER=B**

Transient urinary incontinence occurs in almost one third of ambulatory elderly patients. LUTS in the elderly may be secondary to a number of medical conditions, including diabetes, immobility, congestive heart disease, etc. Antimuscarinic agents may cause or worsen urinary incontinence in elderly patients with poor detrusor contractility. This may present with new or worsened incontinence due to overflow after the initiation of an antimuscarinic agent and can be diagnosed with the non-invasive measurement of a PVR. Urine culture is not indicated in the setting of a normal urinalysis. There is no need at this point to proceed to uroflowmetry, urodynamics or cystoscopy but these may be useful in further evaluation.

Resnick NM, Stasa DT, Yalla SV: Geriatric incontinence and voiding dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 76, p 2205.

Question #77 **ANSWER=B**

Complete uterine prolapse (procidentia) can cause bilateral ureteral obstruction. Correction of the prolapse causes relief of the ureteral obstruction. In this case, a vaginal pessary to prevent prolapse is the best initial management to allow improvement in renal function and uninterrupted anticoagulant treatment of her phlebitis. Later hysterectomy may be indicated. Neither anterior vesicourethropexy nor anterior vaginal repair will correct uterine prolapse. Cystoscopic manipulation of the upper tracts through an infected bladder will, all too often, lead to pyelonephritis. All patients with advanced uterine prolapse should have upper tract imaging by ultrasound or pyelography. Lesser degrees of uterine procidentia carry little risk of hydronephrosis (2% in one study).

Payne CK: Conservative management of urinary incontinence: Behavioral and pelvic floor therapy, urethral and pelvic devices, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 69, pp 2017-2018.

Question #78 **ANSWER=E**

Patients that have had numerous previous attempts at hypospadias repair often have a scarred and poorly vascularized urethral bed. In these situations, the best chance for success

is resection of the scarred bed with a two-stage buccal mucosa urethroplasty. The minimal degree of residual ventral curvature will likely not be functionally significant and will improve with resection of the fibrotic urethral plate. Single-stage tubed buccal grafts have a higher degree a failure than a two-stage technique.

Snodgrass W, Elmore J: Initial experience with staged buccal graft (Bracka) hypospadias reoperations. J UROL 2004;172:1720-1724.

Snodgrass WT: Hypospadias, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 130, pp 3530-3533.

Question #79 **ANSWER=A**

This patient is likely experiencing worsening of symptoms due to incomplete bladder emptying. It appears that approximately 25% of patients with a neurogenic bladder who are not catheterizing at baseline will require CIC after injection of 200 units of onabotulinumtoxinA. UTI could cause her worsening symptoms; however, this would be more likely if the patient is already performing catheterization. Urodynamics and cystoscopy would not be helpful in the immediate postoperative period. If a patient requires reinjection this should be done at least two to three months after the initial injection. Recent studies suggest that the 200 U dose is adequate and a higher dose is not beneficial.

Andersson KE, Wein AJ: Pharmacologic management of lower urinary tract storage and emptying failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 68, p 1987.

Cruz F, Herschorn S, Aliotta P, et al: Efficacy and safety of onabotulinumtoxinA in patients with urinary incontinence due to neurogenic detrusor overactivity: A randomized, double-blind, placebo-controlled trial. EUR UROL 2011;60:742-750.

Question #80 **ANSWER=D**

Aldosterone levels are primarily regulated by angiotensin II through the renin-angiotensin-aldosterone system and directly by serum potassium levels. Increased sodium decreases aldosterone. Aldosterone is produced in the zona glomerulosa and not under direct control of ACTH. Renal hypoperfusion will increase aldosterone production.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, pp 1697-1698.

Question #81 **ANSWER=D**

There is a significant rate of false negative imaging of the retroperitoneum on CT scan and microscopic disease may be present in patients with paratesticular rhabdomyosarcoma. Boys ten years of age or younger can be treated with chemotherapy alone. Boys over ten years of age should undergo ipsilateral RPLND since 50% will have microscopic disease. Bilateral RPLND is more morbid and does not improve survival over unilateral surgery. If the lymph nodes are positive for metastasis, the patient will require radiation therapy to the retroperitoneum in addition to chemotherapy.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 137, p 3709.

Question #82 **ANSWER=E**

Priapism lasting longer than 36 hours recalcitrant to multiple attempts at irrigation as well as shunting procedures, is best treated with immediate penile prosthesis implantation. While immediate implantation carries a greater risk of infection and erosion, it preserves penile length and makes prosthesis implantation easier. In this severe case of ischemic priapism, oral therapies are not indicated and he has already failed a proximal shunting procedure. A T-shunt is another form of a distal corporal-glanular shunt. A repeat proximal shunt would not be unreasonable in this individual, but would have a low chance of success and will likely be associated with significant penile shortening and fibrosis.

Broderick GA: Priapism, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 25, pp 764-766.

Question #83 **ANSWER=E**

BCG cystitis is a common side effect of BCG therapy. A possible bacterial infection should also always be considered. Quinolone antibiotics are not indicated with a negative urine culture and may have a negative effect on BCG therapy as it is partially tuberculocidal. Similarly, antitubercular medications may abrogate the effectiveness of BCG and add the risk of hepatotoxicity. A decrease in dose intensity may hamper therapeutic efficacy. The patient's symptoms are mild to moderate and are best treated symptomatically with an anti-spasmodic agent during the course of therapy.

Jones JS, Larchian WA: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 81, p 2345.

van der Meijden AD PM, Klingeren BV, Steerenberg PA: The possible influence of antibiotics on results of bacillus Calmette-Guerin intravesical therapy for superficial bladder cancer. J UROL 1992;147:596-600.

Question #84 **ANSWER=E**

The most reliable indicators of postnatal renal function are the presence or absence of oligohydramnios and renal cortical cysts. Severe oligohydramnios and the presence of renal cortical cysts predict a poor prognosis for postnatal renal function. The anterior-posterior (AP) diameter of the renal pelvis is somewhat predictive of the likelihood of postnatal surgical intervention, but not predictive of postnatal renal function. An enlarged, thick-walled bladder with a dilated proximal urethra indicates bladder outlet obstruction but does not indicate the outcome of renal function. Similar to the AP diameter, the degree of parenchymal thinning is helpful in appreciating the severity of blockage and the likelihood for the need to intervene. Increased renal parenchymal echogenicity may, at times, be associated with impaired renal development and function, but in the absence of cortical cysts is unreliable.

Peters CA, Chevalier RL: Congenital urinary obstruction: Pathophysiology and clinical evaluation, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 113, p 3040.

Lee RS, Borer JG: Perinatal urology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 114, p 3048.

Question #85 **ANSWER=C**

This patient likely has rhabdomyolysis. The diagnosis is made by measurement of serum creatine phosphokinase (CPK) or a spot test for urine myoglobin. Risk factors for this at the time of laparoscopic surgery include a BMI of 25 or greater, male gender, prolonged operative time, full-table flexion and prolonged use of the kidney rest. Prevention is essential and includes minimizing the use of the kidney rest and intra-operative hypotension. Brownish-red urine suggestive of the hematuria may be noted in patients with rhabdomyolysis, however microscopic assessment of the urine will not show RBCs. Treatment at this time should be hydration and alkalinization to minimize the risk of renal failure. Renal function should be monitored. The need for transient dialysis occurs in a minority of patients so nephrology consultation may not be necessary. Radiographs of the hip are not indicated as it is unlikely that an injury to the bony pelvis would occur during a nephrectomy leading to these symptoms.

Eichel L, Clayman RV: Fundamentals of laparoscopic and robotic urologic surgery, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 9, p 249.

