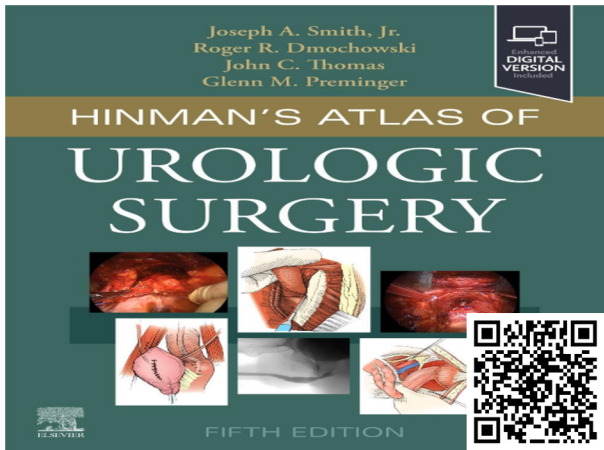


Hinman's Atlas of Urologic Surgery 5th Edition PDF

Visit the link below to download the full version of the ebook

[DOWNLOAD NOW](#)



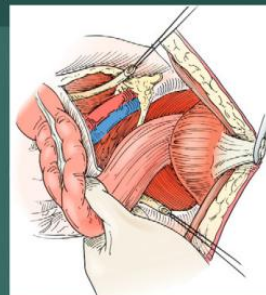
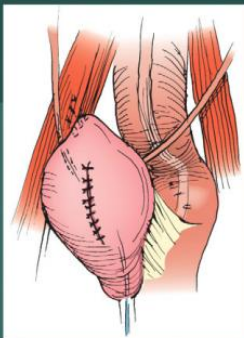
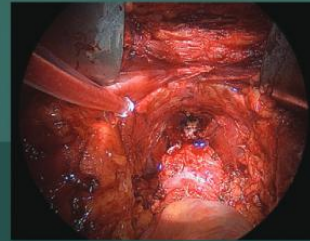
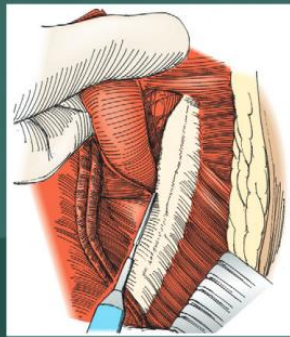
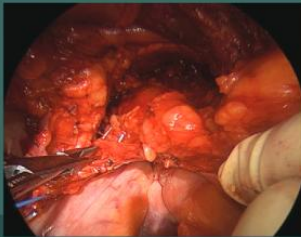
Scan to Download
or Type the Link

ebook.ac/hinman5e

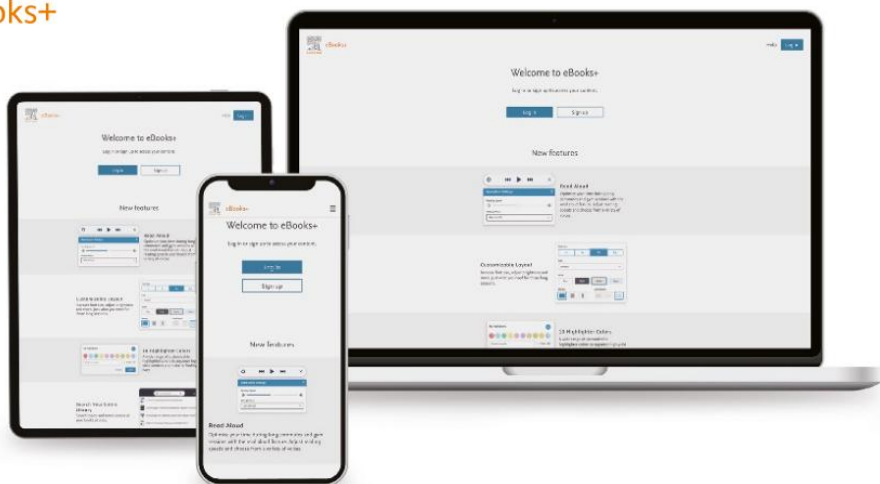
Joseph A. Smith, Jr.
Roger R. Dmochowski
John C. Thomas
Glenn M. Preminger

Enhanced
**DIGITAL
VERSION**
Included

HINMAN'S ATLAS OF UROLOGIC SURGERY



FIFTH EDITION



Activate your eBook today!

