2018

SASP

AUA SELF-ASSESSMENT STUDY PROGRAM

American Urological Association
Education & Research, Inc.

This material is considered scientifically valid for three years from date of issue. Thereafter, while the material may still be correct, it will not be eligible for Continuing Medical Education (CME).

American Urological Association Education and Research, Inc.
Office of Education

2018 Self-Assessment Study Program

FBI Anti-Piracy Warning: The unauthorized reproduction or distribution of a copyrighted work is illegal. Criminal copyright infringement, including infringement without monetary gain, is investigated by the FBI and is punishable by up to five years in federal prison and a fine of $250,000.

Copyright Notice: The material contained in this examination is protected under U.S. Copyright law. Duplication of any part of this examination by any means including, but not limited to, online distribution, reprinting, or photographic reproduction is a FEDERAL OFFENSE.

© 2018 American Urological Association. All Rights Reserved.

THE AMERICAN BOARD OF UROLOGY
EXAMINATION COMMITTEE

Chair
Anthony A. Caldamone, MD

Consultant (Pediatrics)
Mark P. Cain, MD

Consultant (Oncology)
Sam S. Chang, MD, MBA

Consultant (Andrology, Calculous, Obstructive Uropathy, Trauma)
Raymond A. Costabile, MD

Consultant (Psychometrics)
Andrew T. Jones, PhD

Consultant (Urinary Incontinence, Neurogenic Bladder, Laparoscopy/Robotics)
David A. Ginsberg, MD

Christopher L. Amling, MD
Robert E. Brannigan, MD
Peter E. Clark, MD
J. Quentin Clemens, MD
Christopher S. Cooper, MD
Sean P. Elliot, MD, MS
Alexander Gomelsky, MD
CD Anthony Herndon, MD
James Hu, MD, MPH
Mohit Khera, MD, MBA, MPH
Brian R. Matlaga, MD, MPH
Maxwell V. Meng, MD
Rosalia Misseri, MD
John D. Seigne, MD
Sandip P. Vasavada, MD
John S. Wiener, MD

Chair, Office of Education
Victor Nitti, MD

Program Coordinators
Donna M. Connelly
Jessica S. Siculietano

Special thanks and recognition go to those who gave of their time, effort, and knowledge to compose this examination. The views expressed in this educational material are not necessarily the views of the AUA but represent the opinions of the authors and the ABU Examination Committee.

2018 AUA Self-Assessment Study Program

Accreditation: The American Urological Association (AUA) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation Statement: The American Urological Association designates this enduring material for a maximum of 20.00 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in this activity.
Original Release Date: January 2018 **Expiration Date**: December 2020

AAPA Credit Designation Statement: This Self-Assessment CME program has been reviewed and is approved for a maximum of 20.00 *AAPA Category 1 Self-Assessment CME credits* by the Physician Assistant Review Panel. Approval is valid one year from the release date of January 1, 2018. Physician Assistants should claim only the credit commensurate with the extent of their participation in the activity. This program was planned in accordance with AAPA's CME Standards.
Original Release Date: January 2018 **Expiration Date**: December 2018

Other Learners: The AUA is not accredited to offer credit to participants who are not MDs or DOs. However, the AUA will issue documentation of participation that states that the activity was certified for *AMA PRA Category 1 Credit™*.

Estimated time for study, test completion, and reference reading for each SASP is 20 hours.

Target Audience: This self-assessment program is designed for practicing urologists, Board candidates, residents and/or physician assistants.

Purpose/Need: Urologists and other health care providers need to assess their knowledge of urology. Identified gaps in this knowledge can lead to individualized, practical educational activities, which will result in improved patient care.

Method of Participation: Participants will receive an SASP booklet, answer sheet, and return envelope with cardboard insert. The SASP is designated for a maximum of 20.00 *AMA PRA Category 1 Credits™*. To earn credit, participants must read the educational material provided, designate answers for each of the 150 multiple-choice questions, and return the answer sheet for evaluation, answering 50% of the test questions correctly.

Learning Objectives: After completion of this continuing medical education activity, including this examination, participants will be able to:

- assess their knowledge of urology
- demonstrate an increased knowledge base of urology
- apply increased knowledge to improve quality of patient care
- evaluate strengths and weaknesses in urology upon review of their personalized participant profile
- develop a personalized study program

Evidence Based Content: It is the policy of the AUA to ensure that the content contained in this CME activity is valid, fair, balanced, scientifically rigorous, and free of commercial bias.

AUA Disclosure Policy: All persons in a position to control the content of an educational activity (i.e., activity planners, presenters, authors) provided by the AUA are required to disclose to the provider any relevant financial relationships with any commercial interest. The AUA must determine if the individual's relationships may influence the educational content and resolve any conflicts of interest prior to the commencement of the educational activity. The intent of this disclosure is not to prevent individuals with relevant financial relationships from participating, but rather to provide learners information with which they can make their own judgments.

Resolution of Identified Conflict of Interest: All disclosures will be reviewed by the program/course directors or editors for identification of conflicts of interest. Peer reviewers, working with the program directors and/or editors, will document the mechanism(s) for management and resolution of the conflict of interest and final approval of the activity will be documented prior to implementation. Any of the mechanisms below can/will be used to resolve conflict of interest:

- Peer review for valid, evidence-based content of all materials associated with an educational activity by the course/program director, editor, and/or Education Content Review Committee or its subgroup.
- Limit content to evidence with no recommendations
- Introduction of a debate format with an unbiased moderator (point-counterpoint)
- Inclusion of moderated panel discussion
- Publication of a parallel or rebuttal article for an article that is felt to be biased
- Limit equipment representatives to providing logistics and operation support only in procedural demonstrations
- Divestiture of the relationship by faculty

Off-label or Unapproved Use of Drugs or Devices: The audience is advised that this continuing medical education activity may contain reference(s) to off-label or unapproved uses of drugs or devices. Please consult the prescribing information for full disclosure of approved uses.

Disclaimer: The opinions and recommendations expressed by faculty, authors, and other experts whose input is included in this program are their own and do not necessarily represent the viewpoint of the AUA.

Reproduction Permission: The material contained in this examination is protected under U.S. Copyright law. Duplication of any part of this examination by any means including, but not limited to, photographic reproduction is a FEDERAL OFFENSE.

ABU Examination Committee Credentials and Disclosures

Christopher L. Amling, MD John Barry Professor and Chair, Department of Urology, Oregon Health & Science University. No Disclosures.
Robert E. Brannigan, MD Professor, Department of Urology, Chief, Division of Reproductive Surgery and Men's Health, Director, Andrology Fellowship, Northwestern University, Feinberg School of Medicine. The American Society for Reproductive Medicine (ASRM) (Leadership position; Health Publishing); The American Society for Reproductive Medicine (Leadership position); The National Institutes of Health (Other: NIH/MICHD Date and Safety Monitoring Board Member).
Mark P. Cain, MD Professor of Urology, Department of Urology, Indiana University School of Medicine, Chief of Pediatric Urology, Riley Hospital for Children at IU Health. No Disclosures.
Anthony A. Caldamone, MD Professor of Surgery (Urology) and Pediatrics, The Warren Alpert School of Medicine of Brown University, Urology Residency Program Director, Head Section of Pediatric Urology, Hasbro Children's Hospital. No Disclosures.
Sam S. Chang, MD, MBA Patricia and Rodes Hart Endowed Chair in Urologic Surgery, Professor of Urologic Surgery and Oncology, Vanderbilt University Medical Center. Astellas, GLG, Janssen, Tolmar (Consultant/Advisor); NIH (Scientific Study/Trial).
Peter E. Clark, MD Professor & Chair, Dept of Urology; Chair, Urologic Oncology Levine Cancer Institute; Carolinas HealthCare System, Charlotte, NC. Galil Medical, Genentech (Consultant/Advisor).
J. Quentin Clemens, MD, FACS, MSCI Professor of Urology, Director, Division of Neurourology and Pelvic Reconstructive Surgery, University of Michigan Medical Center. Aquinox Pharmaceuticals, Allergan (Consultant/Advisor); UpToDate (Investment Interest).
Donna M. Connelly, BS ABU Examination Committee Consultant. No Disclosures.
Christopher S. Cooper, MD Professor and Vice Chairman of Urology, Director of Pediatric Urology, Senior Associate Dean for Medical Education, The University of Iowa Roy J. and Lucille A. Carver College of Medicine, University of Iowa Hospitals and Clinics. No Disclosures.
Raymond A. Costabile, MD Jay Y. Gillenwater Professor of Urology and Chairman of Urology Department, University of Virginia. Lilly/Icos (Consultant/Advisor, Scientific Study/Trial); Vivus (Scientific Study/Trial).
Sean P. Elliott, MD, MS Professor and Vice Chairman, Department of Urology and Director of Reconstructive Urology, University of Minnesota. Boston Scientific, GT Urological, Urotronic (Consultant/Advisor); American Medical Systems (Consultant/Advisor, Meeting Participant/Lecturer); PercuVision (Leadership Position/Investment Interest).
Shelby Englert Director, AUA Office of Education. No Disclosures.
David A. Ginsberg, MD Associate Professor of Urology, USC Institute of Urology. Procept (Scientific Study/Trial).
Alexander Gomelsky, MD B.E. Trichel Professor and Chairman, Dept of Urology, Louisiana State University Health Shreveport; Director of Female Urology, Neurourology, and Reconstructive Pelvic Surgery, Urology Residency Program Director. No Disclosures.
CD Anthony Herndon, MD, FAAP, FACS Professor of Surgery (Urology), Chief Pediatric Urology, Virginia Commonwealth University, Co-Surgeon-in-Chief, Children's Hospital of Richmond. No Disclosures.
James Hu, MD, MPH Ronald P. Lynch Professor of Urologic Oncology, Director of the LeFrak Center for Robotic Surgery, Weill Cornell Medicine, New York Presbyterian/Weill Cornell. Genomic Health (Meeting Participant/Lecturer).
Patrick Kerley Education Manager, AUA Office of Education. No Disclosures.
Andrew T. Jones, PhD Psychometrician, American Board of Surgery. No Disclosures.
Mohit Khera, MD, MBA, MPH Associate Professor of Urology, Division of Male Reproductive Medicine and Surgery, Baylor College of Medicine. Coloplast (Consultant/Advisor, Meeting Participant/Lecturer); Endo Pharmaceuticals, Abbvie, ATYU Pharmaceuticals, (Consultant/Advisor); Boston Scientific (Consultant/Advisor, Scientific Study/Trial); Sexual Medicine Society of North America (Leadership Position).
Brian R. Matlaga, MD, MPH Professor of Urology, James Buchanan Brady Urological Institute, Johns Hopkins University School of Medicine. Boston Scientific (Consultant/Advisor).
Maxwell V. Meng, MD Professor and Chief of Urologic Oncology, Department of Urology, University of California San Francisco. AUA, Urologic Oncology Journal (Health Publishing).
Rosalia Misseri, MD Professor of Urology, Department of Urology, Indiana University School of Medicine, Pediatric Urology Fellowship Director, Riley Hospital for Children at IU Health. No Disclosures.
Victor Nitti, MD Chair, AUA Office of Education, Professor and Vice Chair, Department of Urology, Professor, Department of Obstetrics and Gynecology, Director, Female Pelvic Medicine and Reconstructive Surgery Program, Female Pelvic Medicine Fellowship Program, New York University School of Medicine. Cook Myosite, Medtronic (Scientific Study/Trial); Serenity Pharmaceuticals (Investment Interest); Astellas, Allergan (Health Publishing, Scientific Study/Trial).
John D. Seigne, MD Associate Professor of Urology, Chief Section of Urology, Geisel School of Medicine, Dartmouth. Johnson & Johnson (Investment Interest).
Jessica S. Siculietano Education Coordinator, AUA Office of Education. No Disclosures.
Sandip P. Vasavada, MD Urologic Director, Center for Female Pelvic Medicine and Reconstructive Surgery, Professor of Surgery (Urology), Cleveland Clinic Lerner College of Medicine, Glickman Urological Institute, Cleveland Clinic. Medtronic (Meeting Participant/Lecturer); NDI Medical LLC (Investment Interest); Allergan (Consultant/Advisor, Meeting Participant/Lecturer, Scientific Study/Trial); Axonics, Amphora (Consultant/Advisor).
John S. Wiener, MD Head of Section of Pediatric Urology, Professor of Urologic Surgery and Pediatrics, Duke University Medical Center, Durham, NC. No Disclosures.

Self-Assessment Study Program

INTRODUCTION

This Self-Assessment Study Program is designed to provide practicing physicians, Board candidates, and residents with an assessment of their knowledge of urology and to be a valuable learning experience which should add significantly to their store of knowledge. In addition, expectations are there would be an improvement in the quality of care delivered to their patients. Relative strengths and weaknesses in urology will be immediately apparent upon review of the personalized Participant Profile. All data concerning results of the Study Program are strictly confidential and elaborate security measures have been set up in the Office of Education to ensure that only the individual participant has access to their scores.

The Self-Assessment Study Program may be completed under either open or closed book test conditions. We urge participants to select the examination condition with which they are most comfortable. Open book implies the use of references and other resource materials. Closed book implies that reference materials are not used. To ensure a fair comparison, peer group reports are compiled separately for the "open book" and "closed book" groups.

Participants who desire CME must score a minimum of 50% and may take the SASP under either closed or open book test conditions. An additional answer sheet is provided to retake the examination for credit if the 50% benchmark has not been met.

The purpose of the program is self-assessment and learning, **NOT** an evaluation of the participant by the American Urological Association or any other agency. The examination is designed to be a valuable learning experience as well as a self-evaluation and therefore is considered to be a valid measure regardless of open or closed book conditions.

The examination items require a recall of medical knowledge and application of clinical experience. Time should be taken to consider each item carefully. We strongly recommend blocking out three to four hours to take the examination in one, or at most, two sittings. The examination should not be stretched over multiple sessions. Participants should select one answer that they feel is the best. At the completion of the exam, it is important for the learner to read very carefully the comments and recommended resources as to why the answer is deemed to be the "best answer".

Immediately after completion, participants return their answer sheet to the AUA Office of Education. **EACH WEEK** answer sheets are scored and personalized. Participant Profiles are compiled and mailed along with an evaluation or a second answer sheet to retake the exam. Certificate of Completion for CME credit is available online at University.AUAnet.org.

At the end of the year, peer group reports will be compiled. In order for scores to be included in the peer group data, completed answer sheets must be in the Office of Education before October 1, 2018. After the final weekly scoring, peer group reports will be sent to all participants who returned an answer sheet. Included in this report will be an overview of your personalized Participant Profile.

Finally, we hope that the Self-Assessment Study Program is found to be a stimulating, informative, and beneficial tool for Continuing Education as you strive for high-quality patient care.

INSTRUCTIONS

PLEASE READ CAREFULLY

I. ASSEMBLE MATERIALS

1) SASP PART I: 150 multiple-choice questions (front section of book).
   SASP PART II: Explanations, comments, and references (back section).
2) Answer Sheet: Two return address tabs should be attached to the bottom.
3) No. 2 Pencil: Answer sheets completed in ink will not be scored.
4) Exam Trustee Envelope: Should include protective cardboard.

II. PREPARE YOUR ANSWER SHEET

Please note: The stamped answer sheet tracking number (not to be confused with your AUA ID Number) is used by AUA Staff during scoring.

1) **Identification Information.** Complete the information by writing in numbers and blackening the corresponding grid numbers.

   A. **Years Out:** Write the number of years since you completed residency training. If this is less than 10 years, the first digit will be "0". If you are currently in residency, record this number as "99".
   B. **Up to 20 CME Credits**: Please mark the number of credits you wish to claim.
   C. **Book Year:** Write "18" here.
   D. **AUA ID Number:** Using leading zero(s), write your AUA Customer ID Number.
   E. **Date:** Write the date you take the exam.
   F. **Teaching Load**:
   None indicates you devote all of your time to private practice. Although may have a clinic appointment with a medical school in the area, there is no interface with medical students, residents, or interns.
   Light indicates you devote the majority of your time to private practice; however, also have a faculty appointment which requires that you participate in rounds, conferences, or lectures approximately 5-10 times per year.
   Medium indicates in addition to private practice, you have an active teaching service which requires at least weekly contact with medical students, residents or interns.
   Heavy indicates you devote the majority of you time to a faculty appointment which includes daily contact with medical students, residents, or interns in the capacity of teaching or supervising their activities.
   G. **Exam Type:**
   Open book indicates that reference material will be used during the exam.
   Closed book indicates that no reference material will be used during the exam.

2) **Return Address Tabs.** Please use a permanent address when completing these tabs. Do not detach from answer sheet. One tab will be used to send your personalized Participant Profile. The other will be used to send your Peer Group Report in late 2018.

III. BEGIN THE EXAMINATION

1) Note that the sequence of questions on the answer sheet goes down the page and not across the page.
2) Block out 3-4 hours to read and answer the exam questions.
3) Mark ONLY ONE ANSWER.
4) Erase changes completely.

IV. AFTER COMPLETING THE EXAM

1) **IMPORTANT!!!! Make a copy of your completed answer sheet.**
2) Mail your answer sheet in the envelope provided with the protective cardboard. **Do not fold the answer portion of the sheet.**
3) Allow 3-4 weeks for the return of your personalized Participant Profile and Evaluation form, or a second answer sheet to retake the exam. Certificate of Completion for CME credit is available online at University.AUAnet.org.
4) Begin studying Part II of the SASP (back section of SASP booklet).

IMPORTANT!!! CME Credit Expiration Dates

For Physicians

Products include SASP Booklets, Online, and *Qstream*

Any 2018 SASP	December 31, 2020
Any 2017 SASP	December 31, 2019
Any 2016 SASP	December 31, 2018

Please note: CME Credits expire after three years of Original Release Date.

For Physician Assistants

Products include SASP Booklets, Online, and *Qstream*

Any 2018 SASP	December 31, 2018
Any 2017 SASP	December 31, 2017
Any 2016 SASP	December 31, 2016

All data concerning results of the study program are strictly confidential and elaborate security measures have been set-up in the Office of Education to ensure that only the individual participant has access to his/her scores. For additional information regarding this program, please contact: American Urological Association Education and Research, Inc. (All rights reserved.) Printed in USA 01/2018.

ABU/AUA Examination Committee
Common Urology Abbreviations

ACE	Angiotensin converting enzyme
ACTH	Adenocorticotrophic hormone
ADH	Antidiuretic hormone
AFP	Alpha-fetoprotein
AIDS	Acquired immune deficiency syndrome
beta-hCG	Beta human chorionic gonadotropin
BCG	Bacillus Calmette-Guerin
BEP	Bleomycin, etoposide & cisplatin
BPH	Benign prostatic hyperplasia
CIC	Clean intermittent catheterization
CAH	Congenital adrenal hyperplasia
CIS	Carcinoma in situ
CMG	Cystometrogram
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
CVA	Cerebrovascular accident
DDAVP	Vasopressin synthetic analog
DES	Diethylstilbestrol
DMSA	Dimercaptosuccinic acid
DRE	Digital rectal exam
DTPA	Tc-99m Pentetate
DVT	Deep venous thrombosis
EHL	Electrohydraulic lithotripsy
EKG	Electrocardiogram
EMG	Electromyogram
ESRD	End-stage renal disease
5-FU	5-fluorouracil
FSH	Follicle stimulating hormone
GFR	Glomerular filtration rate
GnRH	Gonadotropin releasing hormone
HIV	Human immuno deficiency virus
HPF	High power field
^{125}I	Iodine^{125}
ICSI	Intracytoplasmic sperm injection
I.V.	Intravenous
IVC	Inferior vena cava
IVP	Intravenous pyelogram
IRB	Institutional Review Board
KUB	Kidney, ureter, bladder
LDH	Lactate dehydrogenase
LH	Luteinizing hormone
LH-RH	Luteinizing hormone releasing hormone
LPP	Leak point pressure
LR/NS/D5W	Lactated Ringer's/Normal saline Dextrose 5% water
LUTS	Lower urinary tract symptoms
M-VAC	Methotrexate, vinblastine, Adriamycin (doxorubicin), cisplatin
MAG-3	Mercaptoacetylglycine
MIBG	Iodine-131-meta-iodobenzylguanidine
MRI	Magnetic resonance imaging
MVC	Motor vehicle collision
NPO	Nothing by mouth
NSAIDS	Nonsteroidal anti-inflammatory drugs
NSGCT	Nonseminomatous germ cell tumor
PCNL	Percutaneous nephrolithotomy
PDE-5	Phosphodiesterol inhibitor 5
PET	Positron emission tomography
PGE-1	Prostaglandin E-1
PIN	Prostatic intraepithelial neoplasia
PSA	Prostate specific antigen
PT	Prothrombin time
PTT	Partial thromboplastin time
PUV	Posterior urethral valve
PVR	Postvoid residual
QD, QHS	Dosing
XRT	Radiation therapy
RBC	Red blood cell count
RCC	Renal cell carcinoma
RL/NS/D5W	Ringer's lactate/Normal saline Dextrose 5% water
RPLND	Retroperitoneal lymph node dissection
RTA	Renal tubular acidosis
SIADH	Syndrome of inappropriate antidiuretic hormone
SSRI	Selective serotonin reuptake inhibitors
SWL	Shock wave lithotripsy
TPN	Total parenteral nutrition
TRUS	Transrectal ultrasonography
TUIP	Transurethral incision of prostate
TUMT	Transurethral microwave therapy
TUNA	Transurethral needle ablation
TUR	Transurethral resection
TURP	Transurethral resection of prostate
TURBT	Transurethral resection of bladder tumor
UPJ	Ureteropelvic junction
UTI	Urinary tract infection
VCUG	Voiding cystourethrogram
VDRL	Venereal disease research laboratory
VEGF	Vascular endothelial growth factor
VHL	Von Hippel-Lindau
VUR	Vesicoureteral reflux
WBC	White blood cell count
XRT	Radiation therapy

Normal Laboratory Values

General Chemistry

Electrolytes

Na	135 – 145 mEq/L
K	3.5 – 5.0 mEq/L
Cl	120 – 130 mEq/L
HO_3	22 – 26 mEq/L
Ca	8.5 – 10.5 mg/dL
PO_4	2.6 – 4.5 mg/dL

Blood Urea Nitrogen (BUN)	8 – 20 mg/dL
Creatinine	0.5 – 1.5 mg/dL
Creatinine Clearance	50 – 125 mL/min
Glucose (fasting)	70 – 100 mg/dL
Prostate Specific Antigen (PSA)	< 4 ng/mL
Serum Albumin	3.4 – 5.4 gm/dL
Acid Phosphatase	0 – 0.8 U/L
Alanine aminotransferase (SGPT)	10 – 55 U/L
Alkaline phosphatase	45 – 115 U/L
Alpha-feto protein (AFP)	0 – 10 IU/mL
Beta-hCG	0 – 10 mIU/mL
Amylase	50 – 120 U/L
Bilirubin	0 – 0.4 mg/dL
Lactate dehydrogenase (LDH)	110 – 210 U/L
Uric acid	3.6 – 8.5 mg/dL
Hemoglobin	13 – 18 g/dL
White Blood Count (WBC)	5 – 10,000/cu mm
Platelets	150 – 350,000/cu mm

Endocrine

Aldosterone	4 – 31 ng/dL
Calcitonin	0 – 28 pg/mL
Catecholamines	< 1000 ng/L
Cortisol	0 – 10 μg/dL
Epinephrine	0 – 110 pg/mL
17-Hydroxysteroids	3 – 14 mg/day
17-Ketosteroids	8 – 20 mg/day
Metanephrines	0 – 0.9 mg/day
Parathyroid Hormone (PTH)	10 – 60 pg/mL
Plasma Renin Activity (PRA)	0.5 – 1.6 ng/mL/hr
Testosterone	300 – 1000 ng/dL
Vanillylmandellic acid (VMA)	1.4 – 6.5 mg/day
Follicle Stimulating Hormone (FSH)	1 – 15 mIU/L
Luteinizing Hormone (LH)	3 – 18 mIU/L

Arterial Blood Gases

PO_2	75 – 100 mmHg
PCO_2	35 – 45 mmHg

1. Stress-related cortisol production comes from the:

A. zona glomerulosa.
B. zona fasciculata.
C. zona reticularis.
D. entire adrenal cortex.
E. adrenal medulla.

2. A seven-year-old boy suffered a dog bite to the scrotum two hours earlier. Physical examination reveals three puncture wounds and a small tear of the right hemiscrotum through the dartos muscle. The right testis is normal to palpation. The penis is normal. The next step is antibiotics and:

A. scrotal ultrasound.
B. retrograde urethrogram.
C. wound irrigation and observation.
D. operative exploration, debridement, and primary closure.
E. operative exploration, debridement, and delayed closure.

3. A 66-year-old diabetic man with peripheral neuropathy has LUTS and urgency urinary incontinence despite treatment with tamsulosin. He has a 25 gm benign prostate. CMG shows a bladder capacity of 850 mL and terminal detrusor overactivity. On pressure-flow study, maximum flow rate is 8 mL/sec, voiding pressure is 88 cm H_2O, and PVR is 380 mL. Cystourethroscopy reveals mild trilobar prostatic enlargement. The best treatment is:

A. CIC.
B. CIC and oxybutynin.
C. sacral neuromodulation.
D. finasteride.
E. TURP.

4. A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with six weeks of intravesical BCG therapy for a non-invasive urothelial carcinoma of the bladder and has not had tumor recurrence. The TUR specimen reveals BPH and urothelial CIS of the prostatic urethra. There is no evidence of ductal or stromal invasion. The next step is:

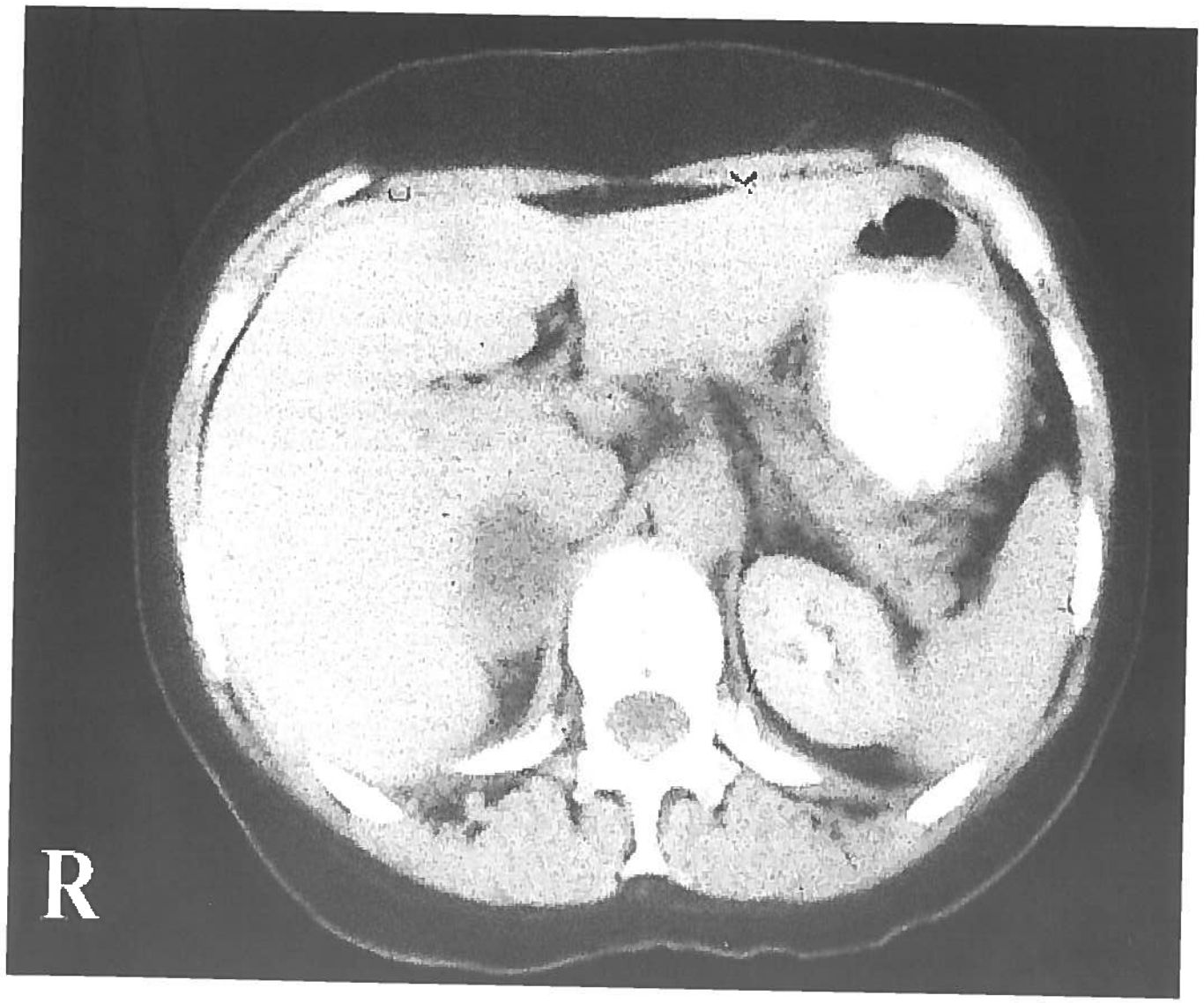
A. repeat BCG therapy.
B. mitomycin C therapy.
C. repeat TURP.
D. cystoscopy and cytology in three months.
E. radical cystoprostatectomy and urethrectomy.