Question #86 **ANSWER=D**

Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage yet the most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction. Tumor emboli can occur but are relatively uncommon. Utilization of cardiopulmonary bypass limits the possibility of embolic events.

Marshall FF, Dietrick DD, Baumgartner WA, Reitz BA: Surgical management of renal cell carcinoma with intracaval neoplasm extension above the hepatic veins. J UROL 1998;139:1166-1172.

Kenney PA, Wotkowicz C, Libertino JA: Contemporary open surgery of the kidney, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 54, p 1624.

Question #87 **ANSWER=D**

There is no evidence of adrenal insufficiency. Low magnesium levels can contribute to hypokalemia. There is no evidence that thiazides permanently damage the kidneys ability to handle potassium. The glomerulus does not play an important role in potassium homeostasis. When administering potassium for hypokalemia the rise in serum potassium is blunted because about 80% of the potassium enters the intracellular space.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, p 1042.

Question #88 **ANSWER=E**

Patients with von-Hippel Lindau disease may have hemangioblastomas of the cerebellum, renal cell carcinomas, and cystadenomas of the epididymis. The diagnosis, however, can often be made most easily with inspection of the retina with identification of angiomas. Renal angiomyolipomas are commonly seen in tuberous sclerosis complex. Thyroid carcinoma can

be seen more commonly in patients with multiple endocrine neoplasia syndrome. Cafe-au-lait spots are pathognomonic of neurofibromatosis.

Neumann HP, Berger DP, Sigmund G, Blum U, et al: Pheochromocytomas, multiple endocrine neoplasia type 2, and von Hippel-Lindau disease. NEJM 1993;329(21):1531-1538.

Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, p 1423.

Question #89 **ANSWER=B**

This boy is developing progressive renal insufficiency due to multiple factors including increased urine output from tubular injury and bladder decompensation. In this patient with an acute elevation in creatinine and hypertension, temporary decompression of the bladder to assess potential recovery of renal function should be performed. Videourodynamics to assess bladder function would be the next step in guiding appropriate therapy. Treatment options include CIC with nighttime bladder drainage, with or without antimuscarinics. Alpha-blocker therapy promotes relaxation of the internal urethral sphincter, but has not been consistently successful in these patients. Desmopressin may be indicated in the future following nephrology consultation.

Casale AJ: Posterior urethral valves, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 126, p 3402.

Glassberg K, Horowitz M: Urethral valve and other anomalies of the urethra in, King LR, Belman AB, Kramer SA (eds): CLINICAL PEDIATRIC UROLOGY, ed 4. London, Martin Dunitz, 2002, chap 28, pp 899-945.

Question #90 **ANSWER=D**

In a meta-analysis of four randomized trials in 286 patients, Galsky and colleagues have concluded that the substitution of carboplatin for cisplatin resulted in a statistically significant (three fold decrease) in the probability of achieving a complete response and a significant decrease in the overall response rate. No significant effect on survival could be analyzed and in general the renal safety profile is improved with the use of carboplatin. The duration of therapy is not affected by the substitution of carboplatin.

Galsky MD, Chen GJ, Oh WK, et al: Comparative effectiveness of cisplatin-based and carboplatin-based chemotherapy for treatment of advanced urothelial carcinoma. ANN ONCOL 2012;23:406-410.

Question #91 **ANSWER=E**

Elevated prolactin levels can cause infertility and sexual dysfunction by decreasing the production of testosterone. Mildly elevated levels (< 50ng/ml) can be seen with stress and renal insufficiency. Persistently high levels of serum prolactin are suggestive of a pituitary adenoma and need to be evaluated with a careful measurement of visual fields and an MRI of the pituitary. This patient has levels consistent with a pituitary adenoma and serum testosterone, FSH and LH will not help make the diagnosis. While he may benefit from the care of a nephrologist, it will not direct the diagnosis and treatment of a pituitary adenoma. CT is not specific enough for an evaluation of the pituitary and the best choice is an ophthalmology consult for careful visual field testing and an MRI of the pituitary.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 639.

Question #92 **ANSWER=D**

Formaldehyde is a 37% solution of formaldehyde gas dissolved in water and should not be used intravesically. Formalin solution is made up of 1-10% formaldehyde diluted with normal saline and has been given in bladder instillations to control hemorrhage from advanced bladder tumors or radiation cystitis. Formalin solution is exceedingly irritating to the bladder and, thus, requires general or regional anesthesia. Because a 10% formalin solution may cause fibrosis and obstruction of the ureteral orifices, formalin instillation should begin with a 1% solution and be repeated with a 5% and then a 10% solution, if necessary. Many people begin with a 5% solution if other measures (i.e., silver nitrate and 1% alum) have failed. A cystogram should be performed before instillation to rule out vesicoureteral reflux. If reflux is present, Fogarty catheters should be passed up both ureters, and the patient should be tilted into the head-up position to protect the upper tracts from the toxic effects of formalin. Selective internal iliac arterial embolization is more invasive and should be reserved for patients that fail formalin instillation.

Smit SG, Heyns CF: Management of radiation cystitis. NAT REV UROL 2010;7:206-214.

Question #93 **ANSWER=C**

A repeat midurethral synthetic sling is an appropriate option for a patient with recurrent stress urinary incontinence. Cure rates for redo patients appear to be higher for the retropubic compared to the transobturator approach. This is likely due to a higher rate of intrinsic sphincter dysfunction in patients requiring repeat surgery. Urethral bulking agents would be less likely to lead to a long-term resolution of this patient's symptoms. Placement of an

autologous fascial sling would also be a viable option for this patient. A retropubic bladder neck suspension is an inferior procedure to a retropubic transvaginal tape or to an autologous sling. Placement of an artificial urinary sphincter would not be indicated for this patient.

Dmochowski RR, Padmanabhan P, Scarpero HM: Slings: Autologous, biologic, synthetic, and midurethral, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 73, p 2164.

Question #94 **ANSWER=B**

Nephrogenic adenoma is a rare benign metaplastic response of urothelium to tissue injury. Most nephrogenic adenomas occur after an inciting event such as surgery, trauma, infection, and immunosuppression or in response to calculi. The adenomas will develop months to years after a precipitating event and will usually occur within the bladder but may occur on any urothelial surface including transposed bladder mucosal grafts. The main presentation is hematuria and irritative voiding symptoms, but patients may also present with obstructive symptoms or be diagnosed incidentally. The endoscopic appearance is that of a papillary exophytic lesion resembling a low-grade urothelial carcinoma. On histological evaluation, nephrogenic adenoma appear as subepithelial tubular structures similar to Henle's loops. Although at one time these lesions were considered to be premalignant in nature, recent studies have been unable to establish a relationship between nephrogenic adenomas and the subsequent development of malignancy. Even though there is no evidence of malignant potential, transurethral resection is recommended together with long-term antibiotic prophylaxis for at least one year after resection. Prolonged antibiotic therapy is suggested due to the frequent finding of UTI as an associated or causative factor. It is controversial regarding whether patients with nephrogenic adenomas should undergo surveillance cystoscopy. Although there is high incidence of recurrence (30-40%) it is feared that repeated cystoscopic evaluations could further traumatize the bladder urothelium leading to an increased incidence of recurrence. Since nephrogenic adenomas are now known to be a benign condition most authorities recommend cystoscopy, only if recurrent gross hematuria and/or irritative or obstructive voiding symptoms develop.

Frimberger DC, Kropp BP: Bladder anomalies in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 125, p 3387.

Garcia-Penit J, Orsola A, Parada R, et al: Synchronous nephrogenic adenoma in the bladder and neourethra (bladder mucosa) in a boy. BR J UROL INT 1999;84:169-170.