Elsevier eBooks+ allows you to search, browse, make notes, highlight, and have content read aloud.

1. To sign up, visit <http://ebooks.health.elsevier.com/>
2. Scratch to reveal your code below, and enter in **Redeem Access Code** box
3. Click **Redeem**

Contact Customer Support via

<https://service.elsevier.com/app/home/supporthub/elsevierebooksplus/>

PLACE PINCODE
STICKER HERE

By buying this genuine product you are guaranteed that Elsevier's high-quality online resources are included in this purchase.

Use of the current edition of the electronic version of this book (eBook) is subject to the terms of the non-transferable, limited license granted at <https://www.elsevier.com/legal/elsevier-website-terms-and-conditions>. Access to the eBook is limited to the first individual who redeems the access code located on the inside cover of this book at <http://ebooks.health.elsevier.com/>. The access code is valid for 8 years post publication date. The code may not be transferred to another party.

HINMAN'S ATLAS OF
UROLOGIC
SURGERY

This page intentionally left blank

FIFTH EDITION

HINMAN'S ATLAS OF UROLOGIC SURGERY

Joseph A. Smith, Jr., MD

William L Bray Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, Tennessee

Roger R. Dmochowski, MD

Professor of Urology
Department of Urology
Vanderbilt University Medical Center
Nashville, Tennessee

John C. Thomas MD

Professor of Urology
Department of Urology
Division of Pediatric Urology
Chief of Staff
Monroe Carell Jr. Children's Hospital at Vanderbilt
Vanderbilt University Medical Center
Nashville, Tennessee

Glenn M. Preminger, MD

James F. Glenn Distinguished Professor of Urologic Surgery
Duke University Medical Center
Durham, North Carolina



Elsevier
1600 John F. Kennedy Blvd.
Ste 1800
Philadelphia, PA 19103-2899

HINMAN'S ATLAS OF UROLOGIC SURGERY, FIFTH EDITION
Copyright © 2026 by Elsevier, Inc. All rights are reserved, including those
for text and data mining, AI training, and similar technologies.

ISBN: 978-0-323-93611-8

For accessibility purposes, images in electronic versions of this book are accompanied by alt-text descriptions provided by Elsevier. For more information, see <https://www.elsevier.com/about/accessibility>.

Publisher's note: Elsevier takes a neutral position with respect to territorial disputes or jurisdictional claims in its published content, including in maps and institutional affiliations.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency, can be found at our website: www.elsevier.com/permissions.

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

Notice

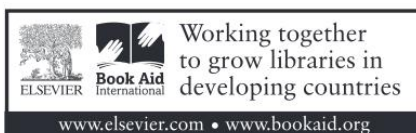
Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds or experiments described herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made. To the fullest extent of the law, no responsibility is assumed by Elsevier, authors, editors or contributors for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Previous editions copyrighted: 2018, 2012, 1998, and 1992

Executive Content Strategist: Lauren Boyle
Content Development Specialist: Casey Potter
Content Development Manager: Laura Schmidt
Publishing Services Manager: Deepthi Unni
Senior Project Manager: Kamatchi Madhavan
Senior Book Designer: Maggie Reid

Printed in China

Last digit is the print number: 9 8 7 6 5 4 3 2 1



Contributors

Cyrus M. Adams, MD, MS

Assistant Professor of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Eric S. Adams, MD

Resident
Department of Urology
Duke University School of Medicine
Durham, NC, United States

Olutiwa Akinsola, MD

Resident Physician
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Ridwan Alam, MD, MPH

Chief Resident
Department of Urology
The James Buchanan Brady Urological Institute
Johns Hopkins University School of Medicine
Baltimore, MD, United States

Sohrab N. Ali, MD, MSc, FRCSC

Assistant Clinical Professor
Department of Urology
University of California, Irvine
Irvine, CA, United States

Mohammad E. Allaf, MD

Director of Urology
Brady Urological Institute, Department of Urology
Johns Hopkins University School of Medicine
Baltimore, MD, United States

Joseph P. Alukal, MD

Andrew Sabin Family Foundation Associate Professor
Department of Urology
Columbia University Irving Medical Center
Medical Director
Access-to-Care
Columbia Doctors
New York, NY, United States