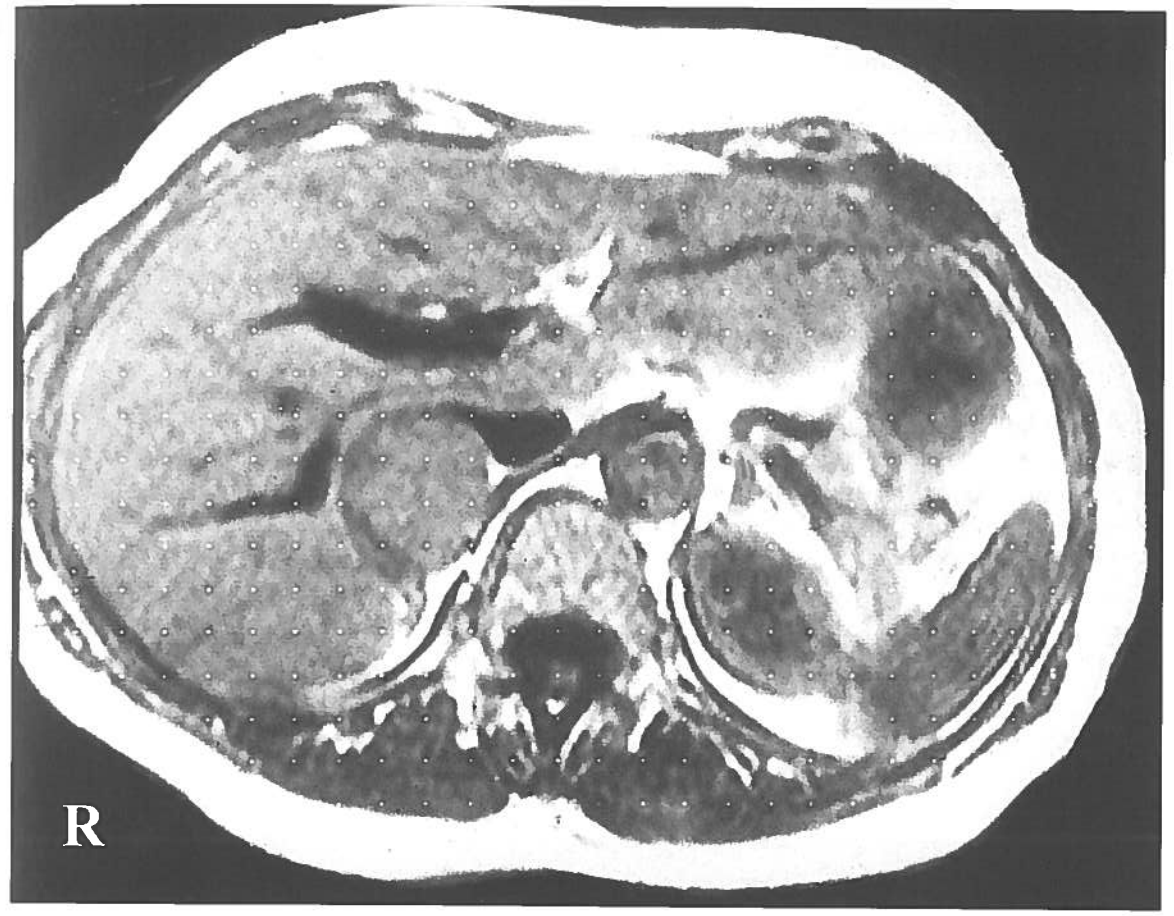
5. Renal blood flow is autoregulated primarily by:

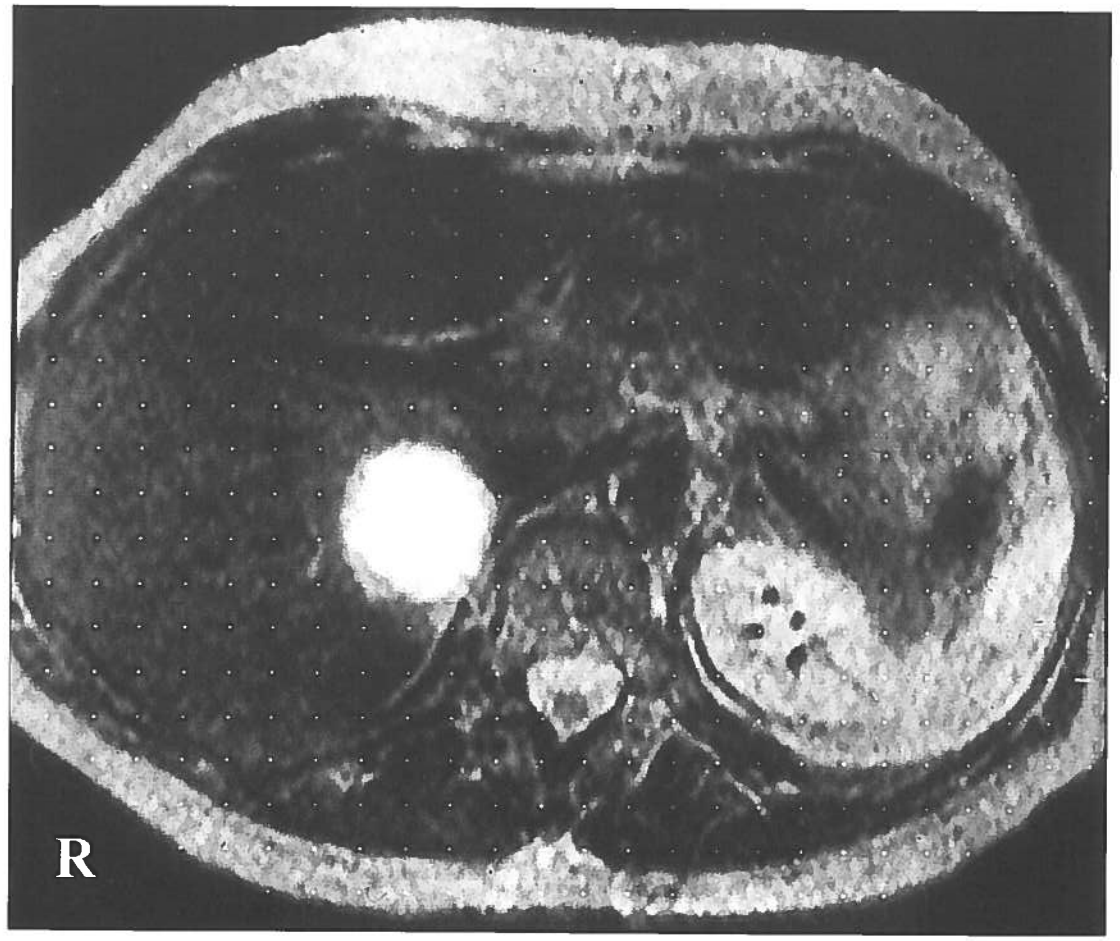
A. renal innervation.
B. the macula densa.
C. endothelin.
D. efferent arteriolar tone.
E. afferent arteriolar tone.

6. A 57-year-old woman has epigastric pain. Her vital signs and physical examination are normal. A CT scan with contrast and T1- and T2- weighted MRI scans are shown, respectively. The imaging is most consistent with:

A. adrenal hemorrhage.
B. adrenal cyst.
C. adrenal adenoma.
D. adrenal myelolipoma.
E. pheochromocytoma.







7. The validity of a creatinine clearance test can best be determined by simultaneously measuring or calculating the:

A. total creatinine excreted.
B. total sodium excreted.
C. total urea excreted.
D. total urine volume excreted.
E. average urine osmolality.

8. A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney and the left kidney is normal. The most likely diagnosis is:

A. adrenal cortical carcinoma.
B. juxtaglomerular cell tumor.
C. pheochromocytoma.
D. RCC.
E. aldosteronoma.

9. The first renal function parameter impaired by ureteral obstruction is:

A. ammonia excretion.
B. bicarbonate reabsorption.
C. potassium excretion.
D. water reabsorption.
E. chloride reabsorption.

10. Two weeks following a live donor kidney transplant, a 47-year-old man develops copious wound drainage. The serum creatinine rises from 1.6 to 2.7 mg/dL. An ultrasound demonstrates a 10 cm peri-transplant fluid collection with mild hydronephrosis. The drain fluid gram stain shows no organisms and has a creatinine of 10 mg/dL. The etiology of the wound drainage is:

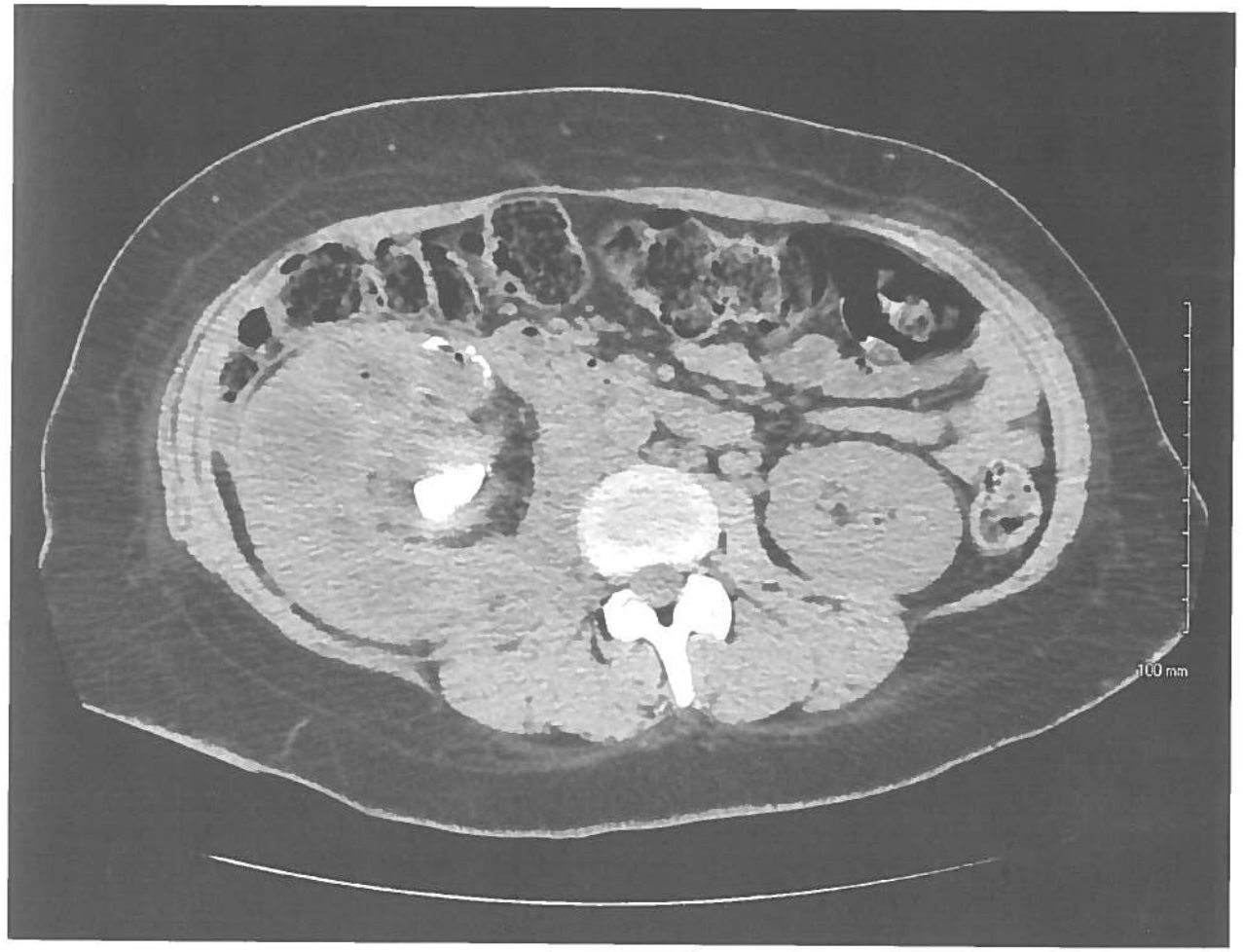
A. technically faulty ureteroneocystostomy.
B. unsecured lymphatics from the iliac vessel dissection.
C. distal ureteral necrosis.
D. unsecured donor kidney lymphatics.
E. perioperative edema at ureteroneocystostomy.

11. A 35-year-old Cushingoid woman undergoes left adrenalectomy for a small adrenal adenoma. Postoperative cortisol levels remain high. Serum ACTH is low and an MRI scan of the brain is normal. The next step is:

A. aminoglutethimide.
B. right adrenalectomy.
C. ketoconazole.
D. ortho-para DDD.
E. metyrapone.

12. A 27-year-old woman has a long-standing history of flank pain and chronic fevers. Non-contrast CT scan is shown. The next step is antibiotics and:

A. DMSA scan.
B. nephrostomy tube placement and drainage.
C. ureteroscopy and laser lithotripsy.
D. PCNL.
E. nephrectomy.



13. A 27-year-old woman has 10^5 CFU Klebsiella per mL on screening urine culture during her sixth week of pregnancy. She is asymptomatic. The next step is:

A. repeat urine culture in one week.
B. antibiotic therapy if symptoms occur.
C. three days amoxicillin therapy.
D. three days amoxicillin therapy followed by low dose prophylaxis.
E. urine catheter specimen for culture and sensitivity.

14. Eighteen months following a low anterior resection for rectal cancer, a 45-year-old woman has persistent voiding dysfunction and urinary incontinence. The most likely pattern on videourodynamics will be:

A. normal compliance, bladder neck incompetence, and fixed external sphincter tone.
B. decreased compliance, bladder neck incompetence, and fixed external sphincter tone.
C. decreased compliance, competent bladder neck, and normal external sphincter tone.
D. normal compliance, competent bladder neck, and normal external sphincter tone.
E. decreased compliance, bladder neck incompetence, and normal external sphincter tone.

15. A four-year-old boy, previously treated for PUV, has nocturnal enuresis and some daytime incontinence. A 24-hour urine collection shows a volume of 1800 mL. The best treatment is:

A. DDAVP.
B. salt restriction.
C. postvoid catheterization.
D. decrease oral fluid intake.
E. increase frequency of voiding.

16. A 26-year-old schizophrenic man is evaluated two hours after self-amputation of his phallus at its base with a knife. The amputated organ has been preserved at room temperature. The next step is suprapubic cystotomy, debridement, and:

A. stump closure with distal spatulation of urethra.
B. stump closure with perineal urethrostomy.
C. leave stump open to heal by secondary intention.
D. creation of neophallus with abdominal pedicle flap.
E. re-plantation of phallus.

17. Deletions or mutations on chromosome 3 are most common in which histologic subtype of RCC:

A. clear cell.
B. chromophobe.
C. collecting duct.
D. medullary cell.
E. papillary.

18. A 58-year-old woman underwent cutaneous continent diversion three months ago for bladder cancer. She has intermittent fever and mild discomfort over the reservoir. Her serum creatinine is 1.5 mg/dL, and an abdominal ultrasound shows mild bilateral hydronephrosis and a distended reservoir. A urine culture is positive for a pan-sensitive E. coli. The next step is treatment of the infection and:

A. pouch endoscopy.
B. regular pouch irrigation.
C. prophylactic antibiotic administration.
D. increase size of the catheter used for pouch drainage.
E. obtain pouchogram.

19. An eight-year-old boy is an unrestrained passenger in an MVC. He complains of left abdominal pain and has left upper quadrant tenderness. He is hemodynamically stable and has microscopic hematuria. CT urogram shows a normal right kidney. The left kidney is markedly hydronephrotic and there is perinephric contrast extravasation. The left ureter is not visualized. The next step is:

A. observation and antibiotics.
B. renal scan.
C. retrograde pyelogram.
D. percutaneous nephrostomy.
E. renal exploration.

20. A 72-year-old man on steroids for rheumatoid arthritis has a solitary, 2.0 cm, high-grade urothelial carcinoma on the posterior bladder wall with focal invasion of the lamina propria. The next step is:

A. intravesical BCG.
B. intravesical BCG with interferon.
C. intravesical mitomycin C.
D. partial cystectomy.
E. radical cystectomy.

21. A six-month-old boy has moderate hydronephrosis in a solitary kidney diagnosed antenatally. A VCUG is normal. MAG-3 diuretic renal scan shows a washout time of 25 minutes. His urinalysis is normal and his serum creatinine is 0.7 mg/dL. The next step is:

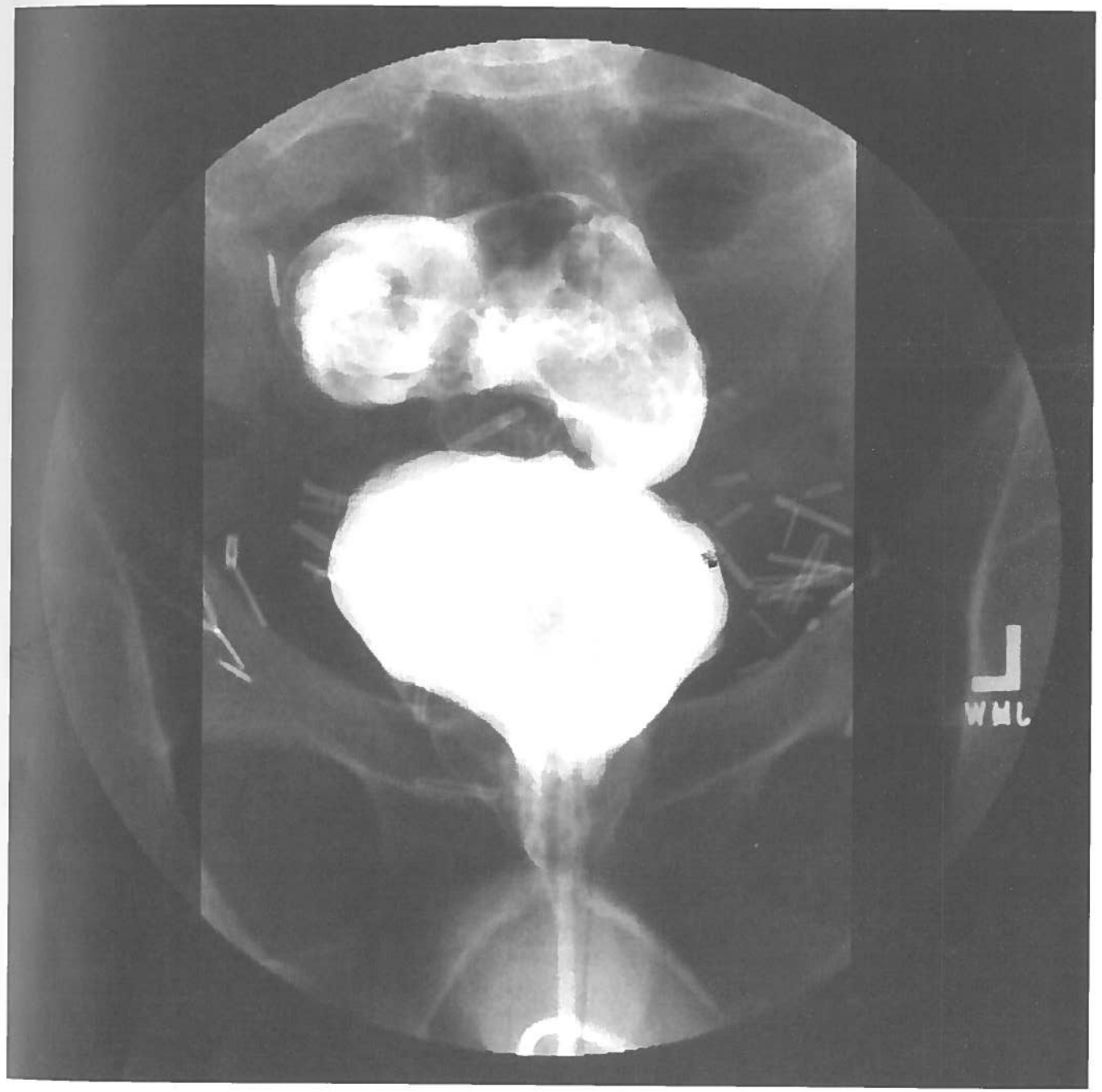
A. MAG-3 diuretic renal scan in three months.
B. ultrasound in three months.
C. antegrade pressure perfusion study (Whitaker test).
D. percutaneous endopyelotomy.
E. pyeloplasty.

22. A 68-year-old man with a several month history of lower abdominal pain and constipation develops urinary frequency and dysuria. Urine culture demonstrates > 10^5 CFU/mL of E. coli, Pseudomonas, and enterococcus. The most likely etiology is:

A. perirectal abscess.
B. diverticulitis.
C. ulcerative colitis.
D. Crohn's disease.
E. colon cancer.

23. A 64-year-old man has recurrent febrile UTIs and urosepsis following transurethral incision of a post-radical prostatectomy bladder neck contracture. Cystoscopy reveals a large posterior defect at the bladder neck. A cystogram is shown. The next step is antibiotics and:

A. rectal tube.
B. diverting colostomy.
C. abdominal repair with omental pedicle.
D. posterior transanal repair.
E. perineal repair with gracilis flap.



Additional imaging on next page.

24. A four-year-old boy develops precocious puberty (phallus 8 cm stretched length, pubic hair, and acne). The testes cannot be palpated because there are bilateral hydroceles. LH and FSH are low, consistent with the age, but the serum testosterone is elevated (300 ng/dL). The bone age is ten years. The study most likely to be helpful in establishing the diagnosis is:

A. skull films.
B. CT scan of skull.
C. CT scan of abdomen.
D. abdominal ultrasound.
E. scrotal ultrasound.

25. A 27-year-old man evaluated for infertility has a normal sperm count and motility but sperm morphology reveals only round-headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate-sized left varicocele. His wife is 25-years-old and has a normal evaluation. The next step is:

A. varicocele repair.
B. intrauterine insemination.
C. re-evaluation in three months.
D. in vitro fertilization.
E. ICSI.

26. An eight-year-old boy has persistent urinary incontinence following newborn resection of PUV. This is most likely due to:

A. detrusor overactivity.
B. vesicoureteral reflux.
C. poorly compliant bladder.
D. incompetent bladder neck.
E. damaged external urethral sphincter.

27. Normal micturition is initiated by:

A. detrusor pressure increase.
B. vesical neck opening.
C. striated sphincter relaxation.
D. C-fiber afferents.
E. activation of Onuf's nucleus.

28. One day after an uncomplicated PCNL, arterial bleeding occurs from the nephrostomy tract following removal of the nephrostomy tube. Replacement of the nephrostomy tube decreases the bleeding. After nephrostomy tube placement, the next step is:

A. selective angioembolization.
B. nephrostomy tube for six weeks.
C. CT angiography.
D. tamponade balloon catheter for 48 hours.
E. open exploration.

29. Two years ago, a 62-year-old man underwent a radical cystectomy and ileal conduit for urothelial carcinoma. Follow-up renal ultrasound shows right hydroureteronephrosis. His serum creatinine has increased to 1.2 mg/dL and his cytology is negative. Loopogram is shown. The next step is:

A. observation.
B. MAG-3 diuretic renogram.
C. CT urogram.
D. looposcopy and right retrograde pyelogram.
E. right percutaneous nephrostomy with antegrade pyelogram.

30. An 18-year-old man injured in an MVC has blood at the external urethral meatus. An indication for urethral catheter drainage of the bladder, without further surgical exploration, is:

A. retrograde urethrogram demonstrating disruption of the penile urethra.
B. retrograde urethrogram demonstrating partial tear of the posterior urethra.
C. extraperitoneal bladder perforation in association with pelvic fracture requiring surgical repair.
D. extraperitoneal bladder perforation with bone fragment penetrating the bladder wall.
E. intraperitoneal bladder perforation with only microscopic hematuria.

31. Development of plasmid-mediated drug resistant bacteria is least likely to occur following administration of:

A. cephalexin.
B. ciprofloxacin.
C. tetracycline.
D. sulfamethoxazole.
E. ampicillin.

32. A 30-year-old woman wishes to become pregnant following renal transplantation. Her serum creatinine is 1.2 mg/dL. She should be counseled that pregnancy will most likely be associated with:

A. fetal genetic abnormality.
B. preterm delivery.
C. allograft rejection.
D. preeclampsia.
E. intrauterine growth retardation.

33. A 65-year-old woman has intermittent dysuria and urgency. There is no association with sexual activity and there are no urinary symptoms between episodes. Voided mid-stream urinalyses while symptomatic reveal occasional RBCs, 1 to 3 WBCs, and 1 to 3 squamous epithelial cells per hpf. Initial management should be:

A. urine culture during symptomatic episodes.
B. prophylactic antibiotics.
C. cystoscopy.
D. home self-start antibiotic therapy.
E. assess PVR.

34. A 20-year-old man undergoes a distal shunt (Al-Ghorab) for veno-occlusive priapism. Four hours later, he has a 70% rigid erection. The next step is:

A. proximal cavernosal-spongiosal shunt.
B. intracorporal phenylephrine administration.
C. corporal blood gas analysis.
D. pudendal arteriography.
E. cavernosal-saphenous vein shunt.

35. The single most important factor in choosing whether to repair a vesicovaginal fistula using a transabdominal or transvaginal approach is:

A. location of the fistula in the bladder.
B. size of the fistula.
C. need for tissue interposition.
D. experience of the surgeon.
E. prior pelvic radiation.

36. A healthy newborn boy has bilateral grade 4 VUR. This is most commonly associated with:

A. low outlet resistance.
B. uninhibited detrusor contractions, coordinated voiding.
C. poor bladder compliance.
D. high pressure voiding with high residual.
E. lack of detrusor contractility.

37. A 45-year-old woman with lower extremity weakness has new onset frequency, urgency, and urgency urinary incontinence despite therapy with oxybutynin. Urinalysis is negative. PVR is 90 mL. CMG reveals phasic detrusor overactivity throughout filling. During volitional voiding, there is simultaneous contraction of the external sphincter. The next step is:

A. referral for neurological evaluation.
B. cystoscopy and cytology.
C. sacral neuromodulation.
D. intradetrusor onabotulinumtoxinA injections.
E. intradetrusor and intrasphincteric onabotulinumtoxinA injections.

38. A 35-year-old alcoholic man with renal insufficiency undergoes a left radical orchiectomy for a NSGCT. His preoperative AFP was 100 IU/mL and beta-hCG was 85 mIU/mL. Two weeks later, AFP is 2 IU/mL and beta-hCG is 15 mIU/mL. His metastatic evaluation is otherwise negative. The most likely explanation for the marker elevation is:

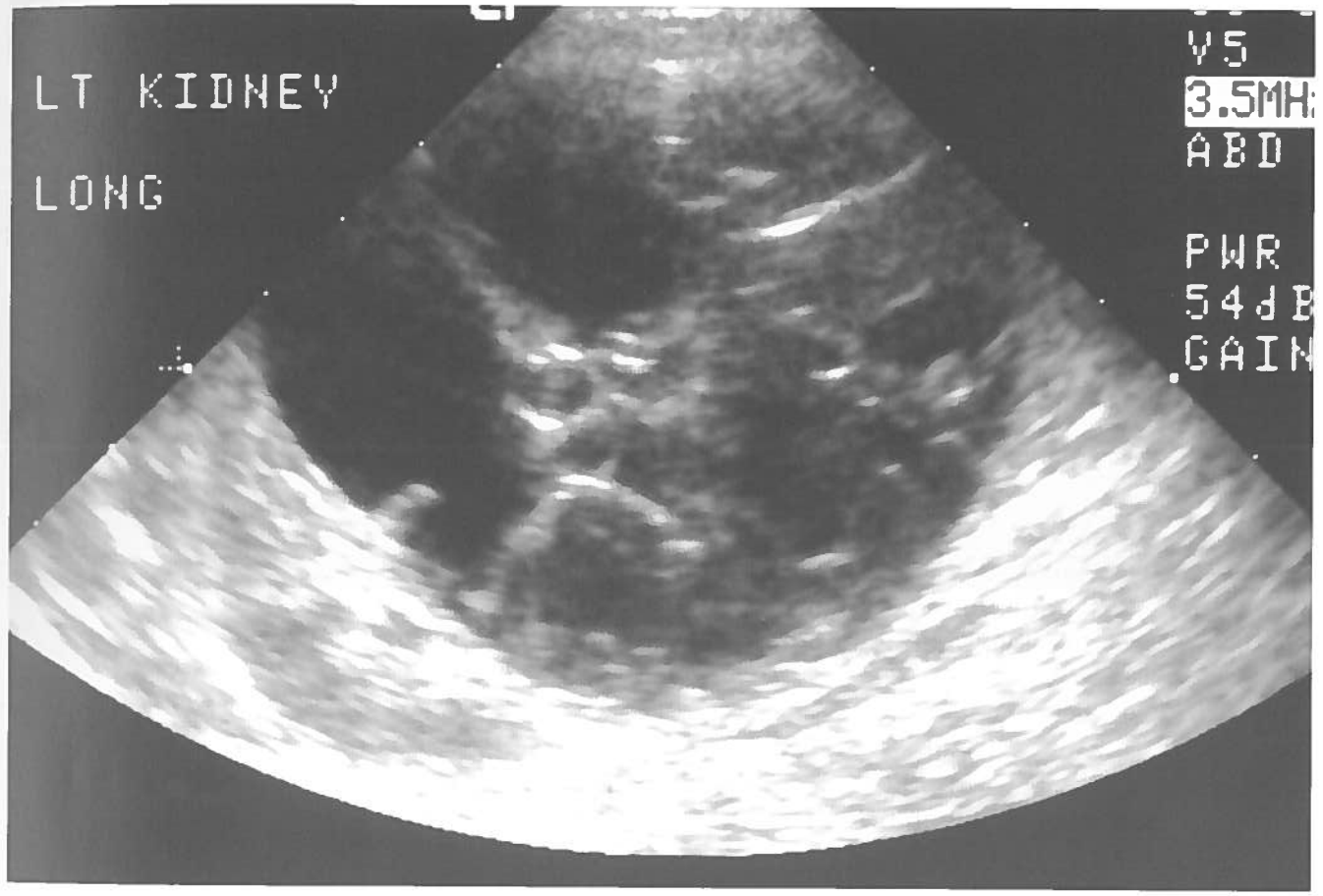
A. hepatic dysfunction.
B. renal insufficiency.
C. hypogonadism.
D. normal marker decline.
E. residual yolk sac elements.

39. A 20-year-old man has cerebral palsy with significant cognitive dysfunction. He develops urosepsis associated with bilateral staghorn calculi and left emphysematous pyelonephritis. His mother, the legal guardian, states that his quality of life is very poor and refuses interventions. The next step is:

A. honor the mother's request.
B. antibiotics.
C. antibiotics and left nephrectomy.
D. antibiotics, placement of right ureteral stent, and left nephrectomy.
E. antibiotics and seek emergent legal consultation for transfer of guardianship.

40. A three-year-old girl has a febrile UTI. Ultrasound and CT scan are shown. The right kidney is normal. The next step is:

A. DMSA scan.
B. nephrectomy.
C. antibiotics and repeat ultrasound in three months.
D. percutaneous aspiration.
E. renal ultrasound of parents.