Peeker R, Aldenborg F, Fall M: Nephrogenic adenoma: A study with special reference to clinical presentation. BR J UROL 1997;80(4):539-542.

Question #95 **ANSWER=A**

This patient is an ideal candidate for endourologic management of an upper tract tumor. The patulous ureteral orifices will allow easy passage of the ureteroscope for surveillance. The surgical options listed are unnecessary for a completely resected tumor. Intravesical BCG is not indicated for a first-time low grade tumor.

Martinez-Pineiro JA, Matres MJG, Martinez-Pineiro L: Endourologic treatment of upper tract urothelial carcinomas: analysis of a series of 59 tumors. J UROL 1996;156:377-385.

Sagalowsky AI, Jarrett TW, Flanigan RC: Urothelial tumors of the upper urinary tract and ureter, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 53, p 1516.

Question #96 **ANSWER=A**

Up to 25% of children with multicystic dysplastic kidneys will have contralateral vesicoureteral reflux. The scan suggests pyelonephritis in the left upper pole. There is no need to remove the right multicystic dysplastic kidney at this time. Infection in a multicystic dysplastic kidney is extremely rare and not seen in this scenario. In this age child, there is still a good chance the reflux will resolve spontaneously. Prophylactic antibiotics and observation is the best treatment. In the absence of breakthrough infections, a circumcision is not needed.

Khoury AE, Bagli DJ: Vesicoureteral reflux, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 122, pp 3286, 3288-3290.

Question #97 **ANSWER=D**

Nerve injury can be seen after transplantation or a psoas hitch. The genitofemoral nerve arises from the L1-2 ventral primary rami and at the level of L3-4, the nerve pierces the anterior surface of the psoas major muscle and descends past the ureter. It then splits into the genital and femoral branches near the inguinal ligament. The surgeon must not mistake this nerve for a lymphatic vessel as it sometimes crosses the external iliac artery. This nerve supplies the cremaster muscle, spermatic cord, scrotum, and thigh in males. Incisional pain can be common after kidney transplantation but after 2 weeks, postoperative pain usually subsides. Although pain to very light touch can suggests addictive behavior, the entrapped genitofemoral nerve can indeed present in this manner. More often, the pain may be worse with internal or external rotation of the hip and prolonged walking. Lateral cutaneous nerve injury presents with anterior and lateral thigh paraesthesia symptoms of burning and tingling that increase with

standing, walking, or hip extension. Patients with femoral nerve damage complain of difficulty in walking and sometimes knee buckling depending on the severity of the nerve injury.

Barry JM, Conlin MJ: Renal transplantation, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 44, p 1241.

Question #98 **ANSWER=A**

Important prognostic factors for RCC include specific clinical signs or symptoms such as anemia, hematuria and weight loss; tumor-related factors such as grade and histology; and various laboratory findings such as hypercalcemia. Although an integrative approach utilizing nomograms and risk tables combining a variety of factors have proven to be powerful analyses tools, the local tumor stage remains the most important single prognostic factor for RCC. The cephalad extent of tumor thrombus has been associated with outcome, since a thrombus above the diaphragm increases the stage. However, the absolute size of thrombus does not correlate to outcome. Presence or absence of p53 mutation is not prognostic in RCC.

Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, pp 1443-1444.

Glazer AA, Novick AC: Long-term followup after surgical treatment for renal cell carcinoma extending into the right atrium. J UROL 1996;155:448.

Reissigl A, Janetschek G, Eberle, et al: Renal cell carcinoma extending into the vena cava: Surgical approach, technique and results. BR J UROL 1995;75:138.

Swierzewski DJ, Swierzewski MJ, Libertino JA: Radical nephrectomy in patients with renal cell carcinoma with venous, venal caval, and atrial extension. AM J SUR 1994;168:205.

Question #99 **ANSWER=A**

Hydronephrosis is often persistent after resection of a PUV, and does not necessarily suggest failure of therapy. The hydronephrosis may also be due to persistent left-sided VUR immediately following successful valve resection. Both hydronephrosis and VUR may resolve in approximately 50% of boys following valve resection. This boy should be given time along with prophylactic antibiotics and re-evaluation in 12-18 months. In the absence of persistent urinary infection, anti-reflux surgery or removal of the left system and bladder diverticulum are not indicated, and might result in loss of system compliance. Assessment of renal function using either a MAG-3 with Lasix or DMSA renal scan would be necessary before considering

removal of any kidney. Urinary diversion at the bladder or supravesical level is not indicated in this boy.

Casale AJ: Posterior urethral valves, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 126, p 3401.

Question #100 **ANSWER=C**

SIADH is caused primarily by release of ADH from brain infections, neoplasms, drugs, or surgery. The treatment of symptomatic hyponatremia from SIADH is fluid restriction and replenishment of sodium. Fluid restriction alone is not adequate in the face of a seizure. The indications for hypertonic saline should be those patients who have neurologic sequelae as noted in this scenario. Correction should raise the sodium no more than 2 mEq/l/hr or 25 mEq/l/48 hours to minimize the risk of central pontine myelinolysis. Lithium and demeclocycline are antagonists of ADH and used for more chronic conditions without concurrent neurologic symptoms. Correction of the sodium deficit is the appropriate next step.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, p 1025.

Question #101 **ANSWER=A**

This patient should undergo urodynamic evaluation to assess the etiology of the incontinence. MRI scan of the spine would be indicated if the urodynamic study shows new abnormal findings, or new onset of lower extremity weakness or other alterations on neurologic exam. Implementing any additional treatment at this time without identifying the cause for the incontinence would be premature.

Yeung CK, Sihoe JDY: Non-neuropathic dysfunction of the lower urinary tract in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 127, p 3411.

Question #102 **ANSWER=A**

This is a large infant, which may be associated with maternal diabetes. That history and the abdominal mass make the diagnosis of renal vein thrombosis most likely. The thrombocytopenia is characteristic. Renal artery thrombosis is usually associated with an indwelling umbilical artery catheter, and can result in a mass and hematuria. Congenital

mesoblastic nephroma is the most common solid renal mass in an infant but is not usually associated with hematuria or thrombocytopenia. Henoch-Schönlein purpura is a systemic vasculitis that commonly presents at four to six years of age. The common features are palpable purpuric rash, abdominal pain with gastrointestinal bleeding, and arthritis. Hemolytic uremic syndrome is defined by the triad of microangiopathic hemolytic anemia, thrombocytopenia and acute renal failure that typically occurs after enterocolitis with E. coli (O157:H7).

Lee RS, Borer JG: Perinatal urology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 114, p 3060.

Question #103 **ANSWER=A**

This patient has metastatic calciphylaxis of the vessels (dry gangrene) in his digits and glans. This is seen in patients with ESRD and is associated with a high mortality rate. Most of these patients will die of their renal disease within six months. The characteristic lesions show microscopic calcification in the arterioles and capillaries which leads to dry necrosis. Antibiotics are not helpful and biopsies can be harmful as these lesions will not heal well due to their poor blood supply. Removal of the prosthesis would only be indicated if there was subsequent erosion or penile infection. This patient should continue with observation, support and wound care as needed.

Jacobson HA: Penile calciphylaxis. UROL 2002;60,344.

Frehally J: Bone and mineral metabolism in CKD: Clinical manifestations of renal osteodystrophy, in COMPREHENSIVE CLINICAL NEPHROLOGY, ed 3. Philadelphia, Mosby Elsevier, 2007, chap 74, pp 906-909.