Nirupama Ancha, MD

Resident
Department of Urology
Dell Medical School, The University of Texas
Austin, TX, United States

Jodi A. Antonelli, MD

Associate Professor of Urology
Duke University
Durham, NC, United States

Monish Aron, MD, MCh, FRCSEd, MBA

Professor and Vice Chair
Department of Urology
University of Southern California
Los Angeles, CA, United States

Svetlana Avulova, MD

Assistant Professor of Urology
Phoenix VAMC/University of Arizona
Phoenix, AZ, United States

Gopal H. Badlani, MD, FACS, FRCS

Professor and Vice Chair
Department of Urology
Wake Forest University Baptist Medical Center
Winston Salem, NC
Attending
Department of Urology
VA Medical Center
Salisbury, NC, United States

Clinton D. Bahler, MD, MS

Associate Professor of Urology
Indiana University
Indianapolis, IN, United States

Jacob M. Bardell, MD

Resident Physician
Department of Urology
University of Kansas Medical Center
Kansas City, KS, United States

John M. Barry, MD

Professor of Urology
Oregon Health & Science University
Professor
Surgery, Division of Abdominal Organ Transplantation
Oregon Health & Science University
Portland, OR, United States

Aaron P. Bayne, MD

Associate Professor of Urology
Oregon Health and Sciences University
Portland, OR
Senior Physician
Department of Urology
Northwest Kaiser Permanente
Clackamas, OR, United States

Cooper R. Benson, MD

Assistant Professor
Surgery, Division of Urology
McGovern Medical School
University of Texas, Houston, Houston, TX,
United States

Yasin Bhanji, MD

Urology Fellow
David Geffen School of Medicine at UCLA
Los Angeles, CA, United States

Bimal Bhindi, MD, CM, MSc, FRCSC

Clinical Associate Professor
Department of Surgery, Section of Urology
University of Calgary
Calgary, AB, Canada

Naeem Bhojani, MD

Professor of Urology
University of Montreal
Montreal, QC, Canada

Andrew Blackburne, MD

Resident in Urology
Mayo Clinic
Rochester, MN, United States

Rachel Bluebond-Langner, MD

Professor of Plastic Surgery
Hansjörg Wyss Department of Plastic Surgery
NYU Langone Health
New York, NY, United States

Michael L. Blute Sr., MD

Chief of Urology
Massachusetts General Hospital/Harvard Medical School
Boston, MA, United States

Michael S. Borofsky, MD

Endourologist
Department of Urology
University of Minnesota
Minneapolis, MN, United States

Steven B. Brandes, MD

Chief, Director of Reconstructive Urology
Duly Health and Care
Downers Grove, IL
Adjunct Urology Faculty
Loyola University Stritch School of Medicine
Maywood, IL, United States

Matthew Bream, MD

Urology Institute
University Hospitals Cleveland Medical Center
Cleveland, OH, United States

Benjamin N. Breyer, MD, MAS

Professor and Chair
Department of Urology
University of California, San Francisco
San Francisco, CA, United States

Brenna L. Briles, BSA

Medical Student
UCLA Health Department
Department of Urology Los Angeles
Los Angeles, CA, United States

Joshua A. Broghammer, MD, FACS

Professor of Urology
University of Kansas Medical Center
Kansas City, KS, United States

Elizabeth Timbrook Brown, MD, MPH

Associate Professor of Urology
Georgetown University School of Medicine
Washington, DC, United States

Benjamin M. Brucker, MD

Associate Professor of Urology
New York University Langone Health
New York, NY
Associate Professor of Obstetrics and Gynecology
New York University Langone Health
New York, NY, United States

Victor M. Brugh III, MD

Assistant Professor
Department of Urology
Eastern Virginia Medical School
Norfolk, VA, United States

Muqsit Buchh, BS

Medical Student
Department of Urology
Indiana University School of Medicine
Indianapolis, United States

Fiona C. Burkhard, MD

Chair and Professor
Department of Urology
University Hospital of Bern
Bern, Switzerland

Nicol Corbin Bush, MD, MSCS

Co-Director
Reconstructive Urologist
Hypospadias Specialty Center
The Colony, TX, United States