Additional imaging on next page.

41. Cystoscopy in a man often causes an increase in:

A. free PSA.
B. complexed PSA.
C. complexed/total PSA ratio.
D. PSA velocity.
E. prostate volume.

42. A 28-year-old woman with newly diagnosed hypertension has a 1.8 cm partially calcified right renal artery aneurysm. Appropriate long-term management is:

A. sodium restriction.
B. weight loss.
C. thiazide diuretic.
D. selective embolization.
E. surgical repair.

43. Persistent early morning calcium oxalate crystalluria in a known calcium oxalate stone former correlates with urinary:

A. pH.
B. volume.
C. sodium.
D. citrate.
E. stone recurrence.

44. During performance of a TRUS of the prostate, decreasing the transducer frequency from 7.5 to 4.5 MHz would:

A. decrease resolution and increase depth of penetration.
B. increase resolution and decrease depth of penetration.
C. decrease resolution and decrease depth of penetration.
D. increase resolution and increase depth of penetration.
E. have no effect on resolution and depth of penetration.

45. In a morbidly obese man with erectile dysfunction, the serum androgen profile is:

A. total testosterone: ↓, estradiol: ↑, sex hormone-binding globulin: ↓.
B. total testosterone: ↓, estradiol: ↓, sex hormone-binding globulin: ↓.
C. total testosterone: ↓, estradiol: ↑, sex hormone-binding globulin: ↑.
D. total testosterone: ↔, estradiol: ↓, sex hormone-binding globulin: ↑.
E. total testosterone: ↑, estradiol: ↓, sex hormone-binding globulin: ↑.

46. A 54-year-old man dies the morning following a radical prostatectomy. A decision about an autopsy is determined by:

A. the family.
B. hospital policy.
C. the coroner/medical examiner.
D. the patient's advance directives.
E. the attending physician.

47. A neonatal boy has a solid 4 cm renal mass with no other abnormalities. The contralateral kidney is normal. The next step is:

A. biopsy of mass.
B. partial nephrectomy.
C. radical nephrectomy.
D. radical nephrectomy and chemotherapy.
E. radical nephrectomy, chemotherapy, and XRT.

48. A 50-year-old man undergoes a radical orchiectomy and is reported to have a pure seminoma. Serum beta-hCG is 342 mIU/mL and AFP is 123 IU/mL prior to orchiectomy. CT scan reveals a 7 cm para-aortic mass. After four cycles of chemotherapy, the para-aortic mass is 1.8 cm and serum markers are normal. The next step is:

A. observation.
B. PET scan.
C. additional chemotherapy.
D. retroperitoneal XRT.
E. RPLND.

49. An eight-year-old girl has urinary urgency, urge incontinence, and constant leakage of urine. She is started on timed voiding and has improvement with the urge incontinence but still has constant urinary leakage. Renal and bladder ultrasound are normal. The next step is:

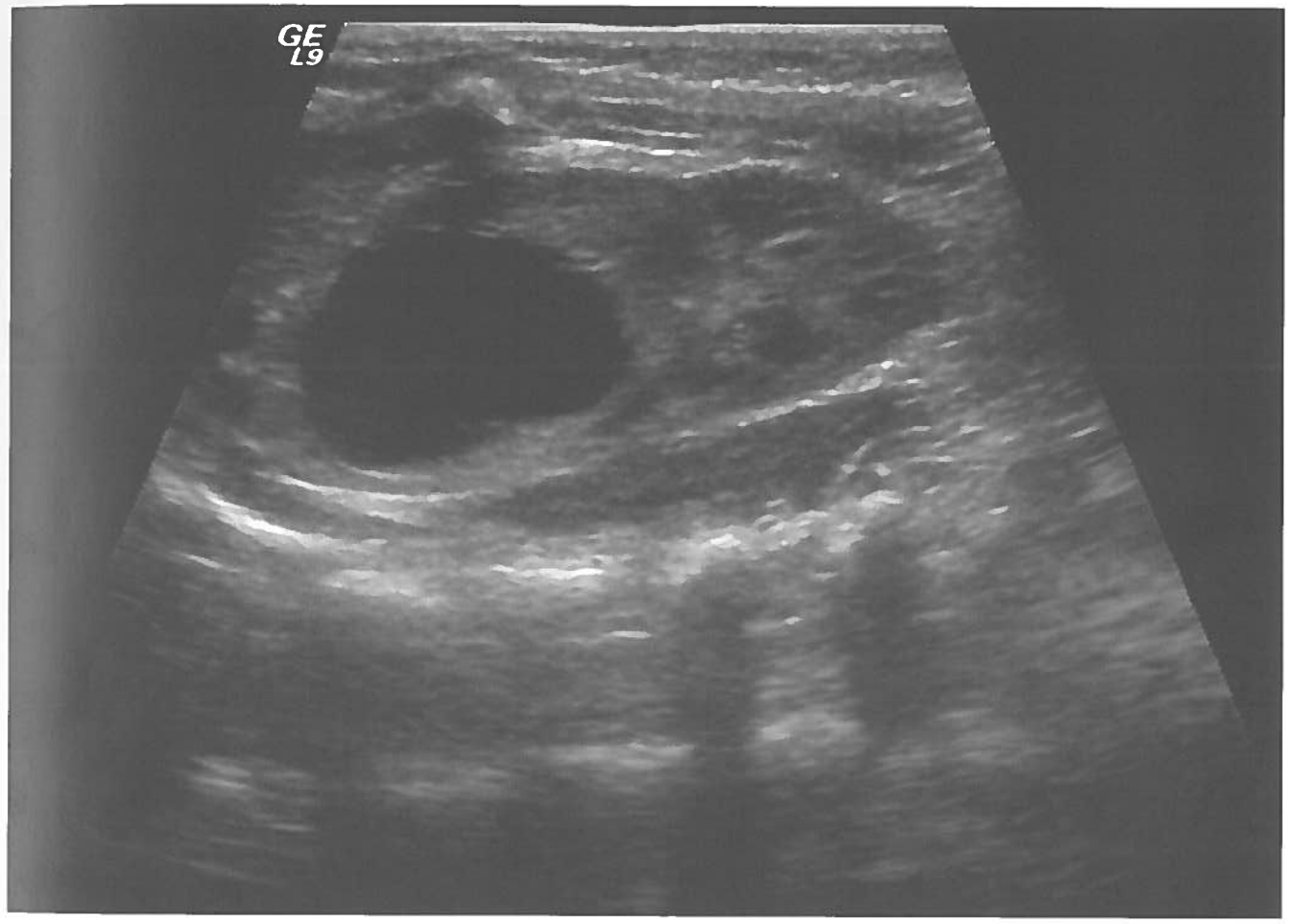
A. MRI urogram.
B. MRI scan of the spine.
C. VCUG.
D. videourodynamics.
E. MAG-3 renal scan.

50. A 38-year-old woman with a T6 spinal cord injury is treated with an indwelling catheter and oxybutynin for 18 months. She has severe urinary incontinence around the catheter and a patulous urethra at cystoscopy. Videourodynamics performed with a urethral catheter balloon occluding the urethra shows detrusor overactivity, a bladder capacity of 75 mL, and bilateral grade 4 VUR. The next steps are:

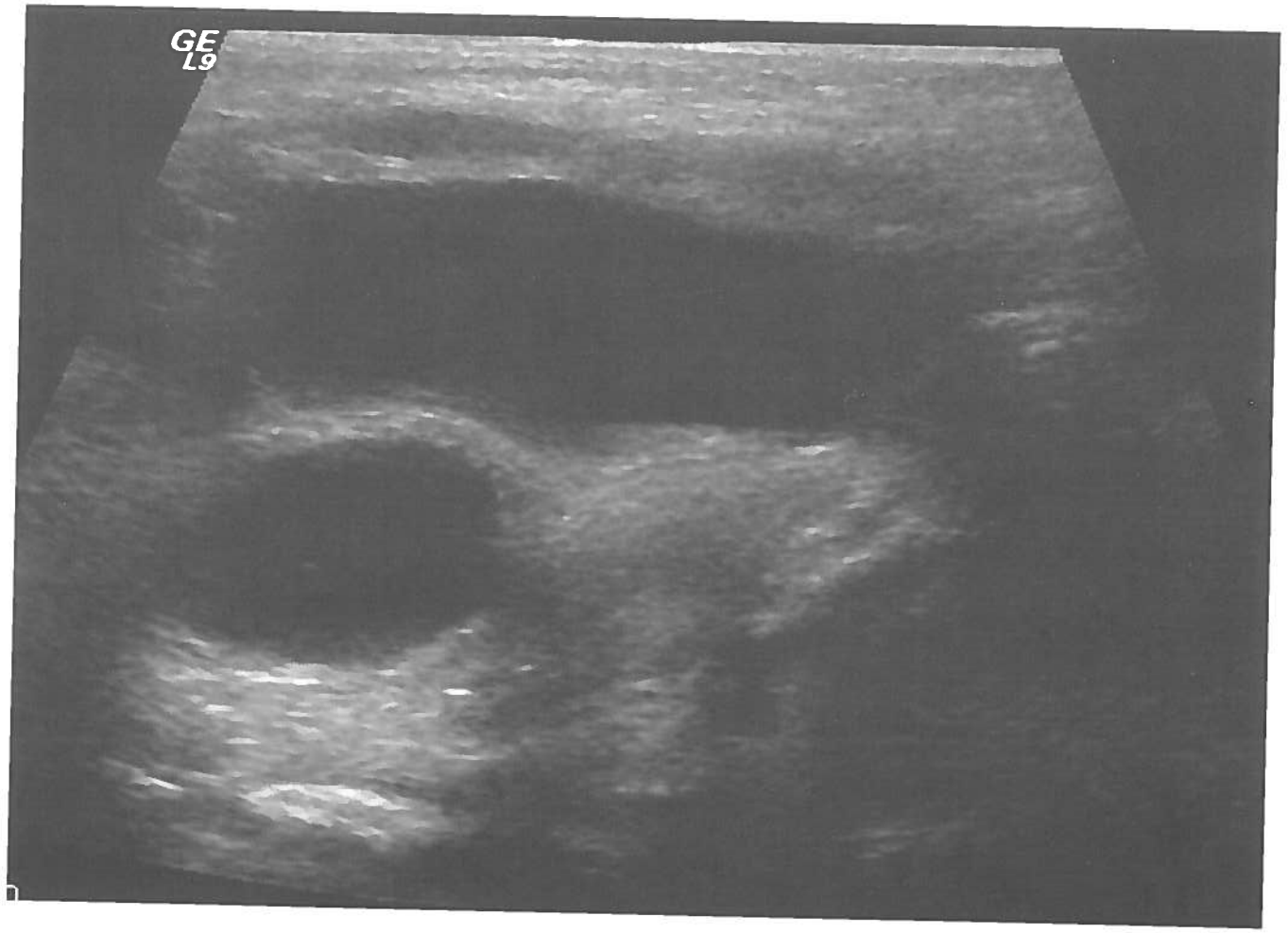
A. antimuscarinics and suprapubic tube placement.
B. antimuscarinics, urethral sling placement, and CIC.
C. antimuscarinics, bulking agent injection, and CIC.
D. urethral sling placement, augmentation cystoplasty, and CIC.
E. ileovesicostomy.

51. A two-month-old girl has a prenatal history of right hydronephrosis. Neonatal ultrasound images of the right kidney and bladder are shown. The most likely embryologic event to explain this anomaly is:

A. an adynamic distal ureteral segment.
B. a persistence of Chwalla membrane.
C. a cephalad origin of a ureteral bud off the mesonephric duct.
D. a muscular weakness of the trigone of the bladder.
E. early bifurcation of the ureteral bud.



Additional imaging on next page.



52. A man with erectile dysfunction, diabetes, and an associated autonomic neuropathy complains of debilitating diplopia with sildenafil despite obtaining an excellent erectile response. He should be advised to discontinue sildenafil and:

A. seek an ophthalmologic consultation.
B. use intracavernosal injections.
C. use an intra-urethral suppository.
D. use vardenafil.
E. use tadalafil.

53. A 53-year-old man has atypical small acinar proliferation (ASAP) on prostate biopsy. This suggests that the diagnosis of prostate cancer cannot be made due to insufficient:

A. gland size.
B. gland number.
C. nuclear atypia.
D. basal cells.
E. luminal cells.

54. A 22-year-old woman with spina bifida is found to have a tethered cord. Pressure-flow urodynamic studies will most likely demonstrate:

A. detrusor overactivity.
B. smooth sphincter dyssynergia.
C. decreased sensation.
D. stress urinary incontinence.
E. detrusor underactivity.

55. A 52-year-old man with hematuria has a right-sided 4 cm infiltrative renal mass distorting the collecting system. He had a left radical nephrectomy for RCC three years ago. Chest and abdominal CT scans are otherwise negative. The next step is:

A. radiofrequency ablation.
B. partial nephrectomy.
C. radical nephrectomy.
D. sunitinib.
E. percutaneous biopsy of the renal mass.

56. A five-year-old boy has a one day history of frequency, dysuria, and gross hematuria. Urinalysis is significant for 10-20 WBC/hpf and too numerous to count RBC/hpf. Oral amoxicillin is started. Two days later, his symptoms are unchanged. The urine culture is negative. An ultrasound shows normal kidneys and diffuse bladder wall thickening. The next step is:

A. observation.
B. change antibiotics.
C. fluconazole.
D. steroids.
E. cystoscopy and bladder biopsy.

57. A 32-year-old man has left flank pain. Scout film and retrograde pyelogram are shown. The next step is:

A. CT scan without contrast.
B. CT scan with I.V. contrast.
C. SWL.
D. PCNL.
E. laparoscopic calyceal diverticulectomy.

58. A nine-year-old boy previously treated for a pelvic rhabdomyosarcoma with combined therapy including XRT has a solitary kidney with marked hydronephrosis and a serum creatinine of 1.8 mg/dL. His creatinine normalizes after nephrostomy placement. A nephrostogram shows a 2.5 cm mid-ureteral stricture. Urodynamics reveal a detrusor pressure of 20 cm H_2O at a volume of 150 mL. The most appropriate management is:

A. cutaneous ureterostomy.
B. ureteral reimplant with psoas hitch.
C. Boari flap.
D. ileal ureter.
E. autotransplantation.

59. A 63-year-old man goes into acute urinary retention one day after brachytherapy for low-risk prostate cancer. After two weeks with an indwelling urethral catheter and alpha-blockade, he fails a voiding trial. He is started on CIC and finasteride. The next step is:

A. pressure flow study.
B. cystoscopy.
C. UroLift®.
D. wait three months, if unable to void spontaneously, perform TUIP.
E. wait one year, if unable to void spontaneously, perform TURP.

60. A 47-year-old healthy woman has a mid-urethral sling to treat stress urinary incontinence. Optimal prophylaxis against DVT should include early postoperative ambulation and:

A. nothing else.
B. graduated compression stockings.
C. intermittent pneumatic compression.
D. aspirin.
E. low molecular weight heparin.

61. The urodynamic finding most predictive of new onset hydronephrosis in a 32-year-old T10 spinal cord injured man managed with antimuscarinic medication and CIC is:

A. bladder compliance < 10 mL/cm H_2O.
B. involuntary bladder contraction amplitude of > 100 cm H_2O.
C. detrusor LPP < 25 cm H_2O.
D. maximum urethral closure pressure > 100 cm H_2O.
E. detrusor areflexia at bladder capacity.

62. The most significant difference between ureteroscopy and SWL in the treatment of a 1 cm lower pole kidney stone is:

A. stone-free rate.
B. need for stenting.
C. length of stay.
D. postoperative complication rate.
E. return to work.

63. A 45-year-old man has a local excision of a pT1 low-grade squamous cell carcinoma of the glans penis. He has a palpable lymph node in the left groin that remains after four weeks of antibiotics. The next step is:

A. observation.
B. fine-needle aspiration of lymph node.
C. left superficial inguinal lymphadenectomy.
D. left complete inguinal lymphadenectomy.
E. left complete and right superficial inguinal lymphadenectomy.

64. A 58-year-old asymptomatic man has a PSA of 2.4 ng/mL and a normal DRE. He is taking finasteride 1 mg daily to prevent hair loss. The next step is to:

A. repeat PSA in one year.
B. repeat PSA in six months.
C. obtain free/total PSA ratio.
D. stop finasteride and repeat PSA in four months.
E. recommend prostate needle biopsy.

65. A 48-year-old healthy woman with intermittent abdominal pain has a non-contrast CT scan with a 2 cm solid adrenal mass measuring 8 Hounsfield units. The metabolic evaluation is normal. The next step is:

A. no further imaging.
B. pre- and post-contrast CT scan.
C. MRI scan with gadolinium.
D. MIBG scan.
E. percutaneous biopsy.

66. A 16-year-old girl has increased intraoperative bleeding during open revision of the catheterizable channel in a continent ileocecal reservoir (Indiana pouch). The bleeding is likely due to:

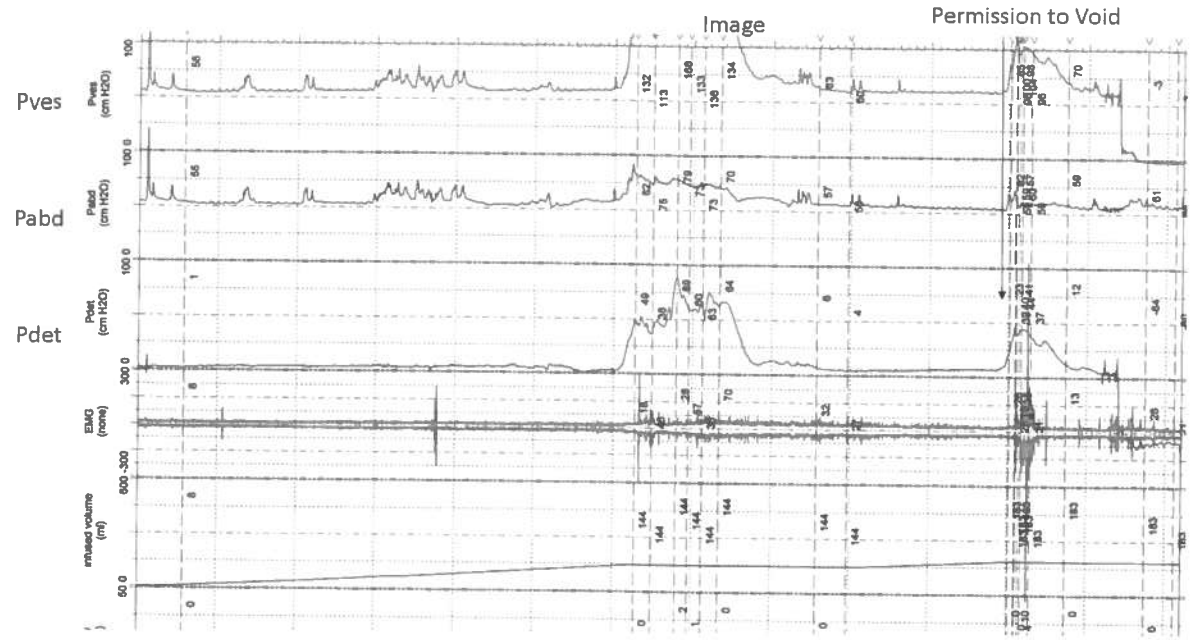
A. increased bleeding time.
B. increased PT.
C. thrombocytopenia.
D. decreased factor VIII level.
E. decreased von Willebrand's factor.

67. A 62-year-old man with Klinefelter syndrome underwent a mastectomy for breast cancer three months ago. He complains of decreased energy and decreased libido. Total testosterone is 210 ng/dL and LH is 15 IU/L. The next step is therapy with:

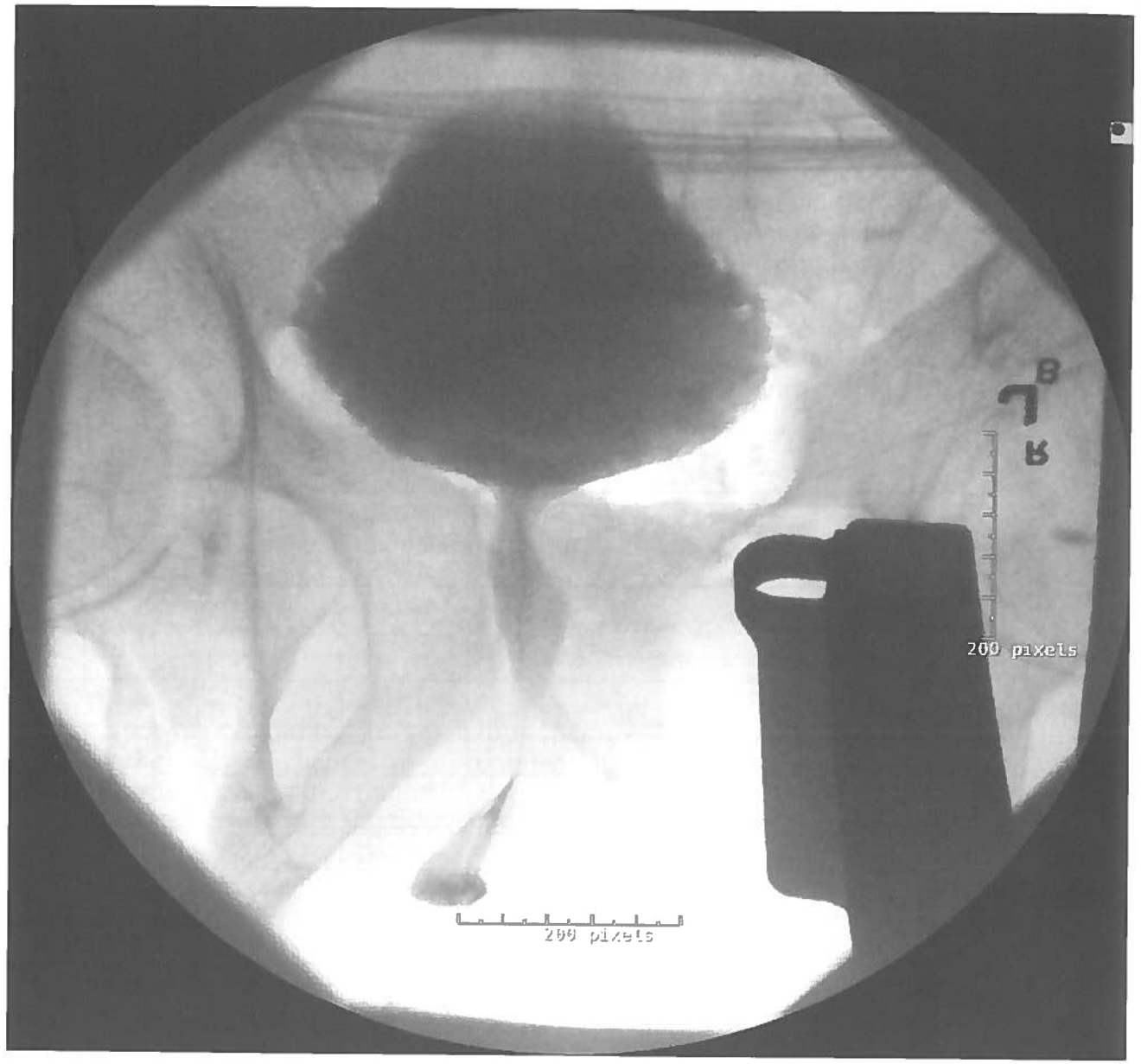
A. oral phosphodiesterase inhibitors.
B. low dose transdermal estrogen.
C. aromatase inhibitors.
D. testosterone.
E. beta-hCG.

68. A 75-year-old man with Parkinson's disease has worsening urinary incontinence and LUTS despite tamsulosin. PVR is 80 mL and urinalysis is negative. Videourodynamics is shown with image taken at a point of urinary urgency. The next step is:

A. CIC.
B. beta-3 agonist.
C. onabotulinumtoxinA injections.
D. sacral neuromodulation.
E. artificial urinary sphincter.



Additional imaging on next page.



69. When dissecting the ureterovesical junction during an extravesical ureteral reimplantation, the vas deferens is located:

A. anterior to the ureter.
B. posterior to the ureter.
C. lateral to the umbilical artery.
D. anterior to the superior vesical artery.
E. lateral to the gonadal artery.

70. A 24-year-old infertile man has a normal physical examination, serum testosterone of 340 ng/dL and isolated oligospermia with normal volume on two semen analyses. His wife's evaluation is normal. The next step is:

A. repeat semen analysis.
B. antisperm antibody testing.
C. scrotal ultrasound.
D. intrauterine insemination.
E. adoption.

71. Patients with calcium oxalate calculi and hyperuricosuria should obtain their dietary protein intake from vegetables and:

A. poultry.
B. fish.
C. red meat.
D. dairy products.
E. nuts.

72. Six hours after a Gomco clamp circumcision in the nursery, a 5 mm skin separation on the ventral side with exposed subcutaneous tissue is noted. The next step is:

A. wet-to-dry dressing changes.
B. suture the skin edges.
C. suture the skin edges under general anesthesia.
D. split thickness skin graft.
E. full thickness skin graft.

73. A 68-year-old man with advanced prostate cancer is to receive sipuleucel-T (PROVENGE®). Premedication should include acetaminophen and:

A. antihistamine.
B. mineralocorticoid.
C. glucocorticoid.
D. benzodiazepine.
E. opioid.

74. A 20-year-old man has concurrent gross hematuria and a severe sore throat. His temperature is 38° C and blood pressure is 150/80 mm Hg. His hemoglobin is 12.9 g/dL, WBC 16,400 cu mm, BUN 34 mg/dL, and creatinine 2.6 mg/dL. Urine dipstick shows 2+ protein, 4+ blood, and is otherwise negative. Renal ultrasound reveals no hydronephrosis. He had a similar episode five years ago. The next step is:

A. amoxicillin.
B. prednisolone.
C. ACE inhibitor.
D. non-contrast CT scan.
E. renal biopsy.

75. A 23-year-old woman has bothersome urinary leakage during soccer games and denies incontinence at other times. Regimented pelvic floor muscle training has not improved her incontinence. The next step is:

A. imipramine.
B. incontinence pessary.
C. radiofrequency ablation (Renessa®).
D. mid-urethral sling.
E. pubovaginal sling.

76. A 34-year-old woman has been prescribed topiramate for seizures. She now suffers from recurrent stone events. She wishes to continue the medication. To reduce stone risk, the next step is:

A. allopurinol.
B. captopril.
C. potassium citrate.
D. sodium bicarbonate.
E. thiazide.

77. A 62-year-old healthy woman with metastatic urothelial carcinoma receives gemcitabine/cisplatinum chemotherapy with disease stabilization. Six months later, she has disease progression. Her creatinine is 1.8 mg/dL. The next step is:

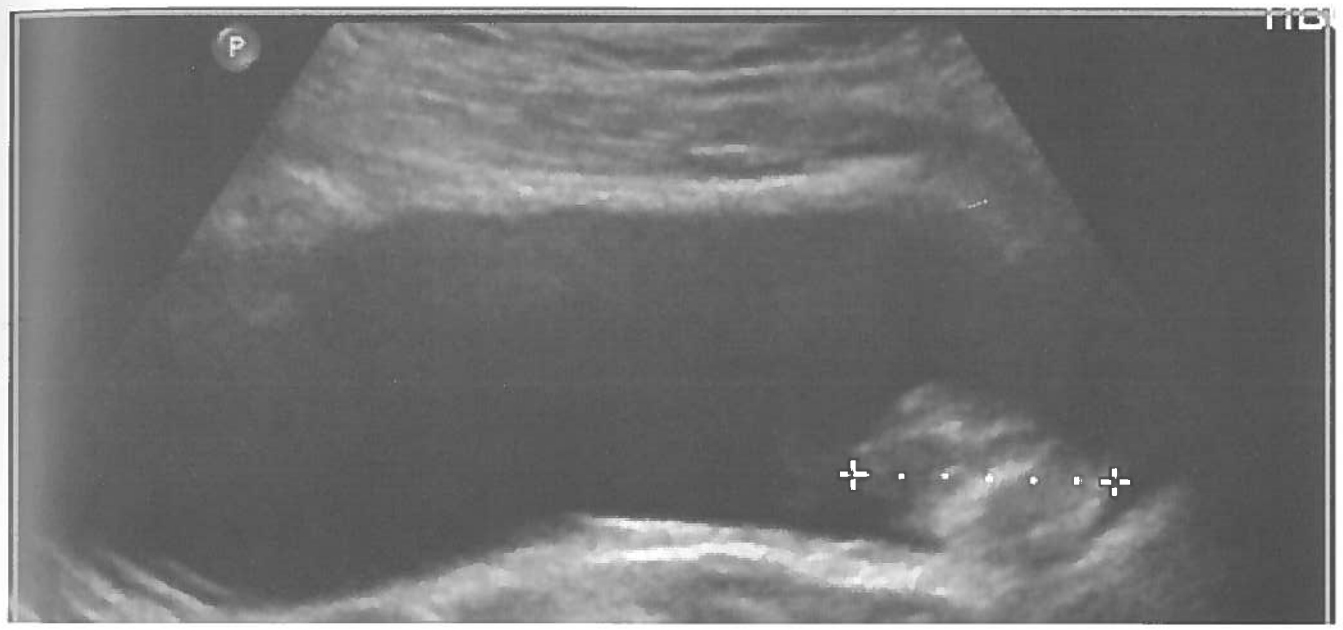
A. observation.
B. gemcitabine/carboplatinum.
C. dose-dense M-VAC.
D. nivolumab.
E. cabozantinib.

78. A 65-year-old woman on chronic narcotics for cervical disc disease is scheduled for a radical cystectomy for a cT3N0M0 urothelial cancer on the dome of her bladder. Her creatinine is 1.2 mg/dL and urinalysis shows 1+ protein. The following is contraindicated:

A. a combined epidural and general anesthetic.
B. the use of alvimopan (Entereg™).
C. a robotic approach to cystectomy.
D. a continent cutaneous diversion.
E. an orthotopic neobladder.

79. A ten-year-old boy has several weeks of dysuria and intermittent gross hematuria. Urine culture is negative. Bladder ultrasound is shown. Transurethral biopsy reveals diffuse inflammatory cells and eosinophils throughout the entire bladder wall. The next step is:

A. observation.
B. oral antibiotics for 14 days.
C. oral antibiotics, steroids, and antihistamines.
D. repeat cystoscopy and TUR.
E. partial cystectomy.