Question #104 **ANSWER=B**

After making the patient NPO and starting TPN, the next step is the administration of subcutaneous or I.V. somatostatin. Recent reports have shown a beneficial effect leading to drying up of lymphatic fistulas in this setting. Somatostatin works by decreasing the absorption of fats, inhibiting gastric, intestinal, and pancreatic secretions, and inhibiting motor activity of the intestines. The net effect is reduced flow within the major lymphatic channels, and reduced leakage from the fistula site. Somatostatin is thus recommended prior to proceeding with more invasive measures.

Lievovitch I, Mor Y, Golomb J, Ramon J: The diagnosis and management of postoperative chylous ascites. J UROL 2002;167:449-457.

Question #105 **ANSWER=A**

Urinary ammonium excreted by the kidneys is reabsorbed by the intestinal segment, and then returned to the liver via the portal circulation. The liver metabolizes ammonium to urea via the ornithine cycle. The liver usually adapts to the excess ammonia in the portal circulation without difficulty and rapidly metabolizes it. In the setting of hepatic dysfunction, the hepatic reserve for ammonium metabolism may be exceeded, resulting in the complication of an ammoniagenic coma. The syndrome, however, also has been described in patients with normal hepatic function. Systemic bacteremia, with endotoxin production, inhibits hepatic function and may precipitate this clinical entity. Urinary tract infections with urea-splitting organisms may also overload the ability of the liver to clear the ammonia. If this syndrome occurs in a patient suspected of having near normal hepatic function, systemic bacteremia or urinary obstruction should be suspected. Prompt urinary drainage with treatment of the offending urinary pathogens along with systemic antibiotics and the administration of oral neomycin or lactulose to reduce absorption of ammonia in the gastrointestinal tract are the key components to patient management. There is no indication for the use of Vitamin B12, sodium bicarbonate, nicotinic acid, thiamine and folic acid in this clinical setting.

Demarco RT, Koch MO: Metabolic complications of continent urinary diversion. AUA UPDATE SERIES 2003, vol 22, lesson 15, pp 114-119.

Question #106 **ANSWER=A**

Sexual dysfunction in women is complicated in that many of the disorders coexist and isolated disorders are uncommon. Definitions frequently change or are not universally agreed upon. In the "Revised Definitions for Female Sexual Dysfunction from the Second International Consensus of Sexual Medicine," vaginismus is the persistent difficulty to allow entry of an object into the vagina despite the desire of the woman to participate. Dyspareunia on the other hand is persistent or recurrent pain with attempted penile-vaginal intercourse. Persistent sexual arousal disorder, sexual aversion disorder and objective arousal disorder are not primarily associated with the difficulty to insert an object into the vagina. Genital arousal disorder consists of complaints of impaired genital sexual arousal, which may include minimal vulvar swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing genitalia. However, subjective sexual excitement still occurs with nongenital sexual stimuli. In persistent sexual arousal disorder, the patient has spontaneous, intrusive, and unwanted genital arousal in the absence of sexual interest and desire. Arousal is unrelieved by orgasms and the feelings of arousal persist for hours or days. Extreme anxiety or disgust at the anticipation of or attempt at any sexual activity is sexual aversion disorder.

Moore CK: Female sexual function and dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 30, p 826.

Question #107 **ANSWER=E**

The PCA3 urine test is designed to detect the mRNA signal from the DD3 gene which is specific to prostate cancer. This test has now been validated in multiple prospective studies the largest of which was the REDUCE clinical trial. In this study PCA3 scores were measured in 1,072 subjects with a negative prior TRUS biopsy and the results were more closely correlated to the results of the second biopsy than PSA alone or free to total PSA ratio. The higher the level of the PCA3 score the higher the risk of a positive biopsy and a score of under 35 is considered low risk. Therefore a repeat prostate biopsy is warranted in this patient. PCA3 is now FDA-approved for the assessment of patients with a prior negative prostate biopsy. PCA3 is not affected by infection, prostate volume, or the use of 5-alpha reductase inhibitors.

Aubin SM, Reid J, Sarno MJ, et al: PCA3 molecular urine test for predicting repeat prostate biopsy outcome in populations at risk: Validation in the placebo arm of the dutasteride REDUCE trial. J UROL 2010;184;1947-1952.

Question #108 **ANSWER=E**

The best treatment for a patient with low bladder compliance, small capacity, and sphincteric incontinence is the combined use of bladder augmentation and increased bladder outlet resistance. When an artificial urinary sphincter is used in conjunction with augmentation of the bladder, the timing of the two procedures does not appear to affect the outcome. More important factors are good bowel preparation, intravenous antibiotics, sterility of the urine, and meticulous surgical technique to avoid entering the previously augmented bladder during sphincter implantation which may predispose to infection and sphincter erosion. Patients who have undergone prior incontinence procedures are also at increased risk for sphincter erosion.

Wessells H, Peterson AC: Surgical procedures for sphincteric incontinence in the male: The artificial genitourinary sphincter and perineal sling procedures, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 79, pp 2302-2304.

Question #109 **ANSWER=B**

Sexual dysfunction and infertility can on rare occasions be caused by thyroid dysfunction. Hyperthyroidism/thyrotoxicosis can elevate the serum levels of sex hormone binding globulin (SHBG) and subsequently lower circulating free testosterone. Hypothyroidism can have the opposite effect (lower SHBG) as can insulin administration, glucocorticoid excess, hepatic disease and nephrotic syndrome. Estrogen can increase SHBG production and progestins can lower it.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 627.

Question #110 **ANSWER=C**

Early studies of orthotopic reconstruction by Camey and others demonstrated that while continence can be achieved utilizing a tubularized segment of bowel as a urinary reservoir, upper tract deterioration inevitably occurred due to high reservoir pressure. In part, the pressure in such segments is due to the continued organized bowel peristalsis, and the reduced diameter of the lumen. The observation that reservoir pressure is lowered by increasing the internal radius of the reservoir is based upon Lapace's law that mural tension is equivalent to pressure times radius cubed. While the increased radius achieved by detubularization and folding of the bowel also results in increased reservoir capacity, the primary goal of detubularization is reduction in pressure through reduction of organized peristalsis and wall tension. Although this may indirectly lead to reduced ureteral reflux, it is not the primary reason for bowel detubularization.

Skinner EC, Skinner DG, Stein JP: Orthotopic urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 87, p 2479.

Question #111 **ANSWER=B**

Ten percent of patients with autosomal dominant polycystic kidney disease have berry aneurysms, and subarachnoid hemorrhage can be a lethal consequence. The high incidence of hypertension with autosomal polycystic kidney disease may contribute to the frequency of bleeding from the berry aneurysm. There is no association between renal aneurysms and berry aneurysms. Multicystic dysplastic kidneys have a slight association with hypertension but no extrarenal manifestations otherwise. Horseshoe kidney has a higher incidence of UPJ obstruction and Wilms' tumor, but is not associated with berry aneurysms. Autosomal recessive polycystic kidney disease is associated with liver failure, but has no known association with berry aneurysms.

Pope JC IV: Renal dysgenesis and cystic disease of the kidney, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 118, pp 3170-3176.

Question #112 **ANSWER=D**

This patient has demonstrated a stable plaque in Peyronie's disease and is ready for surgical correction. Medical therapy with colchicine may be useful in the acute phase and will decrease penile pain, however it has little to no proven benefit over placebo in preventing curvature and is associated with significant GI side effects. It would not be effective in this clinical situation. Topical verapamil has not been adequately evaluated and would most likely not be effective with this degree of curvature. Plication would require multiple plicating sutures and would severely shorten the penis with this degree of curvature. Plication procedures are usually not recommended if the penile curvature is > 60 degrees due to significant shortening of the penis. As he gets excellent erections, a prosthesis is not yet indicated.