Clint Cary, MD, MPH, MBA

Associate Professor of Urology
School of Medicine
Indiana University
Indianapolis, IN, United States

Paul Cathcart, MD

Consultant Urological Surgeon
Department of Urology
Department of Urology Centre
Guy's Hospital
London, England, United Kingdom

Ben Challacombe, FRCS (Urol)

Consultant Urologist
Department of Urology
Guy's and St Thomas' Hospitals
London, England, United Kingdom

Sam S. Chang, MD, MBA

Patricia and Rodes Hart Chair of Urologic Surgery
Department of Urology
Vanderbilt University Medical Center
Chief Surgical Officer
Vanderbilt Ingram Cancer Center
Nashville, TN, United States

David W. Chapman, MD, FRCSC

Assistant Professor of Surgery
University of Alberta
Edmonton, AB, Canada

Christopher R. Chapple, MBBS, MD, FRCS (Urol), FEBU, FCSHK (Hon), FACS (Hon)

Emeritus Consultant Urological Surgeon
Department of Urology
Sheffield Teaching Hospitals NHS Foundation Trust
Honorary Professor
Department of Medicine
University of Sheffield
Visiting Professor
Department of Health Sciences
Sheffield Hallam University
Sheffield, South Yorkshire, United Kingdom

Annie Chen, MD

Urology Fellow
Houston Methodist Hospital
Houston, TX, United States

Joy C. Chen, MD, MS

Assistant Professor of Surgery
University of Washington
Seattle, WA, United States

Earl Y. Cheng, MD, FAAP

Professor of Urology
Division of Pediatric Urology
Lurie Children's Hospital of Chicago and The Feinberg School of
Medicine at Northwestern University
Chicago, IL, United States

Ben H. Chew, MD, MSc, FRCSC

Associate Professor
Urologic Sciences
University of British Columbia
Vancouver, BC, Canada

Joseph L. Chin, MD, FRCSC

Emeritus Professor
Departments of Surgery and Oncology
Western University
London, Ontario, Canada

Kai-wen Chuang, MD

Associate Clinical Professor
Department of Urology
University of California, Irvine
Orange, CA, United States

Peter E. Clark, MD

Professor and Chair
Department of Urology
Atrium Health
Charlotte, NC
Chair
Urologic Oncology
Levine Cancer Institute
Charlotte, NC, United States

Marisa M. Clifton, MD, FACS

Associate Professor of Urology
Johns Hopkins University School of Medicine
Baltimore, MD, United States

Joshua A. Cohn, MD

Associate Professor of Urology
Department of Urology and Urologic Oncology
Fox Chase-Temple Health Urologic Institute
Philadelphia, PA, United States

Michael S. Cookson, MD, MMHC

Professor and Chairman
Department of Urology
University of Oklahoma
Oklahoma City, OK, United States

Hillary L. Copp, MD, MS

Professor
Department of Urology, Division of
Pediatric Urology
University of California San Francisco (UCSF)
San Francisco, CA, United States

Sean T. Corbett, MD

Assistant Professor of Urology
University of Virginia
Charlottesville, VA, United States

Raymond A. Costabile, MD

Professor of Urology
Department of Urology
University of Virginia
Charlottesville, VA, United States

Brian W. Cross, MD

Associate Professor
Department of Urology
University of Oklahoma
Oklahoma City, OK, United States

Andrei D. Cumpanas, MD

Resident in Urology
University of California Irvine
Orange, CA, United States

Vincent D. D'Andrea, MD

Resident Physician
Department of Urology
Brigham and Women's Hospital
Boston, MA, United States

Teresa L. Danforth, MD

Clinical Associate Professor
Department of Urology
Jacobs School of Medicine and Biomedical Sciences University at
Buffalo
Buffalo, NY, United States

Laura E. Davis, MD, MM

Resident Physician
Department of Urology
Case Western Reserve University
Cleveland, OH, United States

Christopher B. Dechet, MD, FACS

Urologic Oncology
Huntsman Cancer Hospital/University of Utah Hospital
Salt Lake City, UT, United States

Sriram Deivasigamani, MBBS, MS, MRCS

Resident Physician
Department of Surgery
Duke University Health System
Durham, NC, United States

Mahesh R. Desai, MS, FRCS, FRCS

Chief Urologist and Managing Trustee
Department of Urology
Muljibhai Patel