80. The most effective way to minimize the risk of nephrogenic systemic fibrosis for ESRD patients undergoing MRI scan with I.V. gadolinium is to:

A. use gadodiamide as contrast agent.
B. use gadobutrol as contrast agent.
C. use gadoteridol as contrast agent.
D. perform peritoneal dialysis after MRI scan.
E. perform hemodialysis after MRI scan.

81. A 68-year-old woman with multiple sclerosis and a chronic indwelling catheter for five years has a 24 French suprapubic tube placed. Six weeks postoperatively, she has urinary incontinence despite antimuscarinics. Cystoscopy shows the suprapubic tube to be in good position, bladder capacity is 60 mL, and urine leaks per urethra with filling. The next step is:

A. bulking agent.
B. mid-urethral sling.
C. upsize suprapubic catheter.
D. augmentation cystoplasty.
E. ileal conduit.

82. A 79-year-old woman has a bulking agent injection for stress incontinence. Post-procedurally, the nurse tells you the injected material has expired. The next step is:

A. disclose to patient and initiate safety event reporting system (SERS).
B. notify Joint Commission.
C. consult legal service.
D. remove injectable.
E. I.V. antibiotics.

83. A 60-year-old, 80 kg man has bothersome diurnal urinary frequency. Urinalysis is normal. His voiding diary shows fluid intake of 1800 mL/24 hours. Total urine output is 3500 mL/24 hours (12 voids) with 800 mL overnight (3 voids). The next step is:

A. sleep study.
B. fasting glucose.
C. overnight water deprivation test.
D. alpha-adrenergic blocker.
E. antimuscarinic medication.

84. During videourodynamics, a 61-year-old woman with mixed incontinence has immediate leakage with filling at 10 mL volume. The next step is:

A. increase size of catheter tubing.
B. check catheter position fluoroscopically.
C. change to air-charged catheter.
D. change fluid medium.
E. increase fill rate.

85. A 45-year-old man has bothersome LUTS and a newly discovered 2 cm proximal penile urethral stricture. The best initial treatment is:

A. urethral balloon dilation.
B. dilation with urethral sounds.
C. endoscopic urethrotomy.
D. augmentation urethroplasty with buccal graft.
E. excision and primary anastomosis.

86. A 68-year-old woman has a vaginal bulge and stress urinary incontinence. Physical exam shows a POP-Q of Ba: +1, C: 0, D: -5, Bp: -2, TVL: 8 cm. Loss of urine is seen with cough. PVR is 110 mL and urinalysis is negative. The next step is sling and:

A. cystocele repair.
B. cystocele and rectocele repair.
C. transvaginal hysteropexy.
D. abdominal sacrouteropexy.
E. vaginal hysterectomy and cystocele repair.

87. During test stimulation for neuromodulation, a woman describes a tapping sensation in the perianal area. Anal bellows is seen and there is no lower extremity movement with stimulation. The next step is:

A. place temporary lead in this location.
B. place needle in foramen one level above.
C. place needle in foramen one level below.
D. place needle in contralateral foramen at same level.
E. advance needle deeper into foramen and re-test.

88. A 35-year-old man who had an uncomplicated vasectomy seven months ago has had gradually declining sperm concentrations on his three prior post-vasectomy semen analysis (PVSA) tests. His PVSA now reveals 90,000 non-motile sperm/mL. The next step is:

A. repeat a PVSA in one month.
B. undergo a repeat vasectomy.
C. stop using contraception.
D. submit a post-ejaculate urinalysis.
E. continue contraception use in partner.

89. During a left radical nephrectomy for a large tumor, a major artery is inadvertently transected. The artery most commonly mistaken for the renal artery in this setting is the:

A. inferior mesenteric.
B. superior mesenteric.
C. inferior adrenal.
D. splenic.
E. hypertrophied lumbar.

90. Avanafil (Stendra™) is distinct from the other PDE-5 inhibitors in that it:

A. has the longest half-life.
B. has the least side effects.
C. has the greatest efficacy.
D. is absorbed without impact by high-fat meals.
E. is indicated for onset within 15 minutes.

91. A 42-year-old woman with abdominal pain has a non-contrast CT scan that demonstrates a retroperitoneal mass encasing the aorta and inferior vena cava and no hydronephrosis. Serum creatinine is 5.0 mg/dL and serum potassium is 5.0 mEq/L. Percutaneous biopsy of the mass demonstrates no evidence of malignancy. The next step is:

A. diuretic renogram.
B. abdominal and pelvic MRI scans.
C. oral corticosteroids.
D. bilateral ureteral stent placement.
E. ureterolysis.

92. A 74-year-old healthy woman had multiple low grade pTa urothelial carcinomas over the past three years. She receives induction BCG and has a solitary 2 mm papillary tumor nine months later. The next step is fulguration and:

A. observation.
B. maintenance BCG.
C. repeat six week course of BCG.
D. intravesical valrubicin.
E. radical cystectomy.

93. Two days after completing his first penile intralesional collagenase injection, a 43-year-old man is awakened with significant penile pain and severe swelling which is confirmed on examination. The next step is:

A. delay his second injection for one week.
B. discontinue intralesional collagenase injections.
C. ibuprofen.
D. cystoscopy.
E. penile exploration.

94. A 32-year-old man sustains a scrotal avulsion injury. Fifty percent of the remaining scrotal skin is bruised and dusky. The next step is:

A. observation for 24 hours.
B. place a wound vacuum-assisted closure dressing.
C. debridement and primary closure.
D. place testicles in thigh pouches.
E. reconstruction with split-thickness skin graft.

95. A 55-year-old man had laparoscopic cryoablation for a 3 cm Fuhrman grade 3 clear cell RCC of the right kidney. MRI scans at one and two years postoperatively are shown. His creatinine is 1.8 mg/dL (estimated GFR of 40 mL/min/1.73 m^2) and he is asymptomatic. The next step is:

A. continued surveillance.
B. repeat laparoscopic cryoablation.
C. percutaneous cryoablation.
D. laparoscopic partial nephrectomy.
E. laparoscopic radical nephrectomy.

Additional imaging on next page.

96. A 38-year-old woman has had multiple calcium phosphate stone events requiring SWL and ureteroscopy. A 24-hour urine collection shows calcium 195 mg (normal < 200), oxalate 25 mg (normal < 40), citrate 600 mg (normal > 500), sodium 140 mg (normal < 150), pH 6.8 (normal 5.8-6.2), and volume 2.0 liters. To best reduce future stone events, the next step is:

A. dietary protein restriction.
B. dietary sodium restriction.
C. magnesium oxide/pyridoxine.
D. potassium citrate.
E. thiazide.

97. In addition to a similar histologic appearance, penile CIS and Bowenoid papulosis share a similar:

A. age at presentation.
B. growth pattern.
C. association with HPV-16.
D. risk of malignant progression.
E. treatment.

98. Consumption of 2000 mg/day of Vitamin C will result in:

A. hypercalciuria.
B. hyperoxaluria.
C. hyperuricosuria.
D. hypocitraturia.
E. low urinary pH.

99. A 32-year-old infertile man has two semen analyses that both reveal low ejaculate volume azoospermia. Both samples were centrifuged and the pellets revealed no sperm. The vas deferens and the distal 2/3 of his epididymides are absent bilaterally. The genetic testing that should be ordered is:

A. KAL-1 gene mutation.
B. androgen receptor gene mutation.
C. cystic fibrosis transmembrane conductance regulator gene mutation (CFTR).
D. Y-chromosome microdeletion.
E. karyotype.

100. A 47-year-old man with a history of pelvic XRT for colon cancer and chronic bilateral ureteral stents develops persistent gross hematuria. Cystoscopy and CT scan of the abdomen and pelvis are normal. The next step is:

A. bed rest, hydration, and serial hematocrit evaluation.
B. selective angiography.
C. ureteral stent exchange.
D. ureteroscopy.
E. abdominal exploration.

101. A 70–year-old man has a radical cystoprostatectomy with a right colon continent cutaneous diversion. Twenty-four days postoperatively, his pouch output becomes feculent. He is clinically stable. A CT scan shows a fistula between his pouch and his bowel anastomosis without evidence of distal bowel obstruction. The next step is to place a catheter in the pouch and:

A. start an elemental (low residue) diet.
B. begin TPN with NPO status.
C. place bilateral nephrostomy tubes.
D. perform a diverting ileostomy.
E. perform a re-do ileocolostomy and repair pouch.

102. A 33-year-old infertile man has a serum testosterone level of 150 ng/dL and an LH of 1.5 IU/L. The medication most likely responsible is:

A. exogenous testosterone.
B. hydrocodone.
C. sertraline.
D. risperidone.
E. finasteride.

103. A 52-year-old man with CIS of the bladder undergoes an induction course of intravesical BCG. A biopsy six weeks after completion of induction therapy shows persistent CIS. The next step is:

A. intravesical BCG.
B. intravesical valrubicin.
C. intravesical mitomycin C.
D. intravesical gemcitabine.
E. neoadjuvant chemotherapy and radical cystectomy.

104. The FDA warning for fluoroquinolone antibiotics states that these agents should be avoided for:

A. treatment of uncomplicated UTIs.
B. prophylaxis prior to cystoscopy.
C. long-term use (> 7 days).
D. male patients.
E. patients with fibromyalgia.

105. A 76-year-old man with diabetic neuropathy and normal renal function has cT2 urothelial carcinoma and multifocal CIS of the bladder. The next step is:

A. neoadjuvant M-VAC.
B. neoadjuvant gemcitabine and cisplatin.
C. neoadjuvant paclitaxel and carboplatin.
D. cisplatin plus XRT.
E. radical cystectomy.

106. A 33-year-old man with cystinuria is treated with potassium citrate and alpha-mercaptopropionylglycine. Urinary cystine excretion has decreased and urinary pH is between 7 and 7.5. He continues to pass stones. The next step is:

A. add captopril.
B. increase potassium citrate.
C. increase dietary methionine.
D. sodium nitroprusside test.
E. stone analysis.

107. Evidence based medicine requires prioritization of:

A. etiologic/mechanistic literature.
B. studies with significant p values.
C. original single studies.
D. primary resources of evidence.
E. secondary resources of evidence.

108. Twelve weeks following right PCNL for a staghorn calculus, a 64-year-old man has persistent drainage from his flank despite ureteral stent and urethral catheter placement for the past ten weeks. Estimated GFR is 80 mL/min/1.73 m^2. Renal scan demonstrates 10% differential function in the right kidney. The next step is:

A. observation.
B. placement of a larger stent.
C. placement of a percutaneous nephrostomy tube.
D. open repair of fistula tract.
E. nephrectomy.

109. Following a unilateral sacrospinous fixation, a 66-year-old woman has pain radiating down her right leg. It does not improve with conservative measures after one month. The nerve most likely involved is the:

A. obturator.
B. femoral.
C. sciatic.
D. pudendal.
E. inferior gluteal.

110. A 32-year-old man with multiple sclerosis underwent 200 U intravesical onabotulinumtoxinA injection two months ago. He reports improved but persistent urgency urinary incontinence despite CIC every four hours. Urinalysis is negative. He also reports that one month ago he had a 75 U onabotulinumtoxinA injection for upper limb spasticity. The next step is:

A. inject 100 U onabotulinumtoxinA.
B. inject 200 U onabotulinumtoxinA.
C. inject 300 U onabotulinumtoxinA.
D. inject 100 U onabotulinumtoxinA in one month.
E. inject 200 U onabotulinumtoxinA in one month.

111. A 32-year-old woman has a blood pressure of 165/100 mm Hg on daily hydrochlorothiazide 25 mg. CT scan demonstrates a "string of beads" appearance of the left renal artery. The next step is:

A. add lisinopril.
B. renal function scan.
C. renal artery stenting.
D. percutaneous transluminal renal artery angioplasty.
E. renal artery revascularization.

112. A 43-year-old man who desires a biologic child reports orgasm without antegrade emission for the past two years. Physical exam, testosterone, and FSH assays are normal. The next step is:

A. post-ejaculatory urine.
B. transrectal ultrasound.
C. spine MRI scan.
D. HbA1c.
E. pseudoephedrine.

113. A 45-year-old woman develops Clostridium difficile colitis after antibiotic treatment for uncomplicated cystitis. She is febrile with a WBC of 20,000/mL. The appropriate treatment is:

A. oral metronidazole.
B. oral vancomycin.
C. oral metronidazole and vancomycin.
D. I.V. metronidazole.
E. rectal vancomycin.

114. An infant has penoscrotal hypospadias, bilateral non-palpable gonads, and a bifid scrotum. Laparoscopy reveals a left intra-abdominal testis and right streak gonad with a right oviduct and rudimentary uterus. The most likely diagnosis is:

A. pure gonadal dysgenesis.
B. mixed gonadal dysgenesis.
C. hernia uteri inguinale.
D. ovo-testicular disorder.
E. CAH.

115. During an open abdominal sacrocolpopexy, significant bleeding is noted at the time of sacral suture placement. In addition to fluid resuscitation, the next step is:

A. suture ligate sacral vessels.
B. sterile tack placement into sacrum.
C. close retroperitoneum and abandon operation.
D. angioembolization of pudendal vessels.
E. cross clamp iliac vessels.

116. A prospective, phase 3 randomized controlled trial has demonstrated that the addition of an anti-reflux mechanism to orthotopic urinary diversion:

A. reduces the rate of urinary infection.
B. reduces the rate of renal failure.
C. reduces the risk of urinary retention.
D. increases the overall late complication rate.
E. increases the rate of secondary surgeries.

117. According to the AUA Guidelines, extracorporeal shock wave therapy (ESWT) is an option for the treatment of Peyronie's disease for:

A. penile pain.
B. penile curvature > 90 degrees.
C. penile curvature < 30 degrees.
D. hourglass deformity.
E. calcified penile plaques.

118. A 73-year-old man undergoes a radical cystoprostatectomy with creation of an ileal conduit for extensive CIS. At one year follow-up, a loopogram demonstrates reflux of contrast into markedly dilated upper tracts bilaterally and an elongated ileal conduit. The most likely etiology of this condition is:

A. parastomal hernia.
B. uretero-ileal anastomotic strictures.
C. anti-peristaltic ileal conduit.
D. tumor recurrence.
E. stomal stenosis.

119. A six-year-old girl with urge incontinence demonstrates squatting behavior to try to prevent leakage. The next step is:

A. pelvic floor biofeedback.
B. holding exercises and limiting of fluid intake.
C. laxatives and elimination of caffeine.
D. antimuscarinic medication.
E. posterior tibial nerve stimulation.

120. A 15-year-old girl with spina bifida has a sigmoid augmentation and appendicovesicostomy. She catheterizes five times a day and is continent. She has recurrent bladder calculi. The best option for reducing her risk of stone formation is daily bladder irrigation and:

A. thiazide diuretics.
B. prophylactic trimethoprim sulfamethoxazole.
C. potassium citrate.
D. intravesical gentamicin irrigation.
E. daily catheterization per urethra.

121. During laparoscopic left varicocelectomy, several bleeding vessels anterior to the psoas muscle are controlled with electrocautery. Postoperatively, the patient complains of numbness on his anterior thigh and scrotum. The nerve most likely injured is the:

A. iliohypogastric.
B. ilioinguinal.
C. posterior femoral cutaneous.
D. genitofemoral.
E. anterior obturator branch.

122. A 58-year-old obese man is undergoing a planned ileal conduit after radical cystectomy. He has a thick abdominal wall and short mesentery that makes the creation of a properly protruding end ileal stoma difficult. The next step is:

A. move ostomy lateral to rectus fascia.
B. create loop ileostomy (Turnbull).
C. convert to transverse colon conduit.
D. create orthotopic ileal neobladder.
E. perform ureterosigmoidostomies.

123. A 28-year-old man is hemodynamically stable after an MVC. CT scan reveals a 1 cm laceration into the right renal parenchyma with no urine extravasation. Two days after injury, he has worsening right flank pain. His hemoglobin is 14 g/dL. The next step is:

A. observation and pain control.
B. DMSA scan.
C. contrast CT scan.
D. renal ultrasound with Doppler.
E. retrograde pyelogram.

124. An 11-year-old boy with Lesch-Nyhan syndrome has a history of recurrent stones. He is stone-free after PCNL. Despite allopurinol and high fluid intake, he passes several stones over the next three months. Analysis shows xanthine stones. The next step is:

A. discontinue allopurinol.
B. increase allopurinol.
C. potassium citrate.
D. thiazide diuretic and low sodium diet.
E. evaluate for combined liver and renal transplant.

125. A 14-year-old boy with neurogenic bladder secondary to spina bifida is on CIC and maximal antimuscarinic therapy. Annual ultrasound demonstrates new bilateral hydronephrosis and videourodynamic study demonstrates increased bladder trabeculation, worsening bladder compliance, and a maximum cystometric capacity of 220 mL. Before bladder augmentation, he should undergo:

A. KUB.
B. EMG.
C. CT scan.
D. MRI scan of the spine.
E. intestinal transport studies.

126. A 38-year-old man with multiple pulmonary metastases undergoes cytoreductive right radical nephrectomy. Final pathology demonstrates collecting duct RCC. The next step is:

A. interleukin-2.
B. bevacizumab.
C. sunitinib.
D. temsirolimus.
E. cisplatin-based chemotherapy.

127. Women considering flibanserin (Addyi™) for the treatment of hypoactive sexual desire disorder should:

A. avoid alcohol consumption.
B. discontinue use of selective serotonin reuptake inhibitors.
C. discontinue use of digoxin.
D. avoid pregnancy.
E. avoid taking flibanserin if they are pre-menopausal.

128. The minimum level of disinfection recommended for flexible cystoscopes is:

A. cleaning.
B. low-level disinfection.
C. medium-level disinfection.
D. high-level disinfection.
E. sterilization.

129. A 60-year-old man undergoes inguinal orchiectomy with high ligation of the cord for an 8 cm solid mass of the right spermatic cord. Abdominal/pelvic CT scan is normal. Adjuvant XRT to the groin should be considered if the final pathology is:

A. liposarcoma.
B. rhabdomyosarcoma.
C. malignant fibrous histiocytoma.
D. angiosarcoma.
E. mesothelioma.

130. A 25-year-old man has a solitary painless ulcer on the glans penis. Rapid plasma reagin (RPR) testing of the ulcer is positive. The next step is:

A. VDRL testing.
B. fluorescent treponemal antibody absorbed (FTA-ABS) testing.
C. ceftriaxone.
D. benzathine penicillin G.
E. azithromycin.

131. A false negative diuretic renogram can be due to:

A. renovascular hypertension.
B. dehydration.
C. poor renal function.
D. inadequate diuretic dosage.
E. a full bladder.

132. On postoperative day one following ureteroscopy performed under spinal anesthesia, a 47-year-old man complains of low back pain radiating down both legs. The most likely diagnosis is:

A. cerebrospinal fluid leak.
B. epidural abscess.
C. epidural hematoma.
D. lidocaine toxicity.
E. positional neuropathy.

133. A 51-year-old woman has an incidentally discovered 3 cm right adrenal mass on ultrasound. Metabolic evaluation is normal. The next step is:

A. no further evaluation.
B. repeat metabolic evaluation in three months.
C. repeat ultrasound in six months.
D. non-contrast CT scan.
E. gadolinium-enhanced MR washout study.

134. Citrate inhibits urinary calcium oxalate stone formation by:

A. binding calcium.
B. binding oxalate.
C. increasing magnesium.
D. decreasing water permeability in the collecting duct.
E. alkalinizing the urine.

135. Two years after a partial penectomy for high grade pT2 squamous cell carcinoma of the penis, a 65-year-old man develops a 2 cm palpable lymph node in the right groin. Physical examination is otherwise unremarkable and metastatic work-up is negative. The next step is:

A. six weeks of antibiotic therapy.
B. excisional biopsy.
C. right superficial and deep inguinal lymphadenectomy.
D. right superficial and deep and left superficial inguinal lymphadenectomy.
E. bilateral superficial and deep inguinal lymphadenectomy.

136. A 16-year-old girl has dysuria and urinary frequency. Urinalysis demonstrates 2 to 4 WBC/hpf and 0 to 5 RBC/hpf and no bacteriuria. Urine culture results are pending. The next step is:

A. renal and bladder ultrasound.
B. pelvic ultrasound.
C. VCUG.
D. Chlamydia and Neisseria gonorrhea testing.
E. empiric trimethoprim-sulfamethoxazole.

137. Five days after an uneventful TURP, a 72-year-old man with metastatic prostate cancer is confused. He is afebrile and vital signs are normal. Serum Na is 118 mEq/L, K 4.0 mEq/L, Cl 80 mEq/L, and HCO_3 is 30 mEq/L. Serum osmolality is 240 mOsm/L, and urine osmolality is 600 mOsm/L. Urinary Na is 30 mEq/L. The next step is:

A. I.V. NS.
B. I.V. 3% saline.
C. I.V. Ringer's lactate.
D. steroid and mineralocorticoid replacement.
E. fluid restriction and ad lib salt intake.

138. Two weeks following radical hysterectomy, a 53-year-old woman has vaginal pain and continuous leakage of urine. Complete evaluation reveals an indurated, inflamed vaginal cuff, and a 6 mm vesicovaginal fistula. The next step is antibiotic therapy and:

A. placement of suprapubic tube.
B. fulguration of the fistula.
C. bilateral percutaneous nephrostomy tubes.
D. immediate fistula repair.
E. delayed fistula repair.

139. A 64-year-old man suffers a pelvic fracture and undergoes bilateral embolization of the internal pudendal arteries. Six months later, he has erectile dysfunction with a score of 5 on the International Index of Erectile Function (IIEF). The next step is:

A. daily tadalafil.
B. intraurethral alprostadil.
C. intracorporal injection with alprostadil.
D. penile revascularization.
E. placement of a penile prosthesis.

140. A 16-month-old girl with spina bifida has grade 4 unilateral VUR with moderate hydronephrosis. Despite prophylactic antibiotics, CIC, and oxybutynin, she has recurrent febrile UTIs with bilateral photopenic areas on DMSA scan. Urodynamics demonstrate a detrusor LPP of 65 cm H_2O at 20 mL capacity. The next step is:

A. intradetrusor onabotulinumtoxinA.
B. subureteric injection of bulking agent.
C. cutaneous vesicostomy.
D. ureteral reimplantation.
E. augmentation cystoplasty and ureteral reimplantation.

141. A 39-year-old man with a BMI of 35 has a 3 mm distal ureteral calculus on non-contrast CT scan. The stone was not visible on KUB. Two weeks after initial diagnosis, he remains symptomatic and has not reported passing his calculus. The next step is:

A. KUB with obliques.
B. low-dose non-contrast CT scan.
C. non-contrast CT scan.
D. cystoscopy and ureteral stent.
E. ureteroscopy.

142. A 34-year-old morbidly obese man with a history of bilateral inguinal hernia repair has infertility and a left varicocele. The best surgical approach for varicocelectomy in him is:

A. laparoscopic.
B. retroperitoneal.
C. subinguinal.
D. scrotal.
E. radiographic occlusion.

143. A 22-year-old man is diagnosed with metastatic germ cell tumor and a normal testicular examination. Scrotal ultrasound shows bilateral microlithiasis and a 3 mm hyperechoic lesion with coarse calcifications in the right testicle. After completion of chemotherapy, the next step is:

A. repeat scrotal ultrasound.
B. open bilateral testicular biopsy.
C. right partial orchiectomy.
D. right orchiectomy.
E. right orchiectomy and left testis biopsy.

144. The indication for laparoscopic nephropexy is:

A. kidney descent of more than two vertebrae with postural changes.
B. presence of decreased blood flow with postural changes.
C. easy palpation of the kidney with postural changes.
D. pain with diuresis.
E. absence of obstruction.

145. A diabetic woman has postoperative labs revealing serum Na 129 mEq/L, K 4.1 mEq/L, glucose 390 mg/dL, and creatinine 1.5 mg/dL. She likely has:

A. SIADH.
B. decreased sodium intake.
C. salt wasting nephropathy.
D. normal total body free water.
E. secondary diabetes insipidus.

146. A 40-year-old woman who underwent bariatric surgery three years ago has symptomatic stone disease. Her preoperative evaluation reveals a hemoglobin of 9.0 g/dL. The most likely cause of her anemia is:

A. iron deficiency.
B. folate deficiency.
C. Vitamin B12 deficiency.
D. ascorbic acid deficiency.
E. chronic inflammation.

147. A 75-year-old morbidly obese man with multiple co-morbidities has recurrent episodes of gross hematuria from his ileal conduit and has required repeat transfusions in the past. On inspection of the conduit, there is a large nest of dilated veins just within the stoma. The next step is:

A. continued observation.
B. evaluation for portal hypertension.
C. suture ligation of the veins.
D. revision of stoma.
E. creation of new ileal conduit.

148. A 27-year-old woman with autosomal dominant polycystic kidney disease continues to experience fever and flank pain despite one week of amoxicillin for a pan-sensitive E. coli UTI. Urine culture reveals no growth. The next step is:

A. ciprofloxacin.
B. gentamicin.
C. renal ultrasound.
D. CT scan.
E. retrograde pyelograms.

149. A 21-year-old man with metastatic NSGCT has a 5 cm liver mass and a 3 cm retroperitoneal lymph node. Serum tumor markers are elevated and chest CT scan is normal. He undergoes four cycles of BEP chemotherapy and the serum tumor markers normalize and the retroperitoneal lymph node decreases to 2 mm. The liver mass decreases to 2.5 cm. The next step is:

A. observation.
B. salvage chemotherapy.
C. radiofrequency ablation of liver mass.
D. resection of liver mass.
E. resection of liver mass and RPLND.

150. A four-year-old girl has persistent dysuria and frequency. Bowel function is normal. Urinalysis reveals 6-8 RBC/hpf, 8 WBC/hpf, and is otherwise normal. Urine culture shows no growth. Renal and bladder ultrasound are normal. The next step is:

A. observation.
B. antibiotic prophylaxis.
C. urinary calcium:creatinine ratio.
D. VCUG.
E. cystoscopy.

American Urological Association Education and Research, Inc.
Office of Education

2018 Self-Assessment Study Program

Part II - Study Booklet
Comments, References, and Answers

EXPLANATION TO PARTICIPANTS

SELF-ASSESSMENT STUDY PROGRAM

INTRODUCTION

This study booklet provides a valuable study program and should prove to be the most significant part of the Self-Assessment Study Program for you. You are urged to set aside time on several different occasions to analyze your reasoning processes as compared to those of the Examination Committee. To properly complete this part of the learning experience, it is estimated that you will need to spend approximately 20 hours reading references and related materials.

It is important that you carefully read the comments to understand why the answer is deemed to be the "best answer." You may have selected the correct answer but your logic in selecting it may differ from that of the Examination Committee. It is also very important to obtain and read the references given so that you may gain the maximum benefit of this Self-Assessment Study Program. We recommend that you do this reading even if you selected the correct answer to the question.

In closing, we recommend that you save and file all of your Self-Assessment Study Program materials. They will assist you in comparing your progress when reviewing the next SASP, and will remain valuable resource information for your practice.

SCORING

Your results are based on the total number of points you scored out of the possible 750 for the entire examination; 5 points for each correct answer.

In the Comments and References Section, the response which is deemed to be the correct answer is provided.

EXPLANATION OF PARTICIPANT PROFILE

Identification Information: Please check to be sure this corresponds with the information you filled in on your answer sheet so you can verify that you have received the appropriate report.

Type of Question: Each question is assigned to two categories for analysis and reporting. They are: 1) Problem Area and 2) Patient Type.

1) Problem Area: Each question is assigned to one of eleven Problem Areas.

a. Calculous Disease
b. Congenital Anomalies, Embryology, Anatomy
c. Core Competencies, Geriatrics, Radiation Safety and Ultrasound
d. Fluid & Electrolyte, Transplant, Hypertension, Vascular Disease, Nephrology
e. Infection & Inflammatory Disease
f. Neoplasm
g. Neurogenic Bladder, Voiding Dysfunction, Incontinence
h. Obstructive Uropathy, Laparoscopy, Robotic Surgery
i. Physiology, Immunology, Adrenal
j. Sexual Dysfunction, Endocrinopathy, Fertility Problems
k. Trauma, Fistulae
l. Urinary Diversion

2) Patient Type:

a. Adult
b. General
c. Pediatric

Number of Items: Indicates the number of examination items (questions) that were classified in each content area.

Participant Average: Indicates the percent score earned by the participant when his performance on the items was tabulated. The percent score on the total examination is also indicated at the bottom.

All data concerning performance on the Self-Assessment Study Program is processed in a secure section of the Office of Education, and the results are confidential.

EXPLANATION OF THE PEER GROUP ANALYSIS

This report indicates the performance of the participant's peer group and offers the opportunity for comparing the peer group performance to the average of all participants who completed the examination. The Peer Group is identified at the top of the report. Be sure it is accurate for you. Years since completion of residency training determined into which peer group you were categorized.

1 - 5 years	16 - 25 years
6 - 10 years	26 - 35 years
11 - 15 years	Over 35 years

0 years - Resident

Type of Question: Lists the content categories into which items were classified.

Percent Averages: Peer Group percentage is the average score for your Peer Group in each content area and on the total examination. All Groups is the average score of all examination participants in each content area and on the total examination.

Total Examination: Total average when all items of the examination are calculated.

Number of Participants in Peer Group: Number of participants in your peer group used to compute your percentile ranking which is located on the bottom of your Participant Profile.

IMPORTANT!!! CME Credit Expiration Dates

For Physicians

Products include SASP Booklets, Online, and *Qstream*

Any 2018 SASP	December 31, 2020
Any 2017 SASP	December 31, 2019
Any 2016 SASP	December 31, 2018

Please note: CME Credits expire after three years of Original Release Date.

For Physician Assistants

Products include SASP Booklets, Online, and *Qstream*

Any 2018 SASP	December 31, 2018
Any 2017 SASP	December 31, 2017
Any 2016 SASP	December 31, 2016

Question #1 — ANSWER=B

The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 65, p 1530.