Jordan GH, McCammon KA: Peyronie's disease, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 28, pp 802-808.

Question #113 **ANSWER=D**

In a multivariate analysis, combined subdiaphragmatic and mediastinal radiation has a Hazard's Ratio (HR) of 3.7 for secondary malignancy and/or cardiovascular disease; chemotherapy also increased the risk (HR 1.9), but there is no difference between the chemotherapy regimens. Smoking increased risk 1.7 fold. There is no increased risk of secondary malignancy with surgery. Surveillance imaging is a risk factor for developing secondary malignancy, but the magnitude of the risk is much lower than radiation therapy.

Haugnes HS, Wethal T, Aass N, et al: Cardiovascular risk factors and morbidity in long-term survivors of testicular cancer: A 20-year follow-up study. J CLIN ONCOL 2010;28:4649-4657.

Abouassaly R, Fossa SD, Giwercman A, et al: Sequale of treatment of testis cancer. EUR UROL 2011;60:516-526.

Fung C, Vaughn DJ: Complication associated with chemotherapy in testicular cancer. NATURE REVIEWS UROL 2011;8:213-222.

Question #114 **ANSWER=B**

Seminiferous tubules, organized into 200-300 conical tubules, drain into 20-30 tubuli recti which enter the rete testis, a network of ducts in the testicular mediastinum. At the upper end of the mediastinum, the ductuli efferentes emerge from the testis to enter the head (caput) of the epididymis. The cauda epididymis is the most distal portion of this organ from the testis.

Chung BI, Sommer G, Brooks JD: Anatomy of the lower urinary tract and male genitalia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 2, pp 67-68.

Question #115 **ANSWER=B**

The patient has a ureteral contusion to the distal ureter following a gunshot wound. There is no evidence of devitalized tissue or a urine leak. Cystoscopy and ureteral stent placement is the best option for a minor contusion. Ureteral reimplant is the best treatment option if a large contusion or devitalized tissue is identified. Ureteroureterostomy of the distal ureter is never indicated. Percutaneous nephrostomy would divert the urine yet would not stent the ureter which may lead to stricture formation. Observation is not indicated as the ureter may become obstructed from the contusion.

Santucci RA, Doumanian LR: Upper urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 42, p 1184.

Question #116 **ANSWER=C**

The clinical presentation of abdominal pain in the area of a continent cutaneous diversion and explosive urinary leakage from the stoma (as opposed to dribbling leakage) is consistent with pouchitis. While asymptomatic bacteruria is common in patients who have undergone continent cutaneous diversion and does not usually require any treatment, symptomatic pouchitis should be treated. The explosive nature of the incontinence is related to hypercontractility of the bowel in the face of infection. Short courses of antibiotics (less than ten days) are not usually successful to clear the infection, presumably due the larger amounts of mucus and sediment seen in intestinal pouches. CT cystogram of the pouch would be useful if rupture of the pouch was suspected. However, clinical symptoms in this setting are not consistent with that diagnosis. Placement of an indwelling urinary catheter, while not harmful in this setting, would have no effect on the pouch infection. Surgical revision of the stoma is unwarranted when incontinence is likely due to infection.

McKiernan JM, DeCastro GJ, Benson MC: Cutaneous continent urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 86, p 2450.

Question #117 **ANSWER=A**

In children who sustain blunt abdominal trauma, CT scan can define injuries to the abdominal viscera quite well. Conservative treatment in the hemodynamically stable patient with follow-up CT scan, if needed, will result in reducing the rate of abdominal exploration in the patient with stable visceral injuries to less than 10%. Cystoscopy and ureteral stent placement in this patient with a grade 3 renal laceration is not indicated, unless clinical symptoms, such as a prolonged ileus or sepsis should develop. Renal and hepatic arteriography would be indicated if there is decreasing hematocrit with increasing size of hematoma, and may allow for selective embolization of the bleeding vessel(s), potentially eliminating the need for exploration. Surgical exploration with repair of lacerations is not indicated in this stable patient and in some cases may result in disruption of hematoma, bleeding and unnecessary nephrectomy.

Husmann DA: Pediatric genitourinary trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 138, p 3739.

Question #118 **ANSWER=E**

Studies of risk factors for recurrent UTI demonstrate that spermicide use increases urinary tract infections by decreasing normal vaginal flora and decreasing vaginal pH. Several studies have demonstrated the other four choices are not common risk factors. Toileting after intercourse, increasing fluid intake and wiping front to back have not been shown to decrease occurrence of UTIs in adult women.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, p 267.

Question #119 **ANSWER=B**

Repeat metabolic testing should be performed after adrenalectomy to document normalization of chromaffin cell function. One of the pitfalls of diagnosing and treating pheochromocytoma is failure to recognize multiple lesions at the time of treatment. It has been estimated that between 10-20% of pheochromocytomas are malignant or multifocal. In a patient who undergoes surgical resection of an adrenal pheochromocytoma but still has persistent unexplained hypertension two to three months after the procedure, residual tumor somewhere else in the body must be considered. While MIBG scan may be helpful in identifying the location of this lesion, the patient should initially have plasma free metanephrine levels measured. If this is normal MIBG scan is not indicated. Similarly, MRI should not be ordered until pheochromocytoma is ruled in or out using less invasive diagnostic testing. Clinical

suspicion of primary hyperaldosteronism or Cushing's syndrome is low in this case, so plasma renin activity and 24-hour urinary cortisol levels will not be helpful.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, pp 1710-1711.

Question #120 **ANSWER=E**

Blood supply to the rectum arises proximally from the superior rectal (hemorrhoidal) artery, inferior mesenteric artery, and distally from the middle (hemorrhoidal) and inferior rectal arteries. When the inferior mesenteric artery is ligated, blood supply to the rectum is maintained by the middle hemorrhoidal artery which is a branch of the posterior division of the hypogastric artery and the inferior rectal artery which is a branch of the internal pudendal artery.

Sheinfeld J, Bosl GJ: Surgery of testicular tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 32, pp 876-880.

Question #121 **ANSWER=D**

The patient presents with the symptoms of osteitis pubis in the athlete. It is estimated that osteitis pubis accounts for 6-14% of groin pain in athletes and is thought to be a form of overuse injury. The onset of unilateral or bilateral groin pain is gradual and may be accompanied by pain in the lower abdomen, hip, thigh, or testicle. Acutely painful infectious vasitis without associated epididymitis is exceedingly rare. Femoral hernia may cause groin pain but is not typically associated with pain of the symphysis pubis. Pubic stress fractures do occur but are less common than osteitis pubis in athletes. Osteomyelitis of the pubis has been reported in athletes and must be considered in the differential diagnosis. However, it is much less common than osteitis pubis. Pelvic MRI scan is used to distinguish between osteomyelitis and osteitis pubis. Treatment for osteitis pubis is anti-inflammatory medications and rest.

Johnson R: Osteitis pubis. CURR SPORTS MED REP 2003;2:98-102.

Karpos PA, Spindler KP, Pierce MA, et al: Osteomyelitis of the pubic symphysis in athletes: A case report and literature review. MED SCI SPORTS EXCERCISE 1995;27:473-479.

Eddy K, Piercy GB, Eddy R: Vasitis: Clinical and ultrasound confusion with inguinal hernia clarified by computed tomography. CAN UROL ASSOC J 2011;5:E74-76.