Question #2 — ANSWER=D

Scrotal dog bites are managed as penetrating scrotal trauma. The best management is to explore, irrigate, debride, and repair any injured structures. Antibiotics should cover Pasteurella, Streptococcus, and Staphylococcus species. Primary closure is appropriate with tetanus prophylaxis. Rabies should be excluded in the offending dog. Without evidence of testicular injury on examination, ultrasound is not necessary. Retrograde urethrogram is only needed in the presence of history or exam suggestive of urethral trauma. Human bites are managed similarly but without primary closure.

Cummings JM, Boullier JA: Scrotal dog bites: J UROL 2000;164:57-58.

Husmann DA: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 154, p 3558.

Question #3 — ANSWER=E

Typical urodynamic findings in diabetics may include impaired bladder sensation, increased cystometric capacity, decreased bladder contractility, impaired uroflow, and, later, increased residual urine; however, some authors have suggested that detrusor overactivity is the predominant form of LUTS in diabetics. A primary question to answer in men with LUTS is the presence or absence of bladder outlet obstruction. In this patient, urodynamic data document bladder outlet obstruction, as well as probable diabetic cystopathy, in light of his decreased sensation. Cystourethroscopy excluded urethral stricture and, thus, prostatic obstruction is a primary contributor to his LUTS. While CIC, with or without medication, is an acceptable treatment, TURP will primarily address the obstruction. With resolution of the obstruction and initiation of timed voiding, he may also see an improvement in his storage symptoms. Neuromodulation is not indicated in a patient with bladder outlet obstruction. Finasteride is not indicated in this patient with a small prostate.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 75, pp 1783-1784.

Question #4

ANSWER=A

Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial urothelial carcinoma of the bladder. If the recurrence is confined to the prostatic urethral epithelium, it may be completely eradicated by the TURP. Delivery of an additional course of BCG can effectively be administered and treat prostatic urethral CIS after TURP. This approach will reduce recurrence of the CIS as compared to observation and subsequent cystoscopy, and is thus a preferred treatment. Mitomycin C is a less effective agent against CIS than BCG. Repeat TURP is unnecessary after a typical TURP has been performed for BPH and obstructive symptoms. Radical cystoprostatectomy is necessary if the CIS does not respond to BCG. Otherwise, it is overly aggressive in this setting.

Jones JS: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 93, p 2213.

Question #5

ANSWER=E

Autoregulation of GFR and renal blood flow occurs primarily through variation in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in the rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFR over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 44, pp 1007-1008.

Question #6

ANSWER=E

A CT scan has more than a 90% accuracy for detection of pheochromocytomas. An advantage of MRI scan is the signal contrast resolution of soft tissue, often without the need for I.V. contrast. A T2-weighted MRI scan of pheochromocytomas have a characteristically bright "light bulb" appearance, although it is not pathognomonic since adrenocortical carcinoma and metastatic lesions can be bright on T2-weighted images. On the CT scan, the lesions appear to have Hounsfield units > 10, which makes an adrenal cyst, adenoma, and myelolipoma less likely. In addition, a myelolipoma would have high T1 signal on MRI scan.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 65, p 1567.

Bishoff JT, Rastinehad AR: Urinary tract imaging: Basic principles of computed tomography, magnetic resonance imaging, and plain film, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 2, p 49.

Question #7

ANSWER=A

The total amount of creatinine excreted each 24 hours is dependent upon muscle mass and is generally constant. An incomplete collection is suggested by an incorrect amount of total creatinine in a 24-hour specimen; the normal production of creatinine is 1.0 mg/kg/hr.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, chap 44, p 1008.

Question #8

ANSWER=B

The history, laboratory and radiologic findings in this patient are classic for a juxtaglomerular cell tumor. These rare benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by the release of sympathetic amines and do not cause hypokalemia. Patients with aldosteronomas should have suppressed plasma renin levels.

Margulis V, Karam JA, Matin SF, Wood CG: Benign renal tumors, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 56, p 1312.

Question #9

ANSWER=D

Ureteral obstruction can cause a number of deficits in nephron function. The earliest is water reabsorption, thought to be due to defects of aquaporin water channels in the collecting duct. The other transport processes listed may be attenuated, but this occurs after development of a concentrating defect.

Meldrum KK: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 48, p 1096.

Question #10

ANSWER=C

The clinical scenario describes a live donor kidney recipient who develops a ureteral fistula. Technically faulty ureteroneocystostomy will present immediately post-surgery. This delayed presentation, at one to three weeks after surgery, is typical of ureteral ischemia. In these cases, a compromised blood supply to the distal ureter results in distal ureteral necrosis with subsequent urine leakage. Initial management is endourological; however, open surgery may be required, especially to reduce the risks of prolonged healing times and potential of higher risks of infections. The elevated creatinine of the fluid suggests urine, not lymphatic fluid. Perioperative edema at the anastomosis would cause obstruction and hydronephrosis, not urinary leakage. A lymphocele would typically develop from donor lymphatics but is excluded in this case due to elevated creatinine.

Gritsch HA, Blumberg JM: Renal transplantation, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 47, p 1083.

Question #11

ANSWER=E

Excess circulating glucocorticoids may be due to adrenal adenoma or carcinoma, or to ectopic secretion of ACTH or corticotropin-releasing hormone (CRH). This patient has no evidence of Cushing disease or ACTH dependent disease. She most likely has a contralateral adrenal source and glucocorticoid suppression with metyrapone is the most appropriate next step. Agents include aminoglutethimide, which blocks the conversion of cholesterol to pregnenolone, but is not available, and metyrapone, which blocks the conversion of 11-desoxycortisol to cortisone and is the preferred choice. Ortho-para DDD (mitotane) can also be used to lower cortisol levels, but it is primarily used in the treatment of adrenocortical carcinoma given the cytotoxic effects on adrenal cells. Ketoconazole does lower cortisol levels but should not be used given the potential liver damage, and the FDA has issued a warning regarding oral ketoconazole and the risks of liver damage which has led to some cases of liver transplantation or even death. Patients given aminoglutethimide are prone to develop adrenocortical insufficiency because aldosterone production is also impaired. Metyrapone does not normally result in salt wasting because of increased production of desoxycorticosterone, a potent mineralocorticoid. A right adrenalectomy in a patient with a solitary adrenal gland would commit the patient to lifelong steroid replacement.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 65, p 1539.

Question #12

ANSWER=A

The non-contrast CT scan appearance of a large reniform mass with a renal pelvis tightly surrounding a stone is typical of xanthogranulomatous pyelonephritis. A nuclear renal scan is typically used to quantify the lack of the function of the affected kidney prior to considering nephrectomy. A diagnosis prior to surgery may be beneficial; in rare cases, antibiotics can eradicate long-term infection and improve renal function, or in some cases, the anatomy may be amenable to partial nephrectomy. If the kidney had acceptable function on DMSA scan, placement of a nephrostomy tube would be a reasonable next step. The stone burden is too large for ureteroscopy and laser lithotripsy to be successful. Given the appearance of xanthogranulomatous pyelonephritis, PCNL is not indicated. Although the patient will likely undergo a nephrectomy, it is important to establish differential function prior to undertaking this surgery.

Schaeffer AJ, Matulewicz RS, Klumpp DJ: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 12, p 286.

Question #13

ANSWER=C

Either symptomatic or asymptomatic bacteriuria discovered during pregnancy screening examinations increases a woman's risk of developing acute clinical pyelonephritis during the entire pregnancy. For this reason, a pregnant woman discovered to have bacteriuria must be treated when it is discovered. A three to seven-day course of therapy is recommended. Only if the woman has a history of recurrent UTI should prophylactic antibiotics be considered. Selection of the antibiotic agent must be made with care to avoid agents with possible teratogenic effects. The aminopenicillins and cephalosporins are considered safe throughout pregnancy. Unless there is clear evidence of a contaminated specimen, a catheterized urine specimen is not required.

Schaeffer AJ, Matulewicz RS, Klumpp DJ: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 12, pp 295-296.

Question #14

ANSWER=B

The inferior hypogastric plexus (pelvic plexus) which innervates the viscera of the pelvic cavity is a paired structure located on the side of the rectum in males and the sides of the rectum and vagina in females. Lower urinary tract dysfunction after pelvic plexus injury occurs most commonly after abdominoperineal resection (APR) and radical hysterectomy. The most common pattern for patients with prolonged post-radical pelvic surgery voiding dysfunction is the failure of bladder contraction (areflexia) and a fixed striated sphincteric tone, which continually increases outlet resistance. This generally results in an areflexic poorly compliant bladder; thus, urodynamics will usually manifest reduced compliance, an incompetent bladder neck, and fixed external sphincter tone.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 75, pp 1781-1782.

Question #15

ANSWER=E

Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction. Salt restriction as well will not usually result in a reduction in urine volume. These patients, by definition, will not respond to DDAVP. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this boy to get up once or twice per night to void. The character of this bladder will have a major impact on therapy.

Shukla AR: Posterior urethral valves and urethral anomalies, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 141, p 3265.

Question #16

ANSWER=E

Replantation of the amputated phallus is usually successful even after two hours ischemia without ice. Generally, replantation is successful up to six hours of warm, ischemia time or 16 hours of cold ischemia time. Care must be taken as to the handling of the amputated segment as frost injury may occur if improperly stored in ice. The edges should be debrided and the corpora and urethra reapproximated. Microsurgical re-anastomosis of the cavernosal arteries, dorsal vein, and cavernous nerves should be performed as expertise dictates. Complications such as skin loss, urethral stricture, and sensory abnormalities are much less common with microsurgical neurovascular re-anastomosis. Attempts to revise or close the stump or attempted neophallus construction are not indicated at this early phase after injury when replantation is possible. Psychiatric evaluation is necessary for the majority of these patients.

Morey AF, Zhao LC: Genital and lower urinary tract trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 101, pp 2381-2382.

Question #17

ANSWER=A

Genetic alterations on chromosome 3 are common in the clear cell variant of RCC but are uncommonly found in the other histologic variants, suggesting distinct pathways to tumorigenesis. The VHL tumor suppressor gene located at chromosomal locus 3p25 is mutated in approximately 50% of sporadic clear cell type RCC. The mutations of this gene result in decreased expression of hypoxia inducible factor 1 (HIF-1) and increased expression of vascular endothelial growth factor 1 (VEGF1), thereby resulting in increased angiogenesis.

Campbell SC, Lane BR: Malignant renal tumors, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 57, pp 1330-1331.

Question #18

ANSWER=B

It is not uncommon to develop pouchitis after construction of a continent urinary reservoir. This is especially true in the early postoperative period when mucous accumulation can be high. A simple program of mechanical irrigation can decrease the incidence of infections, though asymptomatic colonization may not decrease. Using a larger catheter may help urine drainage but usually does not drain all the mucous. Prophylactic antibiotics or urine acidification are useful in patients who do not respond to simple measures and remain persistently infected. A pouchogram is not the first step in evaluation and treatment at this time.

DeCastro GJ, McKiernan JM, Benson MC: Cutaneous continent urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 98, p 2324.

Question #19

ANSWER=C

This boy likely has an injury to the collecting system in a chronically obstructed kidney. The most likely sites of extravasation are the dilated pelvis or fornix; however, a UPJ disruption is also possible and needs to be excluded. The radiographic sign of importance is the absence of distal ureteral filling during the CT scan. Renal salvage is enhanced by early diagnosis which may be best confirmed by retrograde pyelography in preparation for a definitive repair. Prior to any type of open exploration, the status of the ureter needs to be defined. At the time of the retrograde pyelogram, a stent may be left in the ureter distal to the disruption to facilitate surgical dissection.

Husmann DA: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 154, p 3549.

Question #20

ANSWER=C

Overall, about 70% of patients with unifocal stage T1a (focally or minimally invasive) can be successfully managed with intravesical therapy, so at least one course of intravesical therapy should be strongly considered. Immunomodulators such as BCG or interferon are dependent on an intact immune system, and tend to be less effective in immunosuppressed patients. A course of mitomycin C followed by close surveillance would be the best option, followed by surgery if refractory disease was encountered. Although partial or radical

cystectomy may be indicated in some patients with high grade T1 tumors, these treatment options are overly aggressive for the patient with first time focal T1 disease.

Jones JS: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 93, pp 2212, 2215-2216.

Question #21 **ANSWER=E**

The patient has a solitary kidney with a prolonged washout and elevated serum creatinine. Pyeloplasty is the correct response. All the other conservative options would prolong his obstruction and a Whitaker test has potential complications, especially in a solitary kidney. Endopyelotomy has not proven equivalent in terms of success rates nor as safe as pyeloplasty in this age group.

Peters CA: Congenital urinary obstruction: Pathophysiology, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 132, p 3055.

Question #22 **ANSWER=B**

Mixed flora UTI is most often associated with a vesicoenteric fistula to the colon. In men over age 50, the most common cause is diverticular disease with a vesicocolic fistula. Crohn's disease, while a common cause, usually occurs in patients < 40 years of age. Infections, stones, and prostatic abscesses rarely produce mixed flora on urine culture. Ulcerative colitis and colon cancer are less common causes of UTI in this population.

Stamm WE, Hooton TM: Management of urinary tract infections in adults. NEJM 1993;329:1328-1334.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, pp 2129-2130.

Question #23 **ANSWER=B**

The cystogram demonstrates a large colovesical fistula which resulted from the transurethral incision of the bladder neck contracture. This large defect will likely not heal with observation alone and definitive repair will be required; however, before definitive repair can be performed, a period of fecal diversion is required in order to allow for the infection to resolve and to give the primary repair the best chance of healing. Following the fecal diversion, a variety of approaches including anterior, posterior and perineal, could be performed with a high rate of success.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, pp 2132-2133.

Question #24 **ANSWER=E**

Precocious puberty may be idiopathic, pituitary, adrenal, or testicular in origin. Pituitary lesions will produce elevated gonadotropins (FSH, LH). Because the gonadotropins are normal, a pituitary lesion is excluded in this patient. The most common adrenal cause is congenital adrenal hyperplasia, which would probably have been apparent at an earlier age, and probably would not be detected by either ultrasonography or CT scanning. Leydig cell tumors of the testis are hormonally active and are associated with precocious puberty in children. Leydig cell tumors are responsible for about 10% of all cases of precocious puberty. Other causes of precocious puberty include pituitary lesions, Leydig cell hyperplasia, large cell Sertoli cell tumors, and hyperplastic nodules in patients with congenital adrenal hyperplasia. One can exclude pituitary lesions by demonstrating an increased testosterone level with age-appropriate LH and FSH levels. Diagnostic work-up should include serum tumor markers and testicular ultrasound examination. The ultrasound appearance of these tumors is variable and is indistinguishable from germ cell tumor. In the presence of gynecomastia, infertility, depressed libido, or precocious puberty, LH, FSH, testosterone, estrogen, and estradiol should also be drawn (these should be measured after orchiectomy if the diagnosis is not suspected preoperatively). Leydig cell tumors of the testis may produce precocious puberty and may not be palpable. Scrotal ultrasound is a simple screening procedure and may detect a small Leydig (interstitial cell) tumor.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 34, pp 811-812.

Ferrer FA: Pediatric urologic oncology: Bladder and testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 156, p 3595.

Question #25 **ANSWER=E**

Normal sperm have oval shaped heads. Globozoospermia is a condition in which the sperm heads are missing their acrosome, and these sperm, therefore, have a characteristic round or spherically shaped head. Given the absence of the acrosome, these sperm are unable to penetrate the oocyte and are unable to achieve fertilization through conventional means; however, these sperm are able to fertilize the egg through in vitro fertilization with intracytoplasmic sperm injection, which is the treatment of choice for these patients. Varicocele repair does not impact globozoospermia, which has been shown to be associated with mutations in the genes SPATA16, PICK1, and DPY19L2. Observation for three months will not change his condition and intrauterine insemination and in vitro

fertilization will be unsuccessful because the sperm cannot fertilize an egg without a normal acrosome. The only method that will facilitate the couple achieving a pregnancy using the patient's sperm is in vitro fertilization with intracytoplasmic sperm injection (IVF/ICSI). Standard IVF/ICSI is now sometimes combined with assisted oocyte activation in order to enhance fertilization success rates.

Meacham RB, Chemes H, Carrell D, Goldstein M: Globozoospermia: Is there a role for varicocele repair? J ANDROL 2007;28:490.

Niederberger CS: Male infertility, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 24, pp 568, 571, 579.

Tejera A, Mollá M, Muriel L, et al: Successful pregnancy and childbirth after intracytoplasmic sperm injection with calcium ionophore oocyte activation in a globozoospermic patient. FERTIL STERIL 2008;90:1202-1205.

Question #26

ANSWER=A

Urinary incontinence following PUV resection/ablation is common. Although in some instances, this is secondary to surgical injury of the urethra or bladder neck, the most common finding is bladder dysfunction. Three patterns of bladder dysfunction have been identified in boys with valves: myogenic failure, detrusor overactivity, and decreased compliance with a small bladder. In prepubertal boys with persistent incontinence, detrusor overactivity is the dominant pattern. Myogenic failure typically presents post-pubertally.

Shukla AR: Posterior urethral valves and urethral anomalies, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 141, pp 3264-3266.

Question #27

ANSWER=C

The micturition reflex originates in the pons and is under voluntary control. Normal voiding is initiated by a sudden and complete relaxation of the striated sphincteric muscles, followed by a rise in detrusor pressure and the opening of the vesical neck and urethra. C-fiber afferents are often upregulated in a pathologic bladder and are not involved in the normal micturition process. Onuf's nucleus is involved with the micturition process but does not initiate it.

Chai TC, Birder LA: Physiology and pharmacology of the bladder and urethra, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 69, pp 1660-1663.

Question #28

ANSWER=A

Delayed bleeding after percutaneous nephrostolithotomy is most commonly due to an arteriovenous fistula or pseudoaneurysm. The bleeding may occur intermittently either with or without a nephrostomy tube in place and can often be readily controlled with the replacement of the tube; however, definitive management of an arterial bleed is still required. Selective renal arteriogram with transcatheter embolization is the treatment of choice. Neither prolonged nephrostomy dwell time for six weeks nor tamponade balloon catheter will correct the underlying vascular malformation. Although CT angiography may identify a vascular lesion, it is not therapeutic and exposes the patient to an additional contrast load. Open exploration is an invasive option that carries with it an increased risk for renal loss.

Matlaga BR, Krambeck AE, Lingeman JE: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 54, p 1282.

Question #29

ANSWER=C

Uretero-intestinal anastomotic strictures can be benign or malignant. The loopogram shows reflux on the left with no reflux on the right. Because the patient had a refluxing anastomosis, this suggests that the hydronephrosis on the right is from ureteral obstruction rather than from reflux, a long conduit, or stomal stenosis. Observation is not a good option, as it is important to determine the nature of the obstruction (benign or malignant) and to treat the obstruction as there remains the potential to preserve residual renal function on the right. The fact that the urine cytology is negative does not rule-out a malignant obstruction. The next step is CT urogram to evaluate for an intrinsic or extrinsic mass at the site of obstruction. After the CT scan, percutaneous nephrostomy tube with antegrade evaluation and treatment may be appropriate. After the CT scan, a renogram may be helpful, less to evaluate the degree of obstruction, but more to assess differential renal function. Looposcopy with retrograde would be difficult in a patient with ureteral obstruction unless there is a wire or stent already in place.

Nakada SY, Best SL: Management of upper urinary tract obstruction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 49, p 1141.

Question #30

ANSWER=B

Direct injury to the penile urethra is usually best managed with a primary surgical repair. In contrast, partial injuries to the posterior urethra will usually heal well over a urethral catheter if one can be placed atraumatically. This may be accomplished safely by placement over a cystoscopically inserted wire. While extraperitoneal bladder injuries can usually be managed by urethral catheter drainage of the bladder, indications for a primary surgical

closure of the bladder and placement of a suprapubic cystostomy include: co-existing open pelvic fracture, patients undergoing laparotomy, or open surgical repair of the pelvic fracture, rectal perforation, and bone fragment projecting into the bladder. Intraperitoneal ruptures require primary surgical exploration and repair.

Morey AF, Zhao LC: Genital and lower urinary tract trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 101, p 2379.

Question #31 **ANSWER=B**

Plasmid-mediated (extrachromosomal-mediated) drug resistance rarely develops following administration of ciprofloxacin because this drug inhibits bacterial DNA gyrase which is required for bacterial replication and plasmid exchange. All of the other agents have been associated with plasmid-mediated drug resistance.

Schaeffer AJ, Matulewicz RS, Klumpp DJ: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 12, pp 254-255.

Question #32 **ANSWER=B**

With increased long-term success of renal transplantation, many women of childbearing age wish to become pregnant. Successful renal transplantation usually restores fertility in premenopausal women. A large study of pregnancies following renal transplantation has confirmed the safety of pregnancy in such patients: 94% of pregnancies that progressed beyond the first trimester were successfully completed. The most common complications were preterm delivery (50%), followed by preeclampsia (30%), intrauterine growth retardation (20%), and rejection (10%). There is no increased risk of fetal genetic abnormalities. Renal transplant function may be adversely affected in pregnancy if the serum creatinine is > 1.5 mg/dL.

Gritsch HA, Blumberg JM: Renal transplantation, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 47, p 1087.

Question #33 **ANSWER=A**

There is no documentation of infection, and suppressive antibiotics should not be considered until infections are documented. Further evaluation of the bladder and upper tract are not needed yet, given the lack of symptoms between episodes and the absence of hematuria, although additional assessment may be appropriate later.

Schaeffer AJ, Matulewicz RS, Klumpp DJ: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 12, pp 250-252.

Question #34 **ANSWER=C**

The purpose of a shunt procedure for venocclusive priapism is to oxygenate the penis. Often, residual corporal, smooth muscle paralysis, and edema will leave the patient's penis tumesced and sometimes rigid. Following an Al-Ghorab shunt, grasping the penis at its base and squeezing will reduce arterial inflow and should result in detumescence, if the shunt is open. Confirmation can be made by drawing a blood gas and proving arterial oxygen levels. This should be done before returning to the operating room for a second shunt procedure. An alternative approach would be to perform a penile duplex ultrasound to demonstrate any arterial inflow. Pudendal arteriography and intracorporal phenylephrine would not be considered until the diagnosis has been confirmed with a corporal blood gas analysis.

Broderick GA: Priapism, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 28, pp 684-687.

Question #35 **ANSWER=D**

Both the transabdominal and transvaginal approaches have merits in repairing vesicovaginal fistulae and can produce excellent outcomes. While size, location, need for adjunctive procedures, and prior radiation should all be considered when choosing an approach, the single most important factor is the experience of the operating surgeon.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, p 2111.

Question #36 **ANSWER=D**

Reflux in newborn boys is commonly high grade and associated with uninhibited detrusor contractions during filling, high pressure voiding due to elevated outlet resistance, detrusor-sphincter dyssynergy, and high postvoid residuals. Uninhibited, detrusor contractions associated with coordinated voiding is normal in infants and not associated with high-grade VUR. Compliance and contractility are generally within the range of normal for these boys. The best treatment for infant boys with high-grade VUR is prophylactic antibiotics and observation. Most of these infants will decrease their outlet resistance and resolve their VUR with neuro-urologic maturation during the first year of life. This specific subgroup of children with high-grade VUR (newborn males) differs because of the high rate of spontaneous resolution.

Yeung CK, Godley ML, Dhillon HK, et al: Urodynamic patterns in infants with normal lower urinary tracts or primary vesico-ureteric reflux. BR J UROL 1998 81:461-467.

Yeung CK, Yang SSD, Hoebeke P: Development and assessment of lower urinary tract function in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 136, p 3123.

Question #37

ANSWER=A

This patient has detrusor external sphincter dyssynergia (DESD) based on the urodynamic evaluation. This may imply the presence of a suprasacral spinal cord lesion. Increased external sphincter activity during voiding can also be seen in dysfunctional voiding, a learned behavior not caused by a neurological lesion. Multiple sclerosis (MS) needs to be strongly considered given this patient's neurologic symptoms and urodynamic findings. Approximately 5-10% of patients with MS present initially with urologic complaints. Cystoscopy is not indicated, and bladder cancer is not likely in this age demographic and with a negative urinalysis. This patient should be evaluated for a possible neurological process due to the finding of sphincter activity during voiding and her associated neurologic symptoms. OnabotulinumtoxinA injections or neuromodulation should not be utilized until a definitive diagnosis has been made. In addition, neuromodulation would not be done in a patient with possible MS as they may require serial MRI scans in the future.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 75, pp 1768-1770.

Question #38

ANSWER=C

The rate of tumor marker decline relative to expected half-life after treatment has been proposed as a prognostic index. The half-life of AFP is five days. Beta-hCG is one to two days. Patients whose values decline according to half-life after treatment appear more likely to be disease free than those whose marker decline is slower or whose markers never return to normal levels; however, there are non-malignant causes of persistently elevated levels of both AFP and beta-hCG. Liver damage, secondary to drugs, hepatitis, and alcohol abuse may lead to an elevated AFP level. Beta-hCG may remain persistently elevated due to non-malignant causes such as hypogonadism and marijuana use. In this patient, the most likely etiology is hypogonadism induced by alcoholism. This results in altered testis-pituitary feedback and secondary elevation of LH which cross-reacts with beta-hCG measurement, leading to false elevation of beta-hCG. Human chorionic gonadotropin is not produced by yolk sac elements, but rather by syncytiotrophoblastic cells. Clearly, every effort should be made to exclude all false positive causes of tumor marker elevation before subjecting patients to unnecessary treatment.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 34, p 790.

Question #39

ANSWER=E

The federally mandated "Baby Doe" rule states that life-sustaining treatment is not mandatory when "medical or surgical treatment would be virtually futile in terms of survival, and the forced treatment of such a patient would be considered inhumane". The case described above does not fit under this rule. In this situation, physician judgment may be hampered because of the quality of life concerns. By law, medical and surgical interventions are ethically mandatory when the only supposed contraindication is limited intelligence or developmental disability, such as cerebral palsy or Down's syndrome. In this case, in the absence of a terminal disease, treatment is mandatory. Social service consultation should be obtained, and I.V. antibiotics should be initiated to help stabilize the patient. Emergent transfer of legal guardianship should be performed followed by surgical intervention.

Johnson AR, Siegler M, Winslade WJ: CLINICAL ETHICS, ed 5. New York, McGraw Hill Publishing, 2002, pp 111-117.

Question #40

ANSWER=B

The imaging studies show a large complex cystic lesion that is not the result of an infectious process; therefore, DMSA scan, antibiotic therapy, and re-imaging are not indicated. The lesion is not typical for inherited cystic disease and parental evaluation is of no value. The differential diagnosis is either a cystic Wilms' tumor vs. a multilocular cystic nephroma. Diagnosis and treatment should be made based on the pathology following a nephrectomy. Percutaneous biopsy is not appropriate in this setting.

Ritchey ML, Shamberger RC: Pediatric urologic oncology: Renal and adrenal, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 155, p 3580.

Question #41

ANSWER=A

Complexed PSA represents the fraction of total PSA that is circulating bound to other serum proteins, including antichymotrypsin and alpha-1-macroglobulin. Prostate manipulation including biopsy, cystoscopy, catheterization, and vigorous massage generally result in a transient increase in serum total PSA. Most of the rise in total PSA is contributed by the free (non-bound) component. In general, complexed PSA is the most stable component and relatively little rise occurs following prostate instrumentation. Complexed to total PSA ratio

would decrease upon disproportionate free PSA increase. Due to the transient nature of PSA rise with prostate manipulation, PSA velocity is generally not affected.

Lynn NN, Collins GN, O'Reilly PH: Prostate manipulation has minimal effect on complexed prostate specific antigen levels. BJU INTERN 2000;86:65-67.

Morgan TM, Palapattu GS, Partin AW, Wei JT: Prostate cancer tumor markers, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 108, pp 2569-2560.

Question #42 **ANSWER=E**

Renal artery aneurysms are often associated with hypertension. Other symptoms may include flank pain and hematuria. When less than 1.5 cm in size, conservative management such as sodium restriction, weight loss, and antihypertensives (thiazide diuretics) are indicated. Although rupture of renal artery aneurysms is uncommon, the results can be catastrophic when it occurs during pregnancy. For this reason, it is recommended that renal artery aneurysms in women of childbearing age be surgically repaired. Fully calcified renal artery aneurysms tend to be stable and have a negligible risk for rupture and would not require surgical intervention. Selective embolization will lead to loss of significant renal parenchyma.

Gulmi FA, Reiser IW, Spitalewitz S: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 45, p 1040.

Question #43 **ANSWER=E**

Although the finding of crystalluria does not distinguish stone formers from non-stone formers, and crystalluria can be found in 15-20% of normal individuals, a long-term prospective study of recurrent stone formers determined that persistent early morning crystalluria was highly predictive of recurrent stone formation. Daily follow-up urine volume and calcium and oxalate concentration were also independent risk factors for stone recurrence; however, crystalluria does not correlate with specific urine parameters.

Lipkin ME, Ferrandino MN, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 52, p 1202.

Question #44 **ANSWER=A**

A basic understanding of ultrasound physics is important for optimal diagnostic imaging using this modality. Ultrasound uses high-frequency sound waves to image anatomic structures. The sound waves, as a result of their interaction with tissue, are either reflected, refracted, or absorbed. Air reflects sound waves completely; bone absorbs them completely. In diagnostic imaging of the GU system, frequencies between 1 and 10 MHz are typically used. Sound waves have a wave-length between frequencies of 1.5 to .15 mm which sets a fundamental limit on the potential spatial resolution of the image. Many current ultrasound probes have variable frequency transducers allowing the operator to adjust the frequency in order to optimize imaging characteristics. Increasing the frequency (MHz) increases spatial resolution; however, as the frequency is increased, the depth of penetration decreases as a result of attenuation of ultrasound. Optimum imaging is thus obtained by choosing the highest frequency that will permit adequate penetration to identify the region of interest.

Gilbert BR, Fulgham PF: Urinary tract imaging: Basic principles of urologic ultrasonography, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 3, pp 65-66.

AUA University Core Curriculum: Uroradiology: Ultrasound (1.1 Image Acquisition). American Urological Association. https://university.auanet.org/core_topic.cfm?coreid=67

Question #45 **ANSWER=A**

The majority of testosterone circulates bound to sex hormone-binding globulin (SHBG), with albumin and cortisol binding globulin (CBG) playing lesser roles. Only 1-3% of total testosterone circulates unbound (free). SHBG production in the liver and Sertoli cells are altered by obesity, liver disease, and nephrotic syndrome. Obese males have reduced SHBG, and lower total testosterone, while the free testosterone levels are unchanged. The excess aromatase activity in visceral fat in obese men translates into greater testosterone breakdown to estradiol, which further lowers the total testosterone level.

Parsons JK, Hsieh TC: Integrated men's health: Androgen deficiency, cardiovascular risk, and metabolic syndrome, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 23, pp 542, 552.

Question #46 **ANSWER=C**

Most legal jurisdictions and hospital regulations require that all deaths be investigated that are either postoperative or related to a medical procedure. An autopsy is not performed as a part of every death investigation. In most cases, the determination of the need to perform an autopsy is a discretionary responsibility of the coroner/medical examiner. If the coroner/medical examiner is unable to determine the cause and manner of death, the law may require an autopsy to establish the cause and manner of death. In this case, the family's permission is not needed. Additionally, the patient may not elect for this in his advance directives, nor can the attending physician.

Public Health Law Program: Coroner/Medical Examiner Laws, by State. Centers for Disease Control and Prevention. https://www.cdc.gov/phlp/publications/topic/coroner.html

Question #47 **ANSWER=C**

Congenital mesoblastic nephroma is the most common solid renal tumor in infants at a mean age of 3.5 months. There is excellent outcome after radical nephrectomy alone. Occasionally, this extends into the hilum or perirenal soft tissue, so complete excision is important to prevent local recurrence; therefore, biopsy and partial nephrectomy are not advised. Neither chemotherapy nor XRT is routinely recommended.

Ritchey ML, Shamberger RC: Pediatric urologic oncology: Renal and adrenal, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 155, pp 3579-3580.

Question #48 **ANSWER=E**

The production of AFP is limited to cells of the cytotrophoblast. In cases of testicular germ cell tumor, the presence of an elevated serum AFP confirms the tumor to be at least partially of nonseminomatous origin due to the presence of yolk sac elements. In this case, despite the fact that the histologic evaluation of the primary tumor demonstrates pure seminoma, the cancer must be treated as a NSGCT. In patients with residual mass following chemotherapy for metastatic NSGCT, an RPLND is indicated unless the CT scan normalizes with all lymph nodes < 1 cm. Although helpful for the evaluation of a post-chemotherapy residual mass in pure seminoma, PET scan does not accurately characterize the nature of residual masses following chemotherapy in NSGCT as they may represent residual cancer, teratoma, or necrosis/fibrosis only. Given the serum marker normalization, additional chemotherapy is not necessary. XRT is not indicated in a patient with metastatic NSGCT.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 34, p 790.

Question #49 **ANSWER=A**

The clinical history strongly suggests that this girl has an ectopic ureter even though the ultrasound does not show evidence of this. The absence of an abnormality on ultrasound does not rule-out an ectopic ureter. Occasionally, the renal parenchyma from the upper pole of the kidney that is associated with the ectopic ureter is difficult to visualize on ultrasound and may be identified only by alternative imaging studies. In cases in which an ectopic ureter is strongly suspected because of incontinence, yet no definitive evidence of the upper pole renal segment is found on ultrasound, MRI scan will likely demonstrate the small, poorly functioning upper pole segment and ureter inserting beyond the bladder neck. None of the other options will adequately visualize an ectopic ureter.

Peters CA, Mendelsohn C: Ectopic ureter, ureterocele, and ureteral anomalies, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 134, p 3082.

Question #50 **ANSWER=D**

A T6 spinal cord injury would be associated with detrusor overactivity and detrusor sphincter dyssynergia, in most instances. A suprapubic tube would not help with the stress incontinence that has developed due to sphincteric damage from the long-standing urethral catheter. The patient already has severe detrusor overactivity and reflux, despite antimuscarinic use; therefore, a sling alone will still likely be associated with detrusor overactivity-induced leakage and may intensify the risk of upper tract damage. Ileovesicostomy would likely be associated with ongoing urethral leakage, again due to the damaged sphincter. Bulking agent injection may help improve outlet resistance, but performing CIC repeatedly through the injected area will likely render any beneficial effect meaningless as the bulking agent is molded due to chronic catheterization. An augment, coupled with a sling, will take care of the detrusor overactivity, and the damaged sphincteric unit. The patient would need to perform CIC.

Boone TB, Stewart JN: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 87, pp 2071-2072.

Question #51 **ANSWER=C**

The images demonstrate a duplicated collecting system of the right side with significant hydronephrosis of the upper pole. The bladder image demonstrates a large cystic structure lateral and posterior to the bladder indicative of a largely dilated ureter. The presence of distinct bladder wall between the lumen of the ureter and bladder distinguishes this as an ectopic ureter rather than a ureterocele. This scenario is most commonly explained by a complete duplication of the right system with an ectopic upper pole ureter. The embryology that explains the pathology of an ectopic ureter is a cephalad origin of the ureteral bud on the mesonephric duct. With an abnormally long common excretory duct, the ureter never becomes incorporated into the bladder, and, therefore, remains ectopic. In the female, the most common locations of an ectopic ureter are the bladder neck, urethra, or Gartner's duct which lies between the urethra and the anterior vaginal wall. An adynamic distal segment would result in a ureterovesical junction obstruction. Persistence of Chwalla membrane would result in a ureterocele. A muscular weakness of the trigone of the bladder would create a diverticulum. Early bifurcation would create a partially duplicated collecting system.

Peters CA, Mendelsohn C: Ectopic ureter, ureterocele, and ureteral anomalies, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 134, pp 3077-3078.

Question #52

ANSWER=E

Diplopia, blurred vision, and loss of color vision (chromatopsia) are related to cross activity that some PDE5 inhibitors have for PDE6, the retinal phototransduction enzyme. This is most pronounced with sildenafil and vardenafil and is rarely associated with tadalafil as the latter has very little affinity for PDE6. An ophthalmologic consultation is not required as the adverse event is well-documented. An ophthalmologist should be seen for loss of visual acuity or blindness. The fact that the patient responded well to sildenafil illustrates that his autonomic neuropathy is minimal and the need for more invasive treatments such as a transurethral PGE1 suppository or intracavernosal injection therapy is low. Penile pain due to PGE1 suppository or PGE1 injection monotherapy may be experienced.

Burnett AL II: Evaluation and management of erectile dysfunction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 27, pp 662-664.

Question #53

ANSWER=B

Atypical small acinar proliferation (ASAP) is noted in 7.6% of men undergoing a prostate biopsy. In these men, small glands, consistent with cancer, are noted, but in an insufficient number to confirm the diagnosis of prostate cancer. Basal cells, identified morphologically or immunohistochemically would suggest benign glands as they are not present in cancer. Nuclear atypia of the luminal cells is generally present in suspicious glands but is not diagnostic in and of itself for invasive adenocarcinoma. For men with atypical small acinar proliferation, repeat biopsy is recommended.

Epstein JI: Pathology of prostatic neoplasia, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 110, p 2597.

Question #54

ANSWER=A

Adults with a tethered cord may have altered bladder function. The symptoms frequently present following activities that stretch the spine. Neurosurgical therapy is controversial in this setting and may not improve the clinical condition. While detrusor underactivity is a common finding in patients with spina bifida, the most frequent urodynamic finding associated with a tethered cord is detrusor overactivity.

Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 75, p 1780.

Question #55

ANSWER=E

In light of the solitary kidney, it is crucial to differentiate RCC from urothelial carcinoma. This should precede any attempt at surgical intervention, such as partial or radical nephrectomy, as this will significantly alter the choice of surgery. Systemic therapy, such as sunitinib, might be an option for this patient, but that would only be a consideration after a tissue diagnosis of RCC was established with a biopsy. Ablative therapy, such as radiofrequency ablation, would be difficult and unlikely to succeed given the mass is over 3 cm in size and is centrally located with distortion of the collecting system. It is, therefore, important to establish a tissue diagnosis prior to considering systemic, extirpative, or ablative therapy in this patient with a solitary kidney.

Campbell SC, Lane BR: Malignant renal tumors, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 57, pp 1317-1318.

Question #56

ANSWER=A

This boy likely has acute hemorrhagic cystitis. This is usually caused by adenovirus in children and is a self-limited infection that does not require any specific treatment although ribavirin treatment has been reported. It occurs more often in boys and is also commonly associated with bone marrow transplantation and other states of immunosuppression. Because viral cultures are rarely done, children with symptoms of acute hemorrhagic cystitis most often have no growth on routine urinary culture. Although no antimicrobial treatment is indicated in healthy individuals with viral cystitis, radiologic evaluation should still be performed to eliminate other causes for hematuria. Fluconazole, steroids, as well as cystoscopy and bladder biopsy are not indicated at this time.

Boorjian SA, Raman JD, Barocas DA: Evaluation and management of hematuria, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 9, pp 188-190.

Cooper CS, Storm DW: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 127, p 2947.

Question #57

ANSWER=A

The image demonstrates an upper calyceal diverticulum. SWL is not recommended for the

management of calyceal diverticulum with a narrow diverticular neck, as shown here, as fragments are unlikely to clear. PCNL and laparoscopy are appropriate alternatives for management of a calyceal diverticulum; however, before the choice of procedure can be made, it is important to determine whether the diverticulum is in an anterior vs. posterior location, as well as the relationship of the pleura and adjacent organs. PCNL would be utilized for a posterior diverticulum, while laparoscopy would be utilized for an anterior diverticulum. A CT scan without contrast will provide information for each of these variables. The CT scan will also determine the amount of parenchyma overlying the diverticulum. I.V. contrast would not be necessary as the retrograde pyelogram delineates the calculi within the diverticulum.

Matlaga BR, Krambeck AE, Lingeman JE: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 54, p 1278.

Question #58 **ANSWER=D**

The child has a long ureteral stricture with a history of XRT. Additionally, his bladder is small with low intravesical pressures at capacity secondary to his pelvic radiation. The length of the stricture and the small bladder make it very unlikely that a Boari flap is feasible. Due to the prior radiation, autotransplantation has increased potential complications over and above the possibility of renal loss. A cutaneous ureterostomy is likely to stenose and cutaneous diversion is not preferred in a nine-year-old. An ileal ureter can be used to replace the entire ureter, if needed, and is preferable to cutaneous diversion in this young child. A continent urinary diversion is not indicated since the bladder is small but functional. Long-term, his bladder pressure will need to be monitored.

Nakada SY, Best SL: Management of upper urinary tract obstruction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 49, p 1104.

Question #59 **ANSWER=E**

Acute urinary retention is a known complication following brachytherapy that occurs in 2 to 24% of men undergoing the procedure. Patients with higher IPSS scores preoperatively are at greater risk to go into retention postoperatively. When retention occurs immediately after implant, as in this case, it is almost always due to prostatic enlargement/swelling causing bladder outlet obstruction. Patients are usually initially treated with an indwelling urethral catheter and medical management with alpha-blockade and/or 5-alpha-reductase inhibition. After a one to two week period with the catheter, a voiding trial is usually attempted, but patients often fail this and go on CIC. At this point (two weeks after brachytherapy), there is no need for urodynamics or cystoscopy as the cause of the obstruction is almost always related to the seed implant. The majority of patients will ultimately resolve their retention spontaneously, but roughly 2-7% do not and ultimately require TURP. The timing of this second procedure should be delayed for as long as possible

and should not be attempted until at least one year after seed implantation. The reason for this is that the risk of stricture and incontinence is considerable in patients undergoing TURP after brachytherapy; therefore, every effort should be made to allow the patient to resolve the retention on their own. Urodynamics may be considered prior to TURP. When a TURP is undertaken, a minimal resection should be performed with preservation of the bladder neck to maintain the urethral blood supply if possible. There is no data to support the use of UroLift® in this clinical scenario.

Pelletier Cameron AK, Latini, JM: Management of acute and chronic urinary complications of radiation therapy for prostate cancer. AUA UPDATE SERIES, vol 27, lesson 32, 2008, p 308.

D'Amico AV, Nguyen PL, Crook JM, Chen RC, (eds): Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 116, p 2702.

Question #60 **ANSWER=A**

The prevention of DVT in patients undergoing anti-incontinence and pelvic reconstructive surgeries should be dictated by preoperative individual patient and procedure specific DVT risk factors. In an uncomplicated patient without risk factors for DVT undergoing an anti-incontinence procedure for the treatment of stress urinary incontinence, early postoperative ambulation is considered adequate prophylaxis against postoperative DVT.

Vira MA, Steckel J: Core principles of perioperative care, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 5, pp 108-109.

AUA Best Practice Statement: Deep vein thrombosis: Best Practice Statement for the prevention of deep vein thrombosis in patients undergoing urologic surgery (2008). AUA BEST PRACTICE STATEMENT. Updated May 2017.
http://www.auanet.org/Documents/education/clinical-guidance/Deep-Vein-Thrombosis-Archive.pdf

Question #61 **ANSWER=A**

Bladder compliance is defined as the change in bladder volume divided by the change in detrusor pressure. Although there is not a strict definition of abnormal bladder compliance, most studies would suggest a compliance of < 10-20 mL/cm H_2O would be abnormal. Patients with decreased bladder compliance are at great risk for development of upper tract deterioration. The amplitude of phasic involuntary bladder contractions is of little prognostic value due to their transient nature. Detrusor LPP > 40 cm H_2O is a risk factor for upper tract deterioration; however, it is not as significant as poor bladder compliance. Neither detrusor areflexia nor increased urethral closure pressures are independent risk factors for hydronephrosis unless associated with elevated storage pressures.

Nitti VW, Brucker BM: Urodynamic and video-urodynamic evaluation of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 73, pp 1725-1728.

Question #62 **ANSWER=E**

One study identified that the major difference between SWL and ureteroscopy for lower pole stones was a return to work, specifically 3.3 days following SWL compared to 8.5 days following ureteroscopy. Although SWL arguably provides acceptable first-line therapy for stones 1 cm or less based on the initial randomized trial, ureteroscopy has been touted as a promising alternative that can improve the stone-free rate with little additional morbidity over SWL. However, in this small trial, investigators were unable to validate the hypothesis that ureteroscopy was superior to SWL. The stone-free rate after ureteroscopy and SWL for lower pole stones of less than or equal to 1 cm was remarkably low and not statistically different between the two modalities. While the results of the study support that either SWL or ureteroscopy may be used in this situation, practitioners and patients must be cognizant of the limitations of treatment modalities that rely on spontaneous fragment passage to achieve a stone-free state. Ultimately, the decision of SWL or ureteroscopy for the treatment of such stones should utilize a shared decision-making approach between patient and physician.

Assimos D, Krambeck A, Miller NL, et al: Surgical management of stones: AUA/ENDOUROLOGICAL SOCIETY GUIDELINE. Published April 2014. http://www.auanet.org/guidelines/surgical-management-of-stones-(aua/endourological-society-guideline-2016)

Question #63 **ANSWER=B**

Inguinal lymph node involvement in the setting of low-grade, low-stage disease is highly unlikely; however, given the persistent palpable lymph node in this setting, it must be considered. The optimal approach for this patient is fine-needle aspiration, and if this is positive, left complete and right superficial inguinal lymphadenectomy should be performed. Fine-needle aspiration has been reported to have a sensitivity and specificity that is greater than 90% in these circumstances. Observation alone is not adequate, given a palpable lymph node. Immediate lymphadenectomy is overly aggressive, given the low risk of malignancy.

Pettaway CA, Crook JM, Pagliaro LC: Tumors of the penis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 37, p 858.

Question #64 **ANSWER=E**

Studies have shown that finasteride 1 mg PO qd has a similar effect on PSA levels as finasteride 5 mg PO qd; therefore, the PSA must be adjusted by a factor of 2 to get the true value. In this case, the adjusted PSA is 4.8 ng/mL; therefore, the PSA is elevated. After appropriate discussion and shared decision making, it is recommended that the patient undergo a prostate needle biopsy. Repeat PSA in six or twelve months is not appropriate and may result in a delay in diagnosis. Free/total PSA ratio likely will not add much additional information, as total PSA is above the threshold for biopsy. Stopping finasteride and repeating PSA again may result in a delay of diagnosis.

D'Amico AV, Roehrborn CG: Effect of 1 mg/day finasteride on concentrations of serum prostate-specific antigen in men with androgenic alopecia: A randomized controlled trial. LANCET ONCOL 2007;8:21–25.

Question #65 **ANSWER=A**

This CT scan is consistent with a left adrenal adenoma. The most common incidental adrenal lesion is a benign adenoma in a patient without known malignancy rather than a carcinoma or other malignancy. Of benign entities, an adrenal adenoma is the most common and would fit the imaging characteristic described. An adenoma is lipid-rich and is diagnosed with Hounsfield units (HU) of 10 or less as opposed to the fat-containing myelolipoma which has HU of less than –20. An adrenal cyst has fluid attenuation and no enhancement. Adrenal cancers have higher HU values on precontrast imaging. This patient does not need further imaging, such as an MIBG scan. Percutaneous biopsy is not indicated for an adrenal adenoma.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 65, p 1567.

Bishoff JT, Rastinehad AR: Urinary tract imaging: Basic principles of computed tomography, magnetic resonance imaging, and plain film, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 2, p 49.

Question #66 **ANSWER=B**

An ileocecal reservoir utilizes the terminal ileum in a continent reconstruction. The terminal ileum is important in the absorption of fat soluble vitamins. Vitamin K (a fat soluble vitamin) is required for the liver to make factors that are necessary for blood to properly coagulate including factor II (prothrombin), factor VII, factor IX, and factor X. PT and INR measures these factors that make up the extrinsic pathway (VII, X, V, II and fibrinogen). The PTT measures protein factors in the intrinsic and common pathways in the coagulation cascade (XII, XI, VIII, X, V, and II). von Willebrand's factor is produced in endothelium,

megakaryocytes, and subendothelial connective tissue. Its primary function is binding to other proteins, particularly factor VIII, and it is important in platelet adhesion to wound sites. Bleeding time assesses platelet function, and this is not affected by fat malabsorption.

Gilbert SM, Hensle TW: Metabolic consequences and long-term complications of enterocystoplasty in children: A review. J UROL 2005;173:1080-1086.

Question #67 ANSWER=C

Men with Klinefelter syndrome are at increased risk for the development of breast cancer. Approximately 80% of cases are estrogen receptor positive; therefore, any treatment that increases estrogen levels is contraindicated unless the patient is cured of breast cancer. This patient has symptomatic hypogonadism which would benefit from an increase in serum testosterone, but he was recently treated for breast cancer. In men, a portion of testosterone is converted to estradiol, primarily in adipose tissue. Aromatase inhibition will decrease conversion of testosterone to estrogen thereby raising testosterone levels while at the same time decreasing estrogen levels. This is safe in men with breast cancer. Phosphodiesterase inhibitors are indicated for erectile dysfunction, which this patient does not have. Estrogen therapy has no role in treating these symptoms in men and risks stimulation of breast cancer cell growth. Human chorionic gonadotropin (hCG) will increase testicular production of testosterone. The increased peripheral testosterone levels from either hCG or testosterone therapy will result in increased estrogen levels due to the peripheral conversion to estrogen; therefore, these are inappropriate therapies in men with breast cancer. In patients with Klinefelter syndrome without breast cancer, the standard treatment of hypogonadism with testosterone replacement is safe.

Cutuli B, Le-Nir CC, Serin D, et al: Male breast cancer. Evolution of treatment and prognostic factors. Analysis of 489 cases. CRITICAL REVIEWS IN ONCOLOGY/HEMATOLOGY 2010;73:246-254.

Dimitrov NV, Colucci P, Nagpa L: Some aspects of the endocrine profile and management of hormone-dependent male breast cancer. THE ONCOLOGIST 2007;12:798–807.

Parsons JK, Hsieh TC: Integrated men's health: Androgen deficiency, cardiovascular risk, and metabolic syndrome, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 23, pp 543-544.

Question #68 ANSWER=B

The urodynamics show detrusor overactivity and incontinence. The video view shows a dilated proximal urethra and findings likely consistent with detrusor overactivity and sphincter bradykinesia. CIC would be premature as his PVR is only 80 mL. OnabotulinumtoxinA and neuromodulation may be an option at some point for him if he is refractory to medications. Beta-3 agonist is the best choice for this patient. While anticholinergics were not offered as a treatment option, these drugs should be used with

caution in Parkinson's patients. Many of these patients have a high anticholinergic burden due to other drugs and may have significant dry mouth, constipation, and cognitive decline. Artificial urinary sphincter is for stress incontinence and would not be indicated.

Andersson KE, Wein AJ: Pharmacologic management of lower urinary tract storage and emptying failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 79, pp 1854-1855.

Question #69 ANSWER=B

Recognition of this anatomic relationship between the ureter and vas deferens is critical during extravesical ureteroneocystostomy. The ureter typically lies inferior to the umbilical artery and superior vesical artery. The vas deferens is seen posterior to the ureter. The vas deferens lies medial to the gonadal artery. More proximally on the ureter, the vas deferens is located more anteriorly and laterally.

Chung BI, Sommer G, Brooks JD: Surgical, radiographic, and endoscopic anatomy of the male pelvis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 68, p 1623.

Question #70 ANSWER=D

The patient has oligospermia (low sperm concentration). No correctable anatomical or endocrinological abnormalities are present. Further evaluation with scrotal ultrasonography for a subclinical varicocele will not be helpful. Since two semen analyses show the same defects, a repeat semen analysis will be of no value. If the two analyses were discrepant, another specimen would be useful. No indication for antisperm antibody testing is present. While adoption is an option, this couple has not exhausted their therapeutic options for conception using the male partner's sperm. Intrauterine insemination is thus the next step for this couple with isolated oligospermia.

Niederberger CS: Male infertility, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 24, p 573.

Question #71 ANSWER=D

Meat, fish, and poultry are rich in uric acid precursors. The greatest reduction in uric acid stone risk has been demonstrated in individuals following a lacto-ovo-vegetarian diet. Though nuts are a good alternate source of protein, urinary oxalate may increase with an excess dietary intake.

Pearle MS, Goldfarb DS, Assimos DG, et al: Medical management of kidney stones: AUA GUIDELINE. Published March 2014.
http://www.auanet.org/guidelines/medical-management-of-kidney-stones-(2014)

Question #72

ANSWER=A

The most common pediatric penile trauma is caused by infant clamp circumcision. If excess skin is excised and subcutaneous tissue is exposed, the majority can be treated by wet-to-dry dressing changes and antibiotic ointment. This approach results in an excellent cosmetic appearance. In general, there is no need to subject an awake baby to suturing. General anesthesia carries significant risks during the newborn period. Unless the penile degloving is extensive, skin grafting is unnecessary.

Husmann DA: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 154, p 3557.

Question #73

ANSWER=A

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 castration-resistant prostate cancer, a 4.1 month median overall survival was demonstrated compared to placebo. The most common side effects include chills, fatigue, and pyrexia, which are common with the release of cytokines. The recommended premedications are acetaminophen and an antihistamine. Glucocorticoids and opioids are sometimes given at the time of I.V. chemotherapy but are not indicated at the time of immune therapy. Mineralocorticoids and anxiolytics are not indicated for this immunotherapy.

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

Antonarakis ES, Carducci MA, Eisenberger MA: Treatment of castration-resistant prostate cancer, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 121, pp 2813-2814.

Question #74

ANSWER=E

This clinical presentation is highly suggestive of progressive IgA nephropathy, which is one of the most common forms of primary glomerulonephritis (GN). It is more common in males and presentation typically occurs in the second and third decades of life. A temporary association of disease flare with pharyngitis or upper respiratory infection is well recognized and generally occurs within days of the infection, whereas post-infectious GN occurs two to three weeks after the onset of infection. Given his renal insufficiency and the fact he had a similar episode five years ago, this may be a chronic, progressive process. An aggressive evaluation is, therefore, warranted. Oral amoxicillin therapy and conservative follow-up evaluation are thus incorrect. With normal renal ultrasound and the presence of proteinuria, post-renal obstruction is unlikely, and thus, CT scan is incorrect. Although systemic steroid therapy and ACE inhibitor are indicated in some forms of GN, a diagnosis must be established first via renal biopsy.

Gerber GS, Brendler CB: Evaluation of the urologic patient: History, physical examination, and urinalysis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 1, p 15.

Goldfarb DA, Poggio ED, Demirjian S: Etiology, pathogenesis, and management of renal failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 46, pp 1058-1063.

Question #75

ANSWER=B

Situational stress urinary incontinence (SUI) in a young woman can be bothersome. Initial treatments with pelvic floor muscle training can be successful for many women with milder forms of SUI. Imipramine is considered off label with potentially harmful side effects and is not included as a possible treatment for SUI in the AUA/SUFU Guidelines. Radiofrequency ablation is an invasive strategy and is not well tested in young women. Slings should be avoided until after childbearing age (if possible) and probably are excessive for this type of incontinence. This is an instance where an incontinence device or pessary might be tried since it will be used for relatively short periods of time.

Newman DK, Burgio KL: Conservative management of urinary incontinence: Behavioral and pelvic floor therapy and urethral and pelvic devices, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 80, pp 1895-1896.

Kobashi KC, Albo ME, Dmochowski RR, et al: Surgical treatment of female stress urinary incontinence (SUI): AUA/SUFU GUIDELINE. Published 2017.
http://www.auanet.org/guidelines/stress-urinary-incontinence-(sui)-new-(aua/sufu-guideline-2017)

Question #76

ANSWER=C

Topiramate induces a distal renal tubular acidosis, as it impairs the excretion of hydrogen ions by the distal renal tubule. As a result, these patients form calcium phosphate stones. Although the preferred treatment would be discontinuation of topiramate, that is not

always possible. In such cases, initiation of potassium citrate, as one would do for distal renal tubular acidosis, is the next step. Allopurinol will reduce urine uric acid, but will not affect stone formation with topiramate. Captopril may be used for patients with cystinuria who are unable to tolerate D-penicillamine or alpha-mercaptopropionylglycine. Sodium bicarbonate can also treat distal renal tubular acidosis, but due to the sodium load, it is not preferred over potassium citrate. Finally, thiazide therapy will treat hypercalciuria, but that is not the primary lithogenic factor in the present patient.

Pearle MS, Antonelli JA, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 51, p 1170.

Question #77

ANSWER=D

Immune modulation using checkpoint inhibitors has shown promise in the treatment of several malignancies, including urothelial carcinoma. Programmed death-ligand 1 (PD-L1) is an inhibitory immune pathway exploited by cancer which results in suppressed T-cell proliferation and reduced cytokine production. PD-1/PD-L1 inhibition may prevent T-cell suppression throughout the tumor microenvironment, enhancing the immune response to tumor cells. Both atezolizumab and nivolumab are FDA approved PD-L1 inhibitors, and both avoid the renal toxicity of cis-platinum based regimens. Nivolumab is approved for the treatment of patients with locally advanced or metastatic urothelial carcinoma whose disease progressed within 12 months of neoadjuvant or adjuvant treatment with platinum-containing chemotherapy. In the largest study of this agent, the objective response rate was 19.6% (53 of 270 patients). Seven patients had complete responses and 46 had partial responses. The estimated median duration of response was 10.3 months. Since this patient has good performance status, additional treatment should be considered. Additional gemcitabine/cis-platinum or M-VAC chemotherapy could further compromise renal function and she has already failed gemcitabine/cis-platinum. Treatment with carboplatinum, while limiting renal toxicity, is not as efficacious as cisplatinum and is also unlikely to be beneficial in this setting. Cabozantinib, an inhibitor of MET and VEGF pathways, is being investigated in patients in whom previous chemotherapy has failed, but the final results of these clinical trials have not yet been reported.

Guzzo TJ, Vaughn DJ: Management of metastatic and invasive bladder cancer, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 94, p 2223.

Sharma P, Retz M, Siefker-Radtke A, et al: Nivolumab in metastatic urothelial carcinoma after platinum therapy (CheckMate 275): A multicentre, single-arm, phase 2 trial. LANCET ONCOL 2017;18:312–322.

Question #78

ANSWER=B

Alvimopan is a peripherally active mu-opioid antagonist that is approved for the

treatment/prevention of postoperative ileus in patients undergoing bowel resection with primary anastomosis. In a randomized controlled trial of 277 patients undergoing radical cystectomy, the alvimopan group experienced a quicker GI recovery (5.5 vs. 6.8 days), a shorter length of stay (7.4 vs. 10.1 days), and fewer episodes of postoperative ileus related morbidity (8.4% vs. 29.1%); however, alvimopan is contraindicated for use in patients who have taken therapeutic doses of opioids for more than seven consecutive days immediately before starting alvimopan. Patients recently exposed to opioids are expected to be more sensitive to the effects of mu-opioid receptor antagonists (i.e., abdominal pain, nausea/vomiting, diarrhea). The use of an epidural for postoperative pain is not contraindicated in patients with disc disease away from the area where the catheter will be inserted. The narcotic use, disc disease, and a cT3N0M0 tumor are not contraindications to robotic surgery. The patient's renal function is adequate for a continent diversion. The tumor is at the dome of the bladder so a neobladder is a reasonable option.

FDA Entereg™ label:
https://www.accessdata.fda.gov/drugsatfda_docs/label/2008/021775lbl.pdf

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, p 2281.

Question #79

ANSWER=C

The biopsy specimen is consistent with eosinophilic cystitis, with inflammatory cells and eosinophilia throughout the entire bladder wall. The etiology is unclear, but this disease usually presents in young boys. The disease is self-limiting in neonates and young children and these patients can be observed. For patients with symptoms, treatment consists of antibiotics, corticosteroids, and antihistamines with or without TUR if an isolated lesion is identified. There is no role for isolated antibiotic therapy or radical resection with partial cystectomy.

Frimberger D, Kropp BP: Bladder anomalies in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 138, p 3173.

Question #80

ANSWER=E

If gadolinium administration cannot be avoided in patients with ESRD on dialysis, the most effective way to minimize the risk of nephrogenic systemic fibrosis (NSF) is hemodialysis immediately after gadolinium administration. Peritoneal dialysis is not the best answer, because it does not efficiently remove the agent in one setting. All types of gadolinium agents have a risk for NSF, with gadodiamide at higher risk than gadobutrol or gadoteridol.

Goldfarb DA, Poggio ED, Demirjian S: Etiology, pathogenesis, and management of renal failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 46, pp 1061-1062.