Question #122 **ANSWER=C**

The various zones of the prostate are not always easily distinguished on ultrasound. In glands with large adenoma, the transitional zone can often be distinguished from the anterior zone and the peripheral zone because of its more heterogeneous appearance. In addition, some patients will develop calcifications along the surgical capsule between the transitional zone and the peripheral zone. These calcifications are known as corpora amylacea and can be used on ultrasound to define the boundaries of these two zones.

Trabulsi EJ, Halpern EJ, Gomella LG: Ultrasonography and biopsy of the prostate, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 97, p 2735.

Question #123 **ANSWER=A**

The diagnostic findings on ultrasound and renal scan are sufficient to confirm multicystic dysplastic kidney. The absolute indications for removal are few, including hypertension, solid mass, or significant respiratory or gastrointestinal compromise. Aspiration is an option in a premature neonate or a toxic child, but at six weeks of age, nephrectomy is preferred. The lack of renal function eliminates a salvageable UPJ obstruction. Therefore cystoscopy and retrograde pyelogram is unnecessary, and pyeloplasty is not an option.

Pope JC IV: Renal dysgenesis and cystic disease of the kidney, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 118, p 3182.

Question #124 **ANSWER=C**

Acetohydroxamic acid (AHA, Lithostat®) has been demonstrated in randomized clinical trials to decrease the rate of stone growth in patients with struvite calculi. It is important to note that AHA did not impact the rate of stone recurrence. Urinary acidification has been tested in vitro utilizing L-methionine, but has not been studied in humans. Though recurrence rates are higher (62%) in patients with infected urine compared to sterile urine (12%), the use of suppressive antibiotics to decrease stone growth has not been studied in a clinical trial. A low protein diet, although effective in feline studies, has not been shown to make a difference in human studies. Citric acid glucono-delta-lactone magnesium carbonate (Renacidin®) has been utilized for dissolution therapy of residual fragments.

Park S: Pathophysiology and management of infection stones. in Pearle MS, Nakada S (eds): UROLITHIASIS: MEDICAL & SURGICAL MANAGEMENT. London, Informa Healthcare, 2009, chap 10, pp 129-130.

Question #125 **ANSWER=E**

Although short-term success rates (within the first year post treatment) are high with endoscopic treatments, ranging from >60% to 100%, the long term success rates are quite low regardless of approach or endoscopic treatment. The most definitive treatment is open surgical repair.

Tal R, Sivan B, Kedar D, et al: Management of benign ureteral strictures following radical cystectomy and urinary diversion for bladder cancer. J UROL 2007;178:538-542.

Msezane L, Reynolds WS, Mhapsekar R, et al: Open surgical repair of ureteral strictures and fistulas following radical cystectomy and urinary diversion. J UROL 2008;179:1428-1431.

Question #126 **ANSWER=A**

Congestive heart failure is associated with fluid retention. Therefore, a patient with heart failure would not be dehydrated. Renal disease, Addison's disease, and diuretic excess cause hyponatremia by increased urinary excretion of sodium. Of the choices listed, only vomiting would result in hypovolemia, hyponatremia, and a very low concentration of sodium in the urine. Patients who experience excessive vomiting lose fluid and salt. Therefore, they become dehydrated and their kidneys reabsorb almost all of the filtered sodium. Thus, the urinary sodium concentration is low.

Palmer BF: Hyponatremia, in Rakel RE, Bope ET (eds): RAKEL: CONN'S CURRENT THERAPY, ed 58. Philadelphia: Saunders Elsevier, 2006, p 720.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, pp 1038-1040.

Question #127 **ANSWER=C**

There is a greater need for supplemental anesthesia during SWL under sedation if the patient is female or young, has a history of anxiety, depression or prior SWL, or has a rib-projected calculus. Pain during SWL has been shown to be less with ureteral calculi when compared to renal calculi.

Vergnolles M, Wallerand H, Gadrat F, et al: Predictive risk factors for pain during extracorporeal shockwave lithotripsy. J ENDO 2009;23:2021-2027.

Question #128 **ANSWER=C**

Active surveillance is an appropriate management strategy for selected men with localized prostate cancer. Patients who elect this approach should have favorable risk tumors, usually consisting of low-volume Gleason sum 6 or less disease. Active surveillance protocols are characterized by close monitoring of PSA kinetics and serial biopsy. Klotz et al from Toronto have suggested that PSAs be measured quarterly for the first two years after diagnosis and then twice annually after that, assuming the PSA is stable. A PSA doubling time of less than three years is considered to be an indication for intervention. They have recommended a 10-12 core biopsy at one year after original diagnosis and then every three to five years after that until age 80. If any Gleason sum 7 or higher disease is noted, this is considered to be an indication for intervention. In this case, the patient is one year removed from his initial diagnosis and a follow-up biopsy is indicated. Reassessment of PSA in three or six months is inappropriate if repeat biopsy is not performed. Saturation biopsy is not indicated in this setting. MRI can be useful in the follow-up for patients, but is not a critical element of active surveillance protocols.

Klotz L: Active surveillance for prostate cancer: Patient selection and management. AUA UPDATE SERIES 2008 vol 27, lesson 33, p 326.

Question #129 **ANSWER=A**

Renal calculi occur in very low birth weight pre-term infants with a history of severe ventilatory problems and bronchopulmonary dysplasia. Many of these infants require long-term treatment with diuretic agents to control heart failure. The diuretic agent used most often is furosemide, which increases the rate of urinary calcium excretion up to ten times normal. Chronic hypercalciuria from furosemide therapy has been shown to result in nephrocalcinosis and calculus formation. Loss of calcium from chronic administration of furosemide may lead to secondary hyperparathyroidism and bone changes. Treatment includes switching from furosemide to thiazides. Other etiologies of stone formation do not occur with increased frequency in premature infants requiring diuretic therapy

Palmer LS, Trachtman H: Renal functional development and diseases in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 112, p 3062.

Question #130 **ANSWER=C**

The bulbocavernosus muscle is most responsible for antegrade ejaculation through rhythmic contractions that compress the bulb to expel semen from the urethra. Significant injury or damage to this structure is thought to cause ejaculatory dysfunction. The corpus spongiosum

pressurizes and constricts the urethra during ejaculation. The bulbospongiosus, and transverse perineum do not contribute to ejaculation. Injury to the corpus cavernosum could result in erectile dysfunction.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 6, chap 23, p 690.

Question #131 **ANSWER=A**

Distinguishing between adrenal adenoma and carcinoma can be difficult, and large-sized adrenal lesions do not always biologically behave as carcinomas. The Weiss criteria, which includes: high mitotic rate (> 5/hpf), atypical mitoses, venous invasion, high nuclear grade (Fuhrman 3-4), absence of cells with clear cytoplasm (< 25% of cells), a diffuse growth pattern (more than one third of tumor), necrosis, sinusoidal invasion, and capsular invasion are often used to distinguish between benign and malignant potential. Three or more of these features are needed for the diagnosis of carcinoma.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, pp 1715-1719.

Question #132 **ANSWER=E**

This boy has suffered a rapid deceleration injury and this mechanism of injury warrants evaluation with imaging. A pedicle injury or complete avulsion of the UPJ are potential injuries. These can both occur without hematuria. Hence, observation would be inappropriate. An abdominal tap for blood would not diagnose a renal injury. An ultrasound would likely not be diagnostic. A cystogram in a trauma patient is only indicated in the presence of gross hematuria or pelvic fracture. CT scan is diagnostic and more likely to identify other potential abdominal injuries.

Husmann DA: Pediatric genitourinary trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 138, p 3732.