Question #81

ANSWER=E

The small bladder capacity is problematic for this patient. She likely has sphincter deficiency with the long-term urethral catheter and this is revealed after placement of the suprapubic tube. She probably needs both outlet and bladder management. A bulking agent will not be sufficient in the majority of these cases and mid-urethral sling will not be ideal in cases of likely intrinsic sphincter deficiency and neurogenic outlet changes. OnabotulinumtoxinA injections may be considered if the outlet is adequate. Bladder augmentation alone may increase her capacity, but the outlet damage needs to be addressed if this is considered. She would be best served with an ileal conduit diversion as the bladder is likely too damaged to be salvaged. A larger suprapubic tube would not address the incompetent bladder outlet.

Boone TB, Stewart JN: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 87, pp 2070-2074.

Question #82

ANSWER=A

While no exact plan can be developed for each adverse event, in this setting, the injectable has an expiration date that is meant by the manufacturer to represent sterility of the product. The best course of action is to disclose this to the patient and monitor, as well as creating a plan to put preventative measures into action to keep this from happening again (i.e., root cause analysis). Removing the injectable is not feasible. Notifying the Joint Commission is not required and will not aid in the care of this patient or prevention of another event from occurring; however, according to their website, practitioners are encouraged to submit these types of sentinel events. While legal services may assist in the best course of action, this is still likely to follow the above steps of disclosure and surface-enhanced Raman spectroscopy (SERS) reporting for actionable work. I.V. antibiotics will not likely alter any risks as most patients will receive an oral antibiotic after this procedure.

www.jointcommision.org

Question #83

ANSWER=C

This man has global polyuria, as evidenced by his total daily urine production exceeding 40 mL/kg (expected volume 2800 mL). The next step would be to check his urine osmolality after an overnight water deprivation test. A urine osmolality of > 800 mOsm/kg supports a diagnosis of primary polydipsia, while < 800 mOsm/kg should prompt a renal concentrating

capacity test to assess the etiology of diabetes insipidus. This man's nocturnal polyuria index (NPi) is < 33% and he does not satisfy criteria for nocturnal polyuria. Hence, evaluation for diabetes mellitus with a fasting glucose and obstructive sleep apnea with a sleep study would not help to arrive at the correct diagnosis. Starting this man on medications such as an alpha-blocker or antimuscarinic is premature without additional evaluation, and neither would help global polyuria.

Weiss JP, Marshall SD: Nocturia, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 78, p 1825.

Question #84

ANSWER=B

This patient likely has a catheter that is curled out of position and into the urethra (i.e., back on itself) or inadvertently placed into the vagina. Thus, when she is filled with the fluid, it simply leaks back. Fluoroscopy, in this case, can be done to immediately confirm if the catheter is in the correct position. Similarly, in non-fluoroscopic urodynamics, one may manually adjust the catheter position. Increasing the size of the catheter tubing and changing catheter types to air-charged may help eliminate some other artifacts, but at this point is not indicated. The fluid medium is not going to change anything in this case as one at least needs to use something that is visualized fluoroscopically (i.e., contrast medium). Decreasing the fill rate may be helpful in cases where too fast a fill elicits artifact or in cases of early detrusor overactivity, but increasing it will not be beneficial.

Nitti VW, Brucker BM: Urodynamic and video-urodynamic evaluation of the lower urinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 73, pp 1723, 1734-1735.

Question #85

ANSWER=D

The best initial treatment of penile urethral stricture is urethroplasty, due to the high recurrence rate of penile urethral strictures with dilation or urethrotomy. This differs from bulbar urethral stricture and from fossa/meatal strictures where initial endoscopic treatment is warranted. When performing a urethroplasty in the penile urethra, augmentation techniques are preferred over anastomotic techniques due to the risk of chordee with the latter.

Wessells H, Angermeier KW, Elliott SP, et al: Male urethral stricture: AUA GUIDELINE. Published April 2016. https://auanet.org/guidelines/male-urethral-stricture-(2016)

Question #86

ANSWER=E

This patient has prolapse and stress urinary incontinence. The POP-Q is notable for stage 2 uterovaginal prolapse (C: 0) and anterior vaginal wall laxity (Ba: +1). There is no evidence

of posterior wall laxity (Bp: -2). The discrepancy between the cervical position and posterior fornix (C: 0 and D: -5) is related to the elongated cervix. Accordingly, hysteropexy and sacrouteropexy would not be ideal options as the elongated cervix would not be addressed. The prolapsed compartments would need to be addressed and include the apex and anterior wall. Doing a cystocele repair alone would be insufficient and a rectocele repair is not indicated, because there is no posterior wall laxity.

Kobashi KC: Evaluation and management of women with urinary incontinence and pelvic prolapse, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 71, pp 1700-1701.

Question #87 **ANSWER=B**

This woman's needle is in S4, producing only a pelvic floor and anal contraction without lower extremity response. The preferred level of stimulation is at S3, which produces a motor response of dorsiflexion of the great toe and bellows contraction of the perineal area. This represents a contraction of the levator muscles (bellows reflex). Motor response to S2 stimulation consists of contraction of the gluteal muscles and leg rotation. If the needle is in either S3 or S4, the patient will typically feel a tapping sensation in the perianal area, while S2 will typically give a sensation several centimeters away from the anal canal. While needle depth can be manipulated for optimal response, this patient's needle is in the S4 foramen, and the needle should be placed in the S3 foramen one level above. Changing to the contralateral side may be performed if an inadequate S3 response is obtained on the ipsilateral side.

Vasavada SP, Rackley RR: Electrical stimulation and neuromodulation in storage and emptying failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 81, p 1904.

Question #88 **ANSWER=C**

The AUA Vasectomy Guidelines state that patients may stop using other methods of contraception when examination of one well-mixed, uncentrifuged fresh post-vasectomy semen analysis (PVSA) specimen shows azoospermia or only rare non-motile sperm (RNMS) < 100,000 non-motile sperm/mL. This patient has a sperm concentration of 90,000 non-motile sperm/mL and is thus cleared to stop using contraception. A repeat PVSA, a repeat vasectomy, and use of female contraception are not necessary given the success of his vasectomy procedure. Post-ejaculate urinalysis is not indicated in the setting of PVSA testing.

Celigoj FA, Costabile RA: Surgery of the scrotum and seminal vesicles, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 41, p 952.

Sharlip ID, Belker AM, Honig S, et al: Vasectomy: AUA GUIDELINE. Published May 2012. Amended 2015.
http://www.auanet.org/education/guidelines/vasectomy.cfm

Question #89 **ANSWER=B**

The superior mesenteric artery (SMA) arises from the anterior surface of the descending aorta. It arises behind the neck of the pancreas, crosses the duodenum, and enters the root of the bowel mesentery. When dissecting large left renal tumors, the renal artery may not be readily visualized when the tumor encroaches upon the aorta. The SMA can then be mistaken for the renal artery and divided. This has significant consequences and is a catastrophic event that must be rapidly reversed if the patient is to survive. A vascular surgeon should be immediately called to the operating room for repair of this vessel which provides blood supply to the entire small bowel, as well as the cecum, and ascending and transverse colon. The inferior mesenteric artery comes off much lower on the aorta and is smaller in caliber. This artery provides blood to the distal transverse, descending and sigmoid colon, and can be safely ligated as long as the marginal artery of the colon is patent and can supply blood from the SMA to the left colonic arcades. The splenic artery arises from the celiac artery in a more cephalad location and is less likely to be mistaken for the renal artery. The lumbar vessels come off posteriorly and the adrenal vessels are minor branches of the renal artery.

Olumi AF, Preston MA, Blute ML Sr: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 60, p 1427.

Question #90 **ANSWER=E**

In September 2014, avanafil became the only FDA-approved erectile dysfunction (ED) medication indicated to be taken as early as approximately 15 minutes before intercourse. Avanafil has the shortest Tmax of 0.3-0.5 hours. There is no data to suggest that avanafil has the least side effects nor greatest efficacy compared to the other PDE-5 inhibitors. The half-life of avanafil is 3-5 hours compared to 3-5 hours for sildenafil, 4-5 hours for vardenafil and 17.5 hours for tadalafil. Avanafil, sildenafil, and vardenafil all have reduced absorption with high-fat meals.

Burnett AL II: Evaluation and management of erectile dysfunction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 27, pp 662-663.

Question #91 **ANSWER=D**

This patient has retroperitoneal fibrosis. When this process involves both the ureters and

renal collecting systems, it may result in ureteral obstruction without radiographic evidence of hydronephrosis; therefore, ureteral stent placement should be considered in this setting, as this may improve the patient's metabolic status. Nuclear renography will be non-diagnostic given her reduced renal function. An MRI scan may be useful, but correcting this patient's azotemia should be the first step in management. Corticosteroids and/or ureterolysis are commonly used to treat retroperitoneal fibrosis, but the possible renal obstruction should be addressed first in order to prevent permanent loss of renal function. An alternative to ureteral stenting would be bilateral percutaneous nephrostomy tubes, but this may be challenging without hydronephrosis.

Nakada SY, Best SL: Management of upper urinary tract obstruction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 49, pp 1143-1145.

Question #92

ANSWER=A

This patient clearly has recurrent, non-muscle invasive disease that is still deemed at low risk of progression. The risk of recurrence at five years is at least 60-70%, while the risk of progression to higher stage disease is < 5%. Of the options, observation after fulguration is the appropriate next step. Other considerations in the treatment of this patient would include evaluation of the upper tracts with imaging and intravesical chemotherapy, such as mitomycin. There are also other strategies to decrease the burden of treatment in patients who have multiple small recurrences of low-grade urothelial carcinoma; these include less frequent cystoscopy, office fulguration, and selective delayed treatment of recurrences. Intravesical BCG (induction course or maintenance) will be unlikely to change the recurrence pattern and has the risk of permanent bladder symptoms and risk of systemic side effects of treatment. Valrubicin is approved for use in BCG-refractory CIS or high-grade disease. There is no indication for cystectomy in recurrent low volume, low-grade disease.

Jones JS: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 93, p 2205.

Question #93

ANSWER=E

Intralesional injections can cause pain and swelling for several days and weeks after the injection; however, a penile fracture can occur in roughly 0.5% of patients after intralesional collagenase injections. There should be a high index of suspicion for a penile fracture in patients with sudden onset of penile pain and swelling shortly after an intralesional collagenase injection; thus, this patient should undergo a penile exploration. NSAIDS are indicated for penile pain during the active phase of Peyronie's disease but are not the treatment for a suspected penile fracture. A penile ultrasound can have a false negative result in the setting of significant penile swelling and, thus, should not be used as the sole determinant whether a patient should undergo a penile exploration. Cystoscopy should not be performed at the time of penile exploration if a penile fracture is expected to be dorsal. If one suspects a ventral fracture (as after sexual intercourse), cystoscopy would be indicated. Delaying the second injection or discontinuing further intralesional collagenase injections would be inappropriate as the sole therapy in the setting of a suspected penile fracture.

Levine LA, Larsen S: Diagnosis and management of Peyronie Disease, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 31, pp 735-736.

Morey AF, Zhao LC: Genital and lower urinary tract trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 101, p 2380.

Question #94

ANSWER=A

The initial management of complex scrotal avulsion injuries is observation for 24 hours to allow for clear demarcation of tissue viability. Saline soaked packs should be applied during this interval to keep the exposed tissues moist. Other techniques mentioned should only be considered after a period of observation, as they may not be necessary depending on the observed demarcation at 24 hours.

Jordan GH: Lower genitourinary tract trauma and male external genital trauma (nonpenetrating injuries, penetrating injuries, and avulsion injuries) Part II. AUA UPDATE SERIES 2000, lesson 11, vol 19, pp 82-87.

Morey AF, Zhao LC: Genital and lower urinary tract trauma, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 101, pp 2384-2385.

Question #95

ANSWER=C

The images reveal a new enhancing solid mass in the cryosurgical ablation bed of the right kidney. Recent meta-analyses have evaluated the risk of local tumor recurrence following cryoablation to be approximately 7-10%. Continued surveillance is a poor option as this mass has a growth rate associated with progression risk in the lifetime of the patient. The AUA Small Renal Mass (SRM) Guidelines Panel suggests that partial nephrectomy in this setting is fraught with a high complication rate and this has been borne out by Nguyen and colleagues. In addition, when offered attempted partial nephrectomy, this should be performed via an open approach. Due to his chronic renal insufficiency, radical nephrectomy is not an ideal option. Repeat cryoablation is the most commonly chosen therapy in this setting and is likely to be less morbid and more successful if performed via a percutaneous approach.

Breda A, Anterasian C, Belldegrun A: Management and outcomes of tumor recurrence after focal ablation renal therapy. J ENDOUROL 2010;24:749-752.

Nguyen CT, Lane BR, Kaouk JH, et al: Surgical salvage of renal cell carcinoma recurrence after thermal ablative therapy. J UROL 2008;180:104-109.

Campbell S, Uzzo RG, Allaf ME, et al: AUA Guideline: Renal cancer renal mass and localized renal cancer: AUA GUIDELINE.
https://www.auanet.org/guidelines/renal-mass-and-localized-renal-cancer-new-(2017)

Tracy CR, Cadeddu JA: Nonsurgical focal therapy for renal tumors, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 62, pp 1489-1493.

Question #96

ANSWER=E

Strictly speaking, the patient's urinary parameters are normal; however, she is a recurrent stone former. To best reduce her future stone risk, the AUA Guideline for the Medical Management of Kidney Stones recommends that for patients with high or high normal urinary calcium, thiazide medication is used. The patient already has a normal urinary sodium excretion, so further reduction of sodium intake will not affect stone risk. Dietary protein restriction will not affect this patient's calcium phosphate stone risk. As urine oxalate excretion is normal, magnesium oxide/pyridoxine will not be of benefit. Potassium citrate should not be used in a calcium phosphate stone former who already has an elevated urinary pH as its alkali effect may further promote phosphate stone formation.

Pearle MS, Goldfarb DS, Assimos DG, et al: Medical management of kidney stones: AUA GUIDELINE. Published March 2014.
http://www.auanet.org/guidelines/medical-management-of-kidney-stones-(2014)

Question #97

ANSWER=C

Bowenoid papulosis usually manifests itself as multiple, often pigmented papules on the penile skin or glans ranging in size from 0.2 to 3.0 cm in diameter. Diagnosis is confirmed by biopsy, but its histologic appearance is similar to carcinoma in situ. Similar to CIS, DNA sequences suggestive of HPV-16 have been found in Bowenoid papulosis and a causative role for HPV is suspected. Bowenoid papulosis generally presents at a younger age than CIS, usually in the second or third decade of life, and in contrast to CIS, can display differing growth patterns. Although histologically it has the same appearance as CIS, there is no risk of malignant progression and the clinical course is invariably benign. Treatments for CIS include laser ablation, imiquimod, and 5-FU topical therapy and are typically not needed for Bowenoid papulosis.

Pettaway CA, Crook JM, Pagliaro LC: Tumors of the penis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 37, p 846.

Question #98

ANSWER=B

Vitamin C (ascorbic acid) is metabolized to oxalate. There is robust evidence that 1 to 2 grams of ascorbic acid administered daily to both normal subjects and calcium oxalate stone-formers result in no urinary pH changes but an increased urinary oxalate excretion; therefore, this practice should not be used in calcium oxalate stone-formers, as it might promote stone activity.

Pearle MS, Goldfarb DS, Assimos DG, et al: Medical management of kidney stones: AUA GUIDELINE. Published March 2014.
http://www.auanet.org/guidelines/medical-management-of-kidney-stones-(2014)

Question #99

ANSWER=C

This patient has a cystic fibrosis gene mutation causing congenital bilateral absence of the vas deferens (CBAVD). Both he and his partner should undergo cystic fibrosis transmembrane conductance regulator gene mutation (CFTR) testing prior to in vitro fertilization (IVF) with sperm harvest. KAL-1 gene mutations cause hypogonadotropic hypogonadism. Androgen receptor gene mutations result in phenotypic females with primary amenorrhea. Y-chromosome microdeletion and karyotype testing are both indicated in men with non-obstructive azoospermia, but this patient's physical examination suggests that he has obstructive azoospermia due to CBAVD.

AUA Best Practice Statement: Male infertility: The evaluation of the azoospermic male: AUA BEST PRACTICE STATEMENT. Updated May 2014.
https://auanet.org/guidelines/male-infertility-azoospermic-male-(reviewed-and-amended-2011)

Question #100

ANSWER=B

Most reported ureterovascular fistulae are ureteroiliac artery fistulae. Most cases of ureteroarterial fistulae are reported in patients with a prior history of vascular disease, XRT, and/or pelvic surgery, especially in the setting of indwelling ureteral stents. The routine urologic and radiologic evaluation of hematuria will generally not provide evidence of ureterovascular fistula. Selective or subselective arteriography of the iliac vessels has a higher probability of finding the fistula at which time embolization or vascular stenting can be implemented.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, pp 2136-2137.

Question #101

ANSWER=A

The patient has a fistula between his anastomosis and his right colon continent cutaneous diversion without evidence of distal obstruction. This rare complication occurs in less than 5% of patients. In approximately two-thirds of reported cases, the fistula will resolve with conservative management. In a stable patient, a trial of an elemental diet is the initial step, which, if unsuccessful, should be followed by NPO and TPN. Bilateral nephrostomy tubes will not stop enteric content moving from the higher pressure intestine into the low-pressure reservoir. If the fistula was very high volume or the patient was septic, than a diverting ileostomy would be the appropriate step. Redoing the bowel anastomosis and repairing the pouch should be performed in a delayed fashion for fistulas that do not close.

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

DeCastro GJ, McKiernan JM, Benson MC: Cutaneous continent urinary diversion, in Wein AJ Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 98, p 2317.

Question #102

ANSWER=B

This patient has hypogonadotropic hypogonadism which may be caused by chronic opioid use. Exogenous testosterone would increase testosterone levels and decrease LH levels through aromatization to estradiol and inhibition of the hypothalamic release of LH. Sertraline and other SSRIs are associated with anorgasmia and anejaculation. Risperidone and other anti-psychotics affect libido by blocking dopamine release. Finasteride is a 5-alpha-reductase inhibitor which leads to slightly elevated levels of testosterone and depression of LH through aromatization of excess testosterone.

Niederberger CS: Male infertility, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 24, p 558.

Question #103

ANSWER=A

The 2016 AUA Guideline for the management of non-muscle invasive bladder cancer states that high-risk patients who have persistent CIS after an induction course of BCG should be offered a second course of BCG rather than changing the intravesical agent (such as valrubicin, mitomycin C, or gemcitabine). If a second course also fails, alternative intravesical agents or a clinical trial can be offered to those who are not fit for surgery or refuse surgery. Although primary radical cystectomy in this setting would be an option, in the absence of muscle invasive disease, neoadjuvant chemotherapy is not indicated.

Jones JS: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 93, p 2217.

Chang SS, Boorjian SA, Chou R, et al: Diagnosis and treatment of non-muscle invasive bladder cancer: AUA/SUO GUIDELINE. Published April 2016. http://www.auanet.org/guidelines/non-muscle-invasive-bladder-cancer-(aua/suo-joint-guideline-2016)

Question #104

ANSWER=A

The FDA warning states that fluoroquinolones should be reserved for use in patients who have no other treatment options for uncomplicated UTIs because the risks of serious side effects (tendon rupture) generally outweigh the benefits in these patients. Uncomplicated UTIs occur in women who do not have anatomic or urologic abnormalities and do not have recurrent UTIs. All men with UTIs are considered complicated. The warning does not address long term use or fibromyalgia. Quinolones should be avoided in patients with myasthenia gravis. Fluoroquinolone antibiotics are associated with potentially permanent side effects of the tendons, joints, nerves and central nervous system. Signs and symptoms include joint or tendon pain, muscle weakness, tingling sensations, numbness, confusion, and hallucinations. The FDA does not comment on the use of fluoroquinolones prior to outpatient procedures or the routine use perioperatively; however, due to this warning, it may be prudent to consider switching to a different antibiotic on a case-by-case basis. The FDA warning does not address the length of fluoroquinolone therapy. There is no evidence that the presence of fibromyalgia has an impact on the safety or efficacy of fluoroquinolones.

FDA Drug Safety Communication: FDA updates warnings for oral and injectable fluoroquinolone antibiotics due to disabling side effects (July 26, 2016). http://www.fda.gov/Drugs/DrugSafety/ucm511530.htm?source=govdelivery&utm_medium=email&utm_source=govdelivery. Accessed August 2, 2016.

Question #105

ANSWER=E

In a recent working group of medical oncologists, the contraindications to cisplatin-based chemotherapy in the setting of urothelial carcinoma of the bladder included poor performance status, creatinine clearance < 60 mL/min, significant hearing loss, significant peripheral neuropathy, or a New York Heart Association Class 3 or higher heart failure. This patient is a poor candidate for cisplatin due to his peripheral neuropathy; therefore, neither M-VAC nor gemcitabine/cisplatin are appropriate. There is no data to support the use of non-cisplatin regimens, such as those using carboplatin, for neoadjuvant chemotherapy prior to cystectomy for bladder cancer. Multifocal CIS is a poor prognostic feature for chemotherapy/XRT in bladder cancer; therefore, this patient is best served by upfront radical cystectomy.

Guzzo TJ, Vaughn DJ: Management of metastatic and invasive bladder cancer, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 94, p 2237.

Question #106 **ANSWER=E**

Patients with cystinuria may have other metabolic disturbances such as hypercalciuria, hypocitraturia, and hyperuricosuria, and form other types of stones such as calcium oxalate, calcium phosphate, uric acid, or mixed calculi; therefore, a stone analysis should be done to check for non-cystine stones, especially if the patient is on "appropriate" medical therapy. Comprehensive 24-hour urine testing should be done if such patients are forming non-cystine stones. Increasing the dose of potassium citrate may raise urinary pH to a level that would place this patient at risk for calcium phosphate stone formation. Captopril therapy reduces cystine excretion and would be a reasonable addition to this patient's current regimen if he is currently forming cystine stones. Dietary methionine is a precursor to cystine and should be restricted in patients with cystinuria. The patient has known cystinuria, so he does not require a repeat sodium nitroprusside test.

Pearle MS, Antonelli JA, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 51, p 1170.

Question #107 **ANSWER=E**

Evidence based medicine focuses on information needed to guide the management of individuals or groups of patients. A review of etiologic literature focuses on background information, and, therefore, does not fall under the purview of evidence based medicine. Secondary resources, such as systematic reviews or metanalyses, are distinct from primary resources, such as original single studies, as they incorporate some degree of formal critical appraisal, validity, and clinical importance. Physicians should draw on secondary resources of evidence rather than individual studies to apply current best evidence to the care of their patients. Not all studies with a significant p-value will meet the criteria of being valid or clinically important.

AUA University Core Curriculum: Evidence-Based Medicine. American Urological Association. Updated December 2016.
https://university.auanet.org/core_topic.cfm?coreID=121

Question #108 **ANSWER=E**

Renal fistula following percutaneous nephrostomy is most often due to distal obstruction and can usually be treated with a ureteral stent. Persistent fistula can occur in the setting of a chronic infection such as tuberculosis or xanthogranulomatous pyelonephritis.

Changing the stent or putting a percutaneous nephrostomy in this poorly functioning kidney is unlikely to result in closure of the fistula after this long a period; therefore, nephrectomy is the best treatment.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, p 2137.

Question #109 **ANSWER=C**

The sciatic nerve can be injured with deep placement of sacrospinous fixation sutures, leading to pain radiating down the leg. This may be more common with poor exposure of the ligament and blind placement of sutures. The obturator nerve would be too lateral to catch with sutures. The pudendal nerve can be injured but would cause mostly gluteal pain and not leg pain. The most common cause of gluteal pain after this surgery is injury to the inferior gluteal nerve, and it is typically transient. The femoral nerve would be difficult to injure in this surgery.

Winters JC, Smith AL, Krlin RM: Vaginal and abdominal reconstructive surgery for pelvic organ prolapse, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 83, pp 1967-1968.

Question #110 **ANSWER=E**

Currently, the total dose of onabotulinumtoxinA should not exceed 400 U in a three month period for all indications, including those outside the urinary tract (i.e., cosmetic, ophthalmologic, etc.). Since this man has had 275 U, he may be eligible for another 200 U dose in one month. If 200 U were not beneficial initially, a dose of 100 U is unlikely to help, while 300 U is not an approved dose for neurogenic detrusor overactivity. As repeated injections of onabotulinumtoxinA have been shown to be effective and safe, most practitioners would attempt additional injections prior to considering ileocystoplasty.

Rovner E: Practical aspects of administration of onabotulinumtoxinA. NEUROUROL URODYN 2014;33(3):32-37.

Andersson KE, Wein AJ: Pharmacologic management of lower urinary tract storage and emptying failure, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 79, pp 1861-1863.

Question #111 **ANSWER=A**

This patient has medial fibroplasia which occurs predominantly in women 25 to 50 years of age. The lesion is typically described as a "string of beads" and involves the distal half of

the main renal artery. The lesions are unlikely to progress to complete occlusion or result in loss of renal function; therefore, a renal function scan is not necessary. Hydrochlorothiazide 25 mg is an appropriate initial treatment and more aggressive medical therapy should now be initiated. Treatment does not usually require surgical intervention (i.e., stenting, angioplasty, or revascularization).

Gulmi FA, Reiser IW, Spitalewitz S: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 45, p 1028.

Question #112

ANSWER=A

This condition, in which a patient has an orgasm without the expulsion of an antegrade ejaculate from the urethra, is called "aspermia," "anejaculation," or "dry ejaculation." The differential diagnosis includes failure of a seminal emission (no expulsion of fluid from the vas deferens, seminal vesicles, and prostate into the posterior urethra) and retrograde ejaculation (retrograde flow of semen from the posterior urethra into the bladder). In addition, very low volume ejaculates may be due to ejaculatory duct obstruction or aplasia of the vas deferens and seminal vesicles. In this patient, the likelihood of ejaculatory duct obstruction is low since there is no antegrade ejaculate at all, and transrectal ultrasound would not be an appropriate next step. Post-ejaculatory urinalysis differentiates between the diagnoses of failure of seminal emission and retrograde ejaculation. Patients are counseled to urinate into a specimen container after orgasm, and the urine is centrifuged and inspected for the presence of sperm. Although MRI scan of the spine and HbA1c may help clarify the etiology of the aspermia, post-ejaculatory urine is needed as the next step to determine if the patient has retrograde ejaculation or failure of seminal emission. Pseudoephedrine is a treatment for retrograde ejaculation, but a diagnosis is needed before offering this therapy.

Niederberger CS: Male infertility, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 24, pp 567, 575, 5578-5579.

AUA Best Practice Statement: Male infertility: Optimal evaluation of the infertile male: AUA BEST PRACTICE STATEMENT. Reviewed and validity confirmed 2011. http://www.auanet.org/guidelines/male-infertility-optimal-evaluation

Question #113

ANSWER=B

Clostridium difficile is typically present in low numbers in the fecal flora; however, antibiotic therapy may eliminate the normal fecal flora and allow C. difficile to flourish. C. difficile produces toxins which cause diarrhea and mucosal sloughing (pseudomembranous enterocolitis). If left unchecked, the infection can progress to life-threatening toxic megacolon. The diagnosis of C. difficile colitis requires: 1) the presence of diarrhea or radiographic evidence of ileus, and 2) a positive stool test result for the C. difficile organism

or its toxins, or colonoscopic/histologic findings of pseudomembranous colitis. Initial treatment of C. difficile colitis includes oral metronidazole or vancomycin. Mild cases can be treated with metronidazole, but patients with evidence of systemic symptoms should be treated with oral vancomycin. The patient in this scenario is febrile with an elevated WBC, and should, therefore, be treated with oral vancomycin. The use of concomitant metronidazole and vancomycin has not been shown to have efficacy above that seen with a single agent. Intravenous metronidazole does result in measurable drug levels in the colon. This treatment can be used in cases where oral medications are not possible but it is not recommended as monotherapy. Similarly, rectal vancomycin can be used in the setting of ileus or as adjunctive therapy, but it is not recommended as monotherapy as it may not reach the entire affected area. Other treatments such as probiotics or fecal transplantation are reserved for cases of recurrent C. difficile infections. Surgical treatment with partial or subtotal colectomy may be required if severe systemic symptoms or colon dilation (megacolon) develops.

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, pp 2283-2284.

Bagdasarian N, Rao K, Malani PN: Diagnosis and treatment of Clostridium difficile in adults: A systematic review. JAMA 2015;313:398-408.

Question #114

ANSWER=B

The combination of a testis and a contralateral streak gonad and incomplete virilization defines mixed gonadal dysgenesis. The chromosomal status is usually that of a mosaic 45 XO/46 XY. The persistence of the Müllerian structures is due to the lack of production of Müllerian inhibiting substance (MIS). This is the second most common etiology of ambiguous genitalia following 46 XX DSD (female pseudohermaphroditism, i.e., CAH). Pure gonadal dysgenesis, defined by bilateral streak gonads, would have either 46 XX or 46 XY genotype. Hernia uteri inguinale (persistent Müllerian duct syndrome) is due to a failure of production of MIS or its receptor and has normal appearing testes in the abdomen with Fallopian tubes and uterus. Ovo-testicular disorder (true hermaphroditism) always has both ovarian and testicular tissue present. CAH does not have testes present.

Diamond DA, Yu RN: Disorders of sexual development: etiology, evaluation, and medical management, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier Saunders, 2016, vol 4, chap 150, p 3480.

Question #115

ANSWER=B

Presacral bleeding is a serious event that one who performs sacrocolpopexy should be prepared for. The use of a sterile tack placed at the site of sacral sutures may need to be done. Suture ligation of the vessels that would usually cause this type of deep sacral bleeding is rarely successful. Closing the retroperitoneum would not help deep sacral

bleeding. Angioembolization and iliac clamping would not help at this presacral venous level. This bleeding is seen more often if the sutures are placed too low in the sacrum (closer to S2/S3/S4).

Winters JC, Smith AL, Krlin RM: Vaginal and abdominal reconstructive surgery for pelvic organ prolapse, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 83, p 1973.

Question #116

ANSWER=E

A recent prospective, randomized phase 3 trial compared the long-term outcome of orthotopic neobladder with (T-pouch) or without (Studer pouch) an anti-reflux mechanism. The study found no difference in the rates of overall late complications or moderate renal failure, but did demonstrate a higher rate of secondary diversion-related surgeries for those patients randomized to the T-pouch.

Skinner EC, Fairey AS, Groshen S, et al: Randomized trial of Studer pouch versus T-pouch orthotopic ileal neobladder in patients with bladder cancer. J UROL 2015;194:433-439.

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, p 2294.

Question #117

ANSWER=A

According to the AUA Guidelines on Peyronie's Disease, extracorporeal shock wave therapy (ESWT) can be offered for the treatment of penile pain in men with Peyronie's disease (Conditional Recommendation; Evidence Strength Grade B); however, there is limited use of ESWT in the United States as compared to other parts of the world, such as Europe and Asia. The AUA Peyronie's Guideline Panel noted that penile pain commonly resolves over time, and ESWT may pose a substantial patient burden. It was the opinion of the Panel that the overall utility of ESWT in the management of Peyronie's disease is low. In addition, the Panel recommended that clinicians should not use ESWT for the reduction of penile curvature or plaque size (Moderate Recommendation; Evidence Strength Grade B). Finally, ESWT is not indicated for the treatment of calcified penile plaques or hourglass deformities.

Levine LA, Larsen S: Diagnosis and management of Peyronie Disease, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 31, p 737.

Nehra A, Alterowitz R, Culkin DJ, et al: Peyronie's disease: AUA GUIDELINE. Published April 2015.
https://auanet.org/guidelines/peyronies-disease-(2015)

Question #118

ANSWER=E

The findings presented are most consistent with obstruction at the site of the abdominal stoma. Not only are the upper tracts dilated, but the ileal conduit is extended in length as well. Stomal stenosis is the most common cause of obstruction at this location. This is a more common finding in children, whose bowel is of somewhat smaller diameter than in adults. Parastomal hernias rarely result in obstruction of the loop. Ileal ischemia can result in a "pipe-stem" loop. This condition is associated with isolated strictured areas along the course of the conduit and, in general, the conduit is thin and non-compliant throughout its entire length. Antiperistaltic urinary conduits typically function normally. The fact that there is conduit dilation and reflux into dilated ureters argues against uretero-ileal anastomotic stricture or tumor recurrence as the cause.

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, pp 2293-2294.

Question #119

ANSWER=D

This child has classic symptoms of detrusor overactivity. All of the therapies have a role in the management of urinary incontinence. Antimuscarinics are the gold standard for detrusor overactivity. Often, a course of treatment over several months is effective until the bladder function matures and medication can be stopped. Pelvic floor biofeedback is helpful and can have some inhibitory effect on the overactive detrusor, but it can be time-consuming, difficult to execute at this age, and is most helpful for children with dysfunctional elimination with elevated PVR volume. Holding exercises (delayed voiding) are typically not effective and can promote dysfunctional elimination. Limiting fluid intake is only helpful in children with an excessive fluid intake. Laxatives are helpful in constipated children, but this child's worsening symptoms dictate therapy more directed at bladder function. Caffeine elimination can also be helpful, but it is rarely an issue at this age. Posterior tibial nerve stimulation can also be effective, but its use is not approved in children and would be used in the adult population after a failure of pharmacologic therapy.

Austin PF, Vricella GJ: Functional disorders of the lower urinary tract in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 143, pp 3306-3310.

Question #120

ANSWER=E

The most common cause of bladder calculi after augmentation cystoplasty is thought to be poor emptying and mucus formation. The majority of stones will be struvite, usually due to chronic bacteriuria. Oral and intravesical antibiotics may transiently lower the risk for bacteriuria but have not been shown to lower stone risk. Thiazide diuretics have no benefit

with the types of stones generally formed in an augmented bladder. Hypocitraturia has been shown to be associated with bladder stones in some patients, but the impact of poor emptying and mucus are the more important risk factors. Supplemental potassium citrate will not decrease the incidence of bladder stones in this population. Patients with abdominal wall stomas have a risk of incomplete bladder emptying, with a higher risk of bladder stones compared to those that catheterize per urethra. The best option for this patient would be to add daily bladder irrigation and ensure complete bladder emptying by adding catheterization per urethra.

Adams MC, Joseph DB, Thomas JC: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 145, p 3353.

Question #121

ANSWER=D

The genitofemoral nerve runs anterior to the psoas muscle and provides sensation to the anterior thigh (femoral branch), and the cremasteric muscles and anterior scrotum (genital branch). This is the most likely nerve to be injured during laparoscopic varicocelectomy, especially with cautery around the psoas muscle. The iliohypogastric nerve supplies innervation to the internal oblique and transversus muscles as well as sensation to the lower abdominal wall. The ilioinguinal nerve supplies sensation to the anterior scrotum but not to the thigh. The posterior femoral cutaneous nerve supplies sensation to the posterior scrotum, posterior thigh, and perineum. The obturator nerve supplies sensation to the inner medial thigh and motor supply to the adductors of the thigh.

Chung BI, Sommer G, Brooks JD: Surgical, radiographic, and endoscopic anatomy of the male pelvis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 68, pp 1618-1619.

Question #122

ANSWER=B

Development of the stoma is perhaps the most important aspect in performing an ileal conduit because the stoma is the most likely site of complications and has a significant impact on a patient's quality of life. Proper maturation of the stoma and selection of the appropriate site for stomal placement are the most critical factors in determining the success of the ileal stoma and a properly fitting appliance. Ideally, the matured stoma should extend one to two inches above the skin edge for minimizing stomal stenosis, reducing skin problems, and optimizing proper appliance fit. Ideally a nipple or "rosebud" stoma is performed; however, obese patients have a thick abdominal wall and often a thick, short ileal mesentery. This makes the construction of an end ileal stoma extremely difficult, as in this patient. The loop ileostomy obviates some of these problems and is usually easier to perform than the ileal end stoma in the patient who is obese. The so-called Turnbull loop stoma results in a lesser incidence of stomal stenosis but a higher incidence of parastomal hernias. In obese patients with a short mesentery and thick abdominal wall, the loop ileostomy should be considered. All stomas should be placed through the belly of the rectus muscle. Moving the ostomy lateral to the rectus fascia should not be performed as it would significantly increase the risk of a parastomal hernia. Use of transverse colon is unlikely to overcome the difficulties of a thick abdominal wall and short mesentery in this patient, and is, therefore, not recommended. Although in some obese patients, an orthotopic neobladder may be easier to accomplish than the ileal conduit, working with the thickened bowel mesentery remains a challenge. The mesentery may prevent adequate descent of the reservoir into the pelvis compromising the ability to perform the neobladder to urethra anastomosis. Furthermore, since the preoperative plan was to perform an ileal conduit in this patient, primary efforts (including a Turnbull stoma) should be made to perform the ileal conduit if possible. Although the use of ureterosigmoidostomies may avert the need for bowel diversion and may be appropriate in very select patients, it possesses challenges related to fecal incontinence and to potential cancer development. Accordingly, in this patient or any obese patient, this should not represent an initial approach to urinary diversion.

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, p 2293.

Question #123

ANSWER=C

Follow-up CT imaging (after 48 hours) is prudent in patients with deep renal injuries (American Association for the Study of Trauma [AAST] grade 4-5) because these injuries are prone to developing troublesome complications such as urinoma or hemorrhage. AAST grade 1-3 injuries have a low risk of complications and rarely require intervention; however, in this scenario, the patient has worsening flank pain which may indicate a potential complication. Routine follow-up CT imaging is not advised for uncomplicated AAST grade 1-3 injuries, because it is unlikely to change clinical management. Routine DMSA or other functional nuclear scans are also not advised. Benefits of forgoing routine follow-up imaging in low-grade renal injuries include simplicity in follow-up, decreased radiation exposure and I.V. contrast complications, patient convenience, and lower cost. Clinicians should not hesitate to perform follow-up imaging studies when a complication of renal injury is suspected. Periodic monitoring of blood pressure up to a year after the injury may uncover the rare instances of post-injury renovascular hypertension. Retrograde pyelogram or renal ultrasound with Doppler are not indicated at this time.

Morey AF, Brandes S, Dugi DD, et al: Urotrauma: AUA GUIDELINE. Published April 2014. Amended 2017. http://www.auanet.org/education/guidelines/urotrauma.cfm

Question #124

ANSWER=C

Stopping allopurinol could lead to high uric acid levels and gout. Increasing allopurinol could lead to hypoxanthine stones. Neither thiazide diuretic nor low sodium diet will affect uric acid stone formation, which is the predominant stone type in patients with Lesch-Nyhan syndrome. Liver and renal transplant are considered for primary hyperoxaluria.

Alkalinization of urine, and decreasing the allopurinol dose would be most beneficial in this patient.

Lipkin ME, Ferrandino MN, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 52, p 1200.

Question #125

ANSWER=D

The neurologic lesion in spina bifida is a dynamic disease process, especially in early infancy and at puberty when linear growth rate accelerates. When a change is noted on urodynamic assessment, radiologic investigation often reveals tethering of the spinal cord, a syringomyelia, increased intracranial pressure due to shunt malfunction, or partial herniation of the brainstem and cerebellum. Correction of a tethered cord may result in reversal of the bladder deterioration and prevent the need for a bladder augmentation. MRI scan is the test of choice for spinal cord imaging rather than CT scan. A KUB would demonstrate the bony defect associated with his history of spina bifida, but would not diagnose a tethered cord. Bowel dysfunction and constipation are common in patients with a history of meningomyelocele and may affect bladder function. Although the intestinal transport studies in this patient would likely be abnormal, the significant deterioration in this patient's bladder function should prompt exclusion of a tethered spinal cord. EMG would not be specific enough to diagnose the etiology of the changes.

MacLellan DL, Bauer SB: Neuromuscular dysfunction of the lower urinary tract in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 142, pp 3279-3280.

Question #126

ANSWER=E

The patient has advanced collecting duct carcinoma of the kidney. Collecting duct carcinomas are aggressive tumors often presenting in younger patients in their third, fourth, or fifth decade of life. Patients often present with locally-advanced or metastatic disease and overall prognosis is generally poor. Collecting duct carcinomas are resistant to conventional therapies for clear cell and papillary renal carcinomas (such as IL-2, sorafenib, sunitinib, bevacizumab, and temsirolimus), but some patients have shown a response to cisplatin- and gemcitabine-based therapies, perhaps due to their biologic similarity to urothelial carcinoma. A multicenter phase 2 trial demonstrated that gemcitabine combined with cisplatin or carboplatin provides a response rate of 26% and improved overall survival.

Oudard S, Banu E, Vieillefond A, et al: Prospective multicenter phase II study of gemcitabine plus platinum salt for metastatic collecting duct carcinoma: Results of a GETUG (Groupe d'Etudes des Tumeurs Uro-Génitales) study. J UROL 2007;177:1698-1702.

Campbell SC, Lane BR: Malignant renal tumors, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 57, p 1333.

Question #127

ANSWER=A

In October of 2015, flibanserin was approved by the FDA for the treatment of hypoactive sexual desire disorder (HSDD) in women. Flibanserin is an agonist against the 5HT1A receptor and antagonist against the 5HT2A receptor. It also exerts dopaminergic and noradrenergic action. This medication has been shown to improve sexual desire in women. Alcohol consumption is absolutely contraindicated with this medication. All patients are required to sign a contract to avoid alcohol due to concerns of the impact on blood pressure. Flibanserin is currently only approved for pre-menopausal women with HSDD. There is no contraindication for the concomitant use of SSRIs (selective serotonin reuptake inhibitors) or digoxin. Finally, flibanserin is not contraindicated in pregnancy.

Shindel AW, Goldstein I: Sexual function and dysfunction in the female, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 32, p 759.

Question #128

ANSWER=D

Sterilization involves the complete destruction of all microbial life, including bacterial spores. There are several types of sterilization processes available, including steam under pressure, ozone, ethylene oxide gas, hydrogen peroxide gas plasma (i.e., Sterrad, V-Pro), and liquid chemicals (i.e., Steris System 1). Disinfection is defined as thermal or chemical destruction of pathogenic and other types of microorganisms. Disinfection is less lethal than sterilization because it destroys most recognized pathogenic microorganisms but not necessarily all microbial forms (i.e., bacterial spores). High-level disinfection (HLD) has the ability to kill all microorganisms, except large numbers of bacterial spores. Spores are a defense mechanism of some bacteria and are resistant to high-level disinfectants unless they are exposed for an extended period; however, most high-level disinfectants have the ability to sterilize given sufficient exposure time. Intermediate-level disinfection inactivates M. tuberculosis, vegetative bacteria, most viruses, and most fungi, but it does not necessarily kill bacterial spores. Low-level disinfection can kill most bacteria, some viruses, and some fungi, but it cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores. High-level disinfection is the minimum level of disinfection recommended for cystoscopes.

Clemens JQ, Dowling R, Foley F, et al: Joint AUA/SUNA white paper on reprocessing of flexible cystoscopes: AUA. 2013.
https://auanet.org/guidelines/flexible-cystoscopes. Published 2009, updated 2013.

Question #129

ANSWER=A

Paratesticular sarcomas are the most common genitourinary sarcomas in adults. Liposarcoma is the most common histologic subtype in adults, while embryonal rhabdomyosarcoma is most common in men younger than 30 years of age. Sarcomas should be managed with wide resection through an inguinal approach with excision of the testis and spermatic cord and high ligation. Additional therapy is indicated by histologic subtype and the presence or absence of regional or distant metastases. Liposarcomas rarely metastasize, but local recurrence is relatively common. As such, postoperative radiotherapy should be considered for paratesticular liposarcoma, especially in cases where the adequacy of local excision is in doubt (positive margins or large tumors). When metastatic evaluation is normal, patients with sarcomas other than liposarcoma (i.e., rhabdomyosarcoma, malignant fibrous histiocytoma, angiosarcoma) and mesothelioma should undergo RPLND, with postoperative chemotherapy if retroperitoneal lymph nodes are involved.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 34, p 813.

Question #130

ANSWER=B

The patient likely has primary syphilis; however, rapid plasma reagin (RPR) is not specific enough to initiate therapy. The sensitivity of non-treponemal tests such as VDRL and RPR is 86% and 78%, respectively, for syphilis; therefore, all positive non-treponemal tests (VDRL and RPR) should be confirmed with either T. palladium particle agglutination (TP-PA) or fluorescent treponemal antibody absorbed (FTA-ABS) testing. Treatment for primary, secondary, or early latent syphilis should be IM benzathine penicillin G. Other parental preparations are not indicated. There is no evidence to support azithromycin as primary treatment for syphilis.

Pontari MA: Sexually transmitted diseases, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 15, pp 373-376.

Question #131

ANSWER=B

Diuretic renography is dependent on many variables. A false negative test most commonly results from inadequate fluid volume and, therefore, low urine flow at the time of the study, as the test is dependent on adequate urine production. Poor renal function, an inadequate dosage of administered diuretic, or a full bladder at the time of the study may lead to a false positive result indicative of obstruction.

Meldrum KK: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 48, p 1092.

Question #132

ANSWER=E

Lower extremity neuropathy can occur following a procedure performed in the lithotomy position due to prolonged procedure time, inadequate padding, or patient anatomic factors. Such neuropathies are characterized by paresthesia as well as pain. They will generally resolve with conservative management. A cerebrospinal fluid leak is characterized by a headache. Epidural abscess is a rare, infectious complication of spinal anesthesia, which will be associated with back and radicular pain but will present later. The epidural hematoma will also be associated with a sensory deficit in addition to radicular pain and is similarly rare. Lidocaine toxicity will yield systemic effects such as metallic taste, dizziness, and lightheadedness.

Vira MA, Steckel J: Core principles of perioperative care, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 5, pp 114-115.

Question #133

ANSWER=D

Adrenal incidentalomas are unsuspected adrenal masses greater than 1 cm in diameter identified on imaging performed for seemingly unrelated causes. Ultrasonography is a suboptimal imaging modality for detecting and fully characterizing adrenal lesions. Nevertheless, many incidentalomas will be discovered on ultrasound imaging performed for unrelated reasons. A non-contrast CT scan is the first, perhaps single best, and most easily interpreted test for intracellular lipid and, therefore, can diagnose an adrenal adenoma in more than 70% of cases. Ninety-eight percent of lesions with an attenuation of 10 HU or less on non-contrast CT scan are adrenal adenomas, while less than 30% of adrenal adenomas are lipid-poor (also known as "atypical adenomas") and have an attenuation of greater than 10 HU. If a lesion demonstrates an attenuation of > 10 HU on non-contrast CT scan, then additional radiologic evaluation can be performed including CT washout study to help discriminate lipid poor adenomas from other adrenal lesions. Gadolinium-enhanced MR washout studies do not exhibit the diagnostic strength of iodine-based CT washout studies, and are not commonly employed, especially as the initial study. When MRI scan is used, opposed-phase chemical shift MR imaging (i.e., T1- and T2-weighted imaging), to evaluate for intracellular lipid content, can help distinguish an adenoma from other adrenal lesions. Repeat biochemical evaluation in three months is not necessary, especially since the initial evaluation demonstrated the lesion to be biochemically inactive.

Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 65, p 1567.

Bishoff JT, Rastinehad AR: Urinary tract imaging: Basic principles of computed tomography, magnetic resonance imaging, and plain film, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 2, p 47.

Question #134 **ANSWER=A**

Citrate is a urinary stone inhibitor and acts by binding to calcium, preventing the formation of calcium oxalate and calcium phosphate crystals. Citrate also inhibits the spontaneous nucleation of calcium oxalate. Hypocitraturia usually occurs in the absence of any concurrent symptoms or any known metabolic derangements. Calcium binds oxalate in the colon. Alkalinizing the urine will decrease uric acid and cystine stone formation, but does not impact formation of calcium oxalate stones. Citrate does not impact permeability of the collecting duct.

Pearle MS, Antonelli JA, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 51, p 1170.

Question #135 **ANSWER=C**

The patient has developed a recurrence in the right groin after a period of observation. If the patient had undergone prophylactic groin dissections after his partial penectomy, he would have had bilateral groin dissections; however, with the delay, it is recommended to perform the dissection only on the side with obvious disease. There is no reason why he should have infected groin nodes since the penis has already been treated, so six weeks of antibiotics are unnecessary and would delay his treatment. The patient does not have any evidence of metastatic disease and the right inguinal lymph nodes are resectable, so there is no role for systemic chemotherapy at this point.

Pettaway CA, Crook JM, Pagliaro LC: Tumors of the penis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 37, p 865.

Question #136 **ANSWER=D**

Sexually transmitted infection (STI) in females, with or without concomitant UTI, should be considered in the 16 to 24-year-old age group with these symptoms. The prevalence of Chlamydia is estimated at 13% to 26% and Neisseria gonorrhea 2% to 10% in this age group when presenting with dysuria and urinary frequency. According to some estimates, females within this age group presenting with these two symptoms are just as likely to have STI as UTI; therefore, Chlamydia and Neisseria gonorrhea testing should be the next step. A renal and bladder ultrasound, as well as a pelvic ultrasound and VCUG, are not indicated in this patient as a next step given her age and lack of prior UTIs. If the urinalysis

is suggestive of a UTI, empiric trimethoprim-sulfamethoxazole could be started and adjusted based on the urine culture results.

Pontari MA: Sexually transmitted diseases, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 15, pp 371-372.

Cooper CS, Storm DW: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 127, p 2937.

Question #137 **ANSWER=E**

This patient has the syndrome of inappropriate secretion of antidiuretic hormone. The syndrome has a multitude of causes, one of which is prostate carcinoma. The patient is essentially water-intoxicated with hypo-osmolality and dilutional hyponatremia but will continue to inappropriately concentrate his urine. Urinary sodium excretion will also frequently continue. The treatment is fluid restriction, ad lib salt, and occasionally, diuretics. The other treatment modalities will not correct this issue.

Sorensen JB, Andersen MK, Hansen HH: Syndrome of inappropriate secretion of antidiuretic hormone (SIADH) in malignant disease. J INT MED 1995;238:97-110.

Palmer BF: Hyponatremia, in RE Rakel, ET Bope (eds): RAKEL: CONN'S CURRENT THERAPY 2006, ed 58. Philadelphia, Elsevier Saunders, 2006, p 719.

Question #138 **ANSWER=E**

The timing of the repair of a vesicovaginal fistula depends on several factors including the results of a careful vaginal and cystoscopic exam. Vesicovaginal fistulae that occur following hysterectomy are located along the anterior vaginal wall at the level of the vaginal cuff. Pain is an uncommon finding with vesicovaginal fistula and in this patient most likely indicates a wound infection. A visual and manual assessment of inflammation surrounding the fistula is necessary because it will affect the timing of the repair. Significant inflammation, infection, or induration around the fistula may mitigate against immediate repair. In light of this patient's demonstration of a probable wound infection, immediate repair is not indicated. Catheter drainage will most likely not improve the situation and a fistula of this size is unlikely to heal spontaneously. Percutaneous nephrostomy tubes for proximal diversion are not indicated. A delayed repair is the best treatment option.

Badlani GH, De Ridder DJMK, Mettu JR, Rovner ES: Urinary tract fistulae, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 89, pp 2110-2111.

Question #139

ANSWER=E

This patient has severe erectile dysfunction as measured by the International Index of Erectile Function (IIEF) on a scale from 5-25, where a score of > 21 demonstrates normal erectile function. His severe vascular injury would make him unlikely to be a responder to PDE5 inhibitors, intraurethral alprostadil or intracorporal injection, all of which would require a somewhat intact cavernosal artery. Patients do not need to fail less aggressive treatment options before consideration of placement of a penile prosthesis. While penile revascularization can be considered, his age, bilateral injury, and severity of erectile dysfunction make him a poor candidate. Placement of a penile prosthesis will be effective in restoring his erectile ability.

Burnett AL II: Evaluation and management of erectile dysfunction, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 27, pp 648-650.

Question #140

ANSWER=C

This patient is failing medical management. OnabotulinumtoxinA may provide a temporary solution to a long-term management problem. Subureteric injections are not currently indicated in patients with neuropathic bladder and additionally would not address the underlying problem of bladder dysfunction. Open ureteral surgery may correct the reflux (with a relatively high failure rate in this scenario), but the patient would still have unaddressed significant problems with high LPP and poor bladder compliance and, because of this, it would not be a good option for this patient. Augmentation cystoplasty and ureteral reimplant would be a reasonable option for an older patient, but because of the patient's young age and failure of medical management, cutaneous vesicostomy would be the best option.

Morrisroe SN, O'Connor RC, Nanigian DK, et al: Vesicostomy revisited: The best treatment for the hostile bladder in myelodysplastic children. BJU INTERN 2005;96(3):397-400.

Question #141

ANSWER=C

A KUB is utilized in follow-up if the calculus was identified on CT scan, scout film, or KUB at the time of diagnosis unless the initial location of the stone was over the sacroiliac area. As such, KUB will not be helpful in this patient. Low-dose, non-contrast CT scan is not recommended in patients with a BMI over 30 due to a decrease in sensitivity. Intervention with either ureteral stent placement or ureteroscopy should not be performed until a repeat non-contrast CT scan confirms the presence of a persistent stone.

Fulgham PF, Assimos DG, Pearle MS, Preminger GM: Clinical effectiveness protocols for imaging in the management of ureteral calculous disease: AUA technology assessment: AUA GUIDELINE. Published 2012.
https://auanet.org/guidelines/imaging-for-ureteral-calculous-disease

Question #142

ANSWER=C

The subinguinal varicocelectomy approach is preferred for any man with a history of previous inguinal surgery in order to safely and effectively expose the spermatic cord. Obesity is another indication for a subinguinal approach. A scrotal approach should not be used in any patient due to the high risk of concomitant testicular artery injury with resultant testicular atrophy or possible loss of the testicle. The laparoscopic and retroperitoneal approaches are more invasive than the subinguinal approach in this scenario, and both have more potential for serious morbidity. A radiographic approach has a higher rate of varicocele recurrence as compared to the other approaches.

Goldstein M: Surgical management of male infertility, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 25, pp 604-610.

Question #143

ANSWER=D

In patients with metastatic germ cell tumor of the testicle and normal testicular examination, scrotal ultrasound should be performed to rule-out the presence of a small non-palpable scar or calcification which could indicate a "burned-out" primary testicular tumor. In this case, the 3 mm hyperechoic lesion is consistent with a coarse calcification representing a burned-out primary tumor. Germ cell tumors are among the most common neoplasms to undergo spontaneous regression, with seminoma being the most frequent histologic subtype. Radical orchiectomy should be performed in patients with evidence of intratesticular lesions (i.e., discrete nodule, stellate scar or coarse calcification) because ITGCN and residual teratoma are frequently present. Men with advanced testicular cancer with normal testicular examination and normal scrotal ultrasound are considered to have primary extragonadal germ cell tumor.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1, chap 34, p 790.

Question #144

ANSWER=B

Laparoscopy has made nephropexy for ptotic kidneys a relatively simple surgical procedure. Ptosis of the kidney is described as the descent of two or more vertebral lengths when the patient moves from lying down to standing; however, prior to performing nephropexy,

strict adherence to surgical indications is necessary. A ptotic kidney should be pexed only if there are positional changes in blood flow, obstruction, and pain associated with the descent of the kidney.

Schwartz MJ, Rais-Bahrami S, Kavoussi LR: Laparoscopic and robotic surgery of the kidney, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 61, p 1462.

Question #145

ANSWER=D

This diabetic patient is in poor control with an elevated serum glucose. Serum glucose elevation can lead to a spurious decrease in measured serum sodium levels. This pseudohyponatremia is also related to high level of protein or lipids in the blood and has to do with these molecules diminishing the amount of free water in a given volume of plasma, thus lowering measured sodium levels. What actually is important physiologically is the amount of sodium per volume free water. In cases of hyperglycemia, using the measured serum glucose (which is glucose level per volume of plasma) turns out to be a poor proxy for the level of glucose per volume of free water. For every 100 mg/dL of serum glucose, the measured serum sodium will decline by 1.6 mEq/L. That means that this patient with a serum glucose of 390 mg/dL has a true serum sodium level of about 137 mEq/L, which is normal. As serum sodium is principally a marker of the appropriateness of total body free water, this patient then has a normal and not increased amount of total body free water. Since serum sodium is actually normal once corrected, the other diagnoses are unlikely.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 2, chap 44, p 1007.

Question #146

ANSWER=A

Iron deficiency is the most common cause of anemia following bariatric surgery, particularly in premenopausal women. Chronic inflammation associated with obesity and nutritional deficiencies of Vitamin B12, folic acid, and ascorbic acid are other, less common causes of anemia in this patient population.

Bal BS, Finelli FG, Shope TR, et al: Nutritional deficiencies after bariatric surgery. NATURE REVIEWS ENDOCRIN 2012;8:544-556.

Question #147

ANSWER=B

This man most likely has large dilated veins due to portal hypertension (although at times these veins may not be obvious). There have been several reported instances of this, in

which massive bleeding, such as in this patient, can occur. The most effective treatment is shunting of the portal system which can decrease the pressure and result in decompression of the veins with a resolution of the bleeding. Observation is incorrect as the patient is having significant bleeding. Although ligation of the visible veins may be required and work as a temporizing measure if the patient is actively bleeding, it is unlikely to be successful in the long-term. Although stomal revision or creation of a new ileal conduit would likely temporize the problem, the patient has multiple co-morbidities placing him at high surgical risk. In addition, without addressing the root cause of the dilated vessels, the problem may recur.

Dahl DM: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 3, chap 97, p 2294.

Question #148

ANSWER=D

Upper tract UTIs are common in patients with polycystic kidney disease, especially women. These can be divided into parenchymal and cyst infections. The parenchymal infections respond better than cyst infections to treatment. Amoxicillin is adequate treatment for pan-sensitive E. coli, and the negative urine culture demonstrates its efficacy. Treatment with another antibiotic, such as gentamicin or ciprofloxacin, is not indicated. When the patient does not respond clinically to the antibiotic and the urine culture is negative, one must consider that the infection may be present in a non-communicating cyst. A CT or MRI scan are the diagnostic procedures of choice for renal abscesses, particularly in difficult cases such as polycystic kidney disease, since they provide excellent delineation of the tissue. Ultrasound imaging is compromised in polycystic kidney disease, and retrograde pyelography is not indicated in this situation. Percutaneous cyst aspiration is the treatment of choice, once the diagnosis is made.

Pope JC IV: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 131, p 3021.

Question #149

ANSWER=D

This patient has a solitary residual non-retroperitoneal mass following induction chemotherapy for NSGCT. He has normalized his serum tumor markers and is an excellent candidate for surgical resection of this mass. The presence of non-pulmonary visceral metastases is a poor overall prognostic event; however, in this setting, durable cures have been documented in up to 40% of patients and are strongly linked to the histologic findings in the resected extra-retroperitoneal mass. The most likely findings at surgery in this patient are teratoma or necrosis. Simultaneous RPLND at the time of hepatic surgery is associated with a high incidence of chylous ascites, and in the setting of complete radiographic response to chemotherapy, would have a low therapeutic benefit with only a 4-8% likelihood of detecting residual tumor when all lymph nodes are < 8 mm.

Katz MH, McKiernan JM: Management of non-retroperitoneal residual germ cell tumo masses. UROL CLIN N AM 2007;34:235-243.

Stephenson AJ, Gilligan TD: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Partin AW Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 1 chap 34, p 804.

Question #150

ANSWER=C

Hypercalciuria in children can cause the formation of calcium-containing crystals in the urine leading to the bladder wall and trigonal irritation with resultant frequency and dysuria. Mild inflammation can also result in minimal RBCs and WBCs found in the urine. Children with these symptoms and urinalysis findings should be evaluated for hypercalciuria with a simple spot urinary calcium:creatinine ratio. For children over age two years, the normal ratio should be < 0.2. Observation would not be appropriate, as it is not only important to diagnose hypercalciuria as an explanation for the symptoms noted, but also to identify patients at risk for future urolithiasis. With no evidence of infection, antibiotics or VCUG are not required. Cystoscopy is not indicted for microscopic hematuria in a child with a normal renal and bladder ultrasound.

Norwood VF, Peters CA: Disorders of renal functional development in children, in Wein AJ, Kavoussi LR, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 11. Philadelphia, Elsevier, 2015, vol 4, chap 123, p 2853.

Parekh DJ, Pope JC, Adams MC, et al: The association of an increased urinary calcium-to-creatinine ratio, and asymptomatic gross and microscopic hematuria in children. J UROL 2002;167:272.