Question #133 **ANSWER=B**

This patient underwent prosthetic joint replacement less than two years prior to a stone manipulation procedure - SWL. According to the AUA Antimicrobial Prophylaxis Best Policy Statement, the antimicrobial prophylaxis should be either single dose oral fluoroquinolone or intravenous ampicillin-gentamicin combination.

Wolf JS Jr, Bennett CJ, Dmochowski RR, et al: Best practice policy statement on urological surgery antimicrobial prophylaxis. UROLOGICAL SURGERY ANTIMICROBIAL PROPHYLAXIS BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2008. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/antibiotic_prophylaxis.pdf

Question #134 **ANSWER=A**

Hypothyroidism has been reported in 36% to 46% of patients who took sunitinib in prospective studies. A higher incidence (53% to 85%) has been reported in studies containing both retrospective and prospective data. The mean time to onset of hypothyroidism after initiation of sunitinib therapy ranged from 12 to 50 weeks. The risk of development of hypothyroidism appears to increase with the increasing duration of sunitinib therapy, and the condition is likely reversible once therapy has been discontinued. Baseline thyroid function tests should be performed before the initiation of sunitinib treatment. Because hypothyroidism can develop early in the course of therapy, thyroid function tests should be monitored frequently throughout the duration of treatment. Possible mechanisms for thyroid dysfunction include impaired thyroid hormone synthesis, a destructive thyroiditis preceding the development of hypothyroidism, and increased thyroid hormone clearance. If hypothyroidism is identified, levothyroxine therapy should be promptly initiated. Sunitinib does not affect testosterone, cholesterol, cortisol or liver function.

Vetter ML, Kaul S, Iqbal N: Tyrosine kinase inhibitors and the thyroid as both an unintended and an intended target. ENDOCR PRACT 2008;14:618-624.

Question #135 **ANSWER=D**

Daytime urinary incontinence occurs in 5% of seven-year-old children. In most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature. Urethral dilation is not indicated for the treatment of daytime urinary incontinence. Some authors have suggested that an occult tethered cord is responsible for persistent daytime urinary incontinence. However,

imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation.

MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, p 3431.

Question #136 **ANSWER=D**

This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy. The urodynamic test showing a high pressure void of 45 cm H_2O coupled with increased PVR is most consistent with bladder outlet obstruction. There are four common causes for anatomic outlet obstruction in a woman, a cystocele (bladder prolapse), a prior bladder neck sling, external striated sphincter dyssynergia, and bladder neck obstruction. Another cause of bladder outlet obstruction is an increased tone of the striated muscle pelvic floor (including external urethral sphincter). Given that this patient has not had previous anti-incontinence surgery and that the external sphincter is silent and the bladder neck minimally opens during voiding, the level of obstruction is at the bladder neck. Antimuscarinic therapy is contraindicated in patients with increased PVR. Biofeedback is useful in patients with pelvic floor spasticity, which this patient does not have. Urethral dilation has no effect on the bladder neck. A trial of medical therapy with an alpha-blocker is indicated. If not successful in relieving symptoms and/or decreasing PVR, incision of bladder neck is indicated.

Andersson KE, Wein AJ: Pharmacologic management of lower urinary tract storage and emptying failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 68, pp 1998-2000.

Cespedes RD, Gerboc JL: Other therapies for storage and emptying failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 75, p 2199.

Question #137 **ANSWER=C**

Metabolic complications may result from interposition of intestine in the urinary tract. These generally result from altered urinary solute reabsorption by the intestine. This patient has a hyperchloremic metabolic acidosis with associated mild hypokalemia. This is typical of diversion options that utilize ileum and colon. The mechanism is due to the ionized transport of ammonium. The exchange of the weak acid, NH4, for a proton is coupled with the exchange of bicarbonate for chloride. Ammonium chloride is absorbed across the intestinal lumen into the blood in exchange for carbonic acid (i.e., CO_2 and water). This is most likely to occur when

urine is in prolonged contact with the bowel or if a long bowel segment is used. Electrolyte disorders resulting from jejunal interposition (particularly proximal segments) in the urinary tract include hyponatremia, hypochloremia, hyperkalemia, azotemia, and acidosis. When stomach is used, a hypochloremic, hypokalemic metabolic alkalosis may ensue. Patients undergoing ureterosigmoidostomy may also experience metabolic acidosis, but this is generally associated with a profound hypokalemia.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 85, p 2411.

Question #138 **ANSWER=C**

This clinical scenario suggests diabetes insipidus. Infants should undergo overnight fluid restriction in a hospital setting. Body weight and vital signs are monitored until three percent of body weight is lost or the urine osmolality is > 600 mOsm/kg. If this does not produce a concentrated urine, fluid is restricted on another day and desmopressin is administered. If the renal response to desmopressin is normal, central DI (head CT scan) should be investigated. Salt restriction is not helpful in patients with diabetes insipidus as the primary defect involves free water handling. Renal ultrasound yields no useful information for acute management in this scenario.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, pp 1040-1041.

Question #139 **ANSWER=B**

Low urinary pH predisposes to uric acid and calcium oxalate stones. Dietary acid load correlates with increased risk for stone formation. While cheese has one of the highest potential renal acid load (PRAL), milk and yogurt are less acidic and convey only a slight PRAL. The only foods with a net negative PRAL (alkaline load) are fruits and vegetables and should be encouraged in patients with stone disease. While dairy intake is encouraged to decrease the risk of enteric hyperoxaluria, cheese should be de-emphasized as the primary source.

Penniston K: Role of diet in stone prevention, in Pearle MS, Nakada S (eds): UROLITHIASIS: MEDICAL AND SURGICAL MANAGEMENT. London, Informa Healthcare, 2009, chap 4, p 42.

Question #140 **ANSWER=E**

Standard therapy for patients with upper tract urothelial carcinoma involving the proximal ureter is nephroureterectomy. Endoscopic treatment of patients with upper tract urothelial carcinoma is generally recommended in those patients with a solitary kidney, bilateral disease, renal dysfunction, or significant intercurrent illness that precludes a major abdominal procedure. Endoscopic management may also be appropriate in selected patients with small, low-grade lesions in the presence of a normal contralateral kidney. However, most series suggest that recurrence is likely even with frequent reinspection and that progression to invasive disease occurs in a significant number of patients, depending on the stage and grade of the initial tumor. Open ureteral resection risks tumor spillage as well as recurrence. This patient has a normal contralateral right kidney. A recent large, multi-institutional examination of nephrouterectomy and ipsilateral lymph node dissection did not reveal any survival advantage for patients treated with node dissection with earlier stage upper tract malignancy as is the case with this patient. However, in patients with T2-T4 primary tumors, pathologic N0 patients did have a longer cancer-specific survival than pathologic Nx patients.

Roscigno M, Shariat SF, Margulis V, et al: Impact of lymph node dissection on cancer specific survival in patients with upper tract urothelial carcinoma treated with radical nephroureterectomy. J UROL 2009;181:2482-2489.

Sagalowsky AI, Jarrett TW, Flanigan RC: Urothelial tumors of the upper urinary tract and ureter, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 53, p 1516.

Question #141 **ANSWER=C**

Forceful expression of the over-distended bladder in the neonate, cystoscopy, inguinal hernia repair, and umbilical vessel catheterization are the most common causes of iatrogenic injuries to a child's bladder and may on rare occasions in association with VUR result in forniceal rupture. Although the Credé maneuver is used less commonly, it can be employed in infants who do not empty their bladders completely. However, the Credé voiding is contraindicated in children with a reactive external sphincter and should not be initiated in children with spinal bifida until they have been assessed with urodynamics. The Credé maneuver stimulates a reflux response in the external sphincter that increases urethral resistance, thereby increasing the pressure needed to expel urine from the bladder. Bladder rupture has occurred and VCUG will be diagnostic in most cases. Fluid bolus is unnecessary because there is no reason to suspect volume depletion and may delay diagnosis. Although plain film of the abdomen and CT scan without delay imaging may be suggestive of ascites, they are not diagnostic. CT cystogram is acceptable but results in excessive radiation exposure. Laparotomy is not indicated until a diagnosis is made.

MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, p 3439.

Question #142 **ANSWER=B**

Performance sports drinks may increase urinary citrate and pH; lending a protective effect against urinary lithogenicity. However, these drinks have a high fructose and total carbohydrate content, so they should not be recommended as the primary means of hydration for stone formers. Though the sodium content may be high in these drinks, they do not lead to hypernatruria. Sports drinks have no effect on urinary calcium, oxalate, and uric acid.

Goodman JW, Asplin JR, Goldfarb DS: Effect of two sports drinks on urinary lithogenicity. UROL RES 2009;37:41-46.

Question #143 **ANSWER=B**

Clinical staging is determined by DRE and TRUS, and is not influenced by biopsy location information. This is a common clinical mistake by practicing urologists. The correct clinical stage is cT1c since it is a PSA diagnosed lesion with a normal physical examination and a normal ultrasound. If he had a small nodule on physical examination or consistently present on ultrasound (or other imaging) he would be cT2a. If the nodule was bilateral his clinical stage would be cT2c. If he has a radical prostatectomy, his most likely pathologic stage will be pT2c since his disease is bilateral on biopsy.

Loeb S, Carter HB: Early detection, diagnosis, and staging of prostate cancer, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 99, pp 2767-2768.

Question #144 **ANSWER=E**

Genitourinary anomalies associated with an imperforate anus are common. The most common GU anomalies are; vesicoureteral reflux found in 40%, renal agenesis 25%, renal ectopy in 25%, rectourethral or rectal vaginal fistula in 20-30%, neurogenic bladder in 15- 25%, and a tethered spinal cord in 2-8%. The latter three, rectourethral fistula, neurogenic bladder, and tethered spinal cord are more frequently found in patients with a high or supra levator imperforate anus. When a rectourethral fistula exists, urine can flow into the colon leading to electrolyte resorption and recurrent UTIs even following placement of a diverting colostomy. If the electrolyte dysfunction is severe, consideration for a vesicostomy may be necessary to correct the acidosis. Intermittent catheterization in children with an active urethral rectal fistula is problematic, with the fistula acting as a false channel.

Adams MC, Joseph DB: Urinary tract reconstruction in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 129, p 3479-3487.

Question #145 **ANSWER=E**

With FSH greater than 7.6 IU/l and testis axis less than 4.6 cm, the probability of non-obstructive azoospermia is 89%. Neither clomiphene citrate nor hCG is effective in a patient with highly elevated LH, as clomiphene acts to increase LH secretion and hCG is an LH surrogate. Scrotal ultrasound would not reveal more than that identified on physical examination. As the pituitary is responding appropriately to low serum testosterone, MRI is not indicated. The only chance of a biological child for this patient with non-obstructive azoospermia would be testicular sperm extraction for intracytoplasmic sperm injection.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 634.

Schoor RA, Elhanbly S, Niederberger CS, Ross LS: The role of testicular biopsy in the modern management of male infertility. J UROL 2002;167:197-200.

Question #146 **ANSWER=E**

Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase. This is a component of intracellular signaling pathways involved in growth/proliferation of cells. The medication suppresses angiogenesis and is given as a weekly I.V. infusion. Patients with three or more poor risk factors respond better to mTOR inhibitors than other currently used medications. Risk factors include: serum LDH > 1.5 times upper limit of normal, hemoglobin below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of RCC to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs. This patient is considered poor risk and patients who received this regimen were 27% more likely to survive when compared to patients receiving interferon alpha alone. This medication is FDA-approved for advanced RCC. In addition bevacizumab, sunitinib and sorafenib have not been proven to have a survival benefit in this high risk subset of patients. Interferon has not demonstrated a consistent survival advantage in the management of metastatic RCC.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alpha, or both for advanced renal-cell carcinoma. NEJM 2007;356:2271-2281.

Question #147 **ANSWER=A**

An omental flap should be preferentially based on the right gastroepiploic artery. The pedicle is mobilized off the stomach from the left. This will result in a well-vascularized and sufficiently long flap based on the right gastroepiploic. The right gastroepiploic is a larger vessel than the left, and its origin is somewhat caudal as compared to the left allowing a shorter course into the deep pelvis.

Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, pp 2237-2241.

Question #148 **ANSWER=B**

Flagellar defects result in motilities of less than 5% - 10%. In these samples most of the non-motile sperm are viable. Most cases of ultrastructural flagellar defects are associated with normal sperm densities. Kallmann syndrome is associated with hypogonadotropic hypogonadism and resultant azoospermia not motility defects. Klinefelter syndrome is associated with azoospermia, not motility defects. Antisperm antibodies may result in low motility but the non-motile sperm are non-viable.

Chemes HE, Rawe VY: Sperm pathology: A step beyond descriptive morphology. Origin, characterization and fertility potential of abnormal sperm phenotypes in infertile men. HUMAN REPRODUCTION UPDATE, 2003 vol 9, pp 405-428.

Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 622.

Question #149 **ANSWER=E**

This patient has asymptomatic castrate-resistant prostate cancer. The potential next steps are docetaxel chemotherapy or immune therapy with sipuleucel-T. Both are FDA-approved in this clinical situation. Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colony-stimulating factor (an immune-cell activator).

In men with asymptomatic or minimally symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival benefit was demonstrated compared to placebo. This patient

has asymptomatic castrate-resistant prostate cancer with soft-tissue disease. Sunitinib is a tyrosine kinase inhibitor and although FDA-approved for kidney cancer, it has not been approved by the FDA for men with prostate cancer. Zoledronic acid is an I.V. bisphosphonate indicated for patients with metastatic castrate-resistant prostate cancer with bony sites of disease. It has been demonstrated to decrease pain as well as skeletal-related events. No survival advantage has been demonstrated. Although it has been studied for men on long term androgen deprivation therapy, this patient has been on therapy for only six months. Denosumab is a RANK-ligand inhibitor and also decreases skeletal-related events and helps to prevent skeletal-related events associated with osteoporosis. Cabazitaxel is FDA-approved for patients with metastatic castrate-resistant prostate cancer who have failed docetaxel. This patient has not had any chemotherapy. Although not listed, docetaxel is FDA-approved agent for men with castrate-resistant prostate cancer and may be an appropriate next treatment.

Kantoff PW, Higano CS, Shore, ND, et al: Sipuleucel-T immunotherapy for castration-resistant prostate cancer. NEJM 2010;363:411-422.

Question #150 **ANSWER=B**

This patient has eosinophilic granulomatous cystitis. It usually presents as a mass-like lesion with irritative symptoms and hematuria. It may be mistaken for a neoplastic process, but is benign and self-limited. If the lesion is focal with minimal symptomatology, observation is appropriate. Patients with focal lesions may also be managed with laser fulguration or TUR. In diffuse lesions, resection is not indicated. Both antihistamines and steroids may aid in relieving symptomatology. Steroids have been reported to relieve symptoms faster although direct statistical comparisons are not available. Unless infection is also present, there is no need to treat with antibiotics. The process is non-specific and often idiopathic, although consideration for a causative condition is necessary; e.g., schistosomiasis in a patient at risk.

Frimberger DC, Kropp BP: Bladder anomalies in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 125, p 3387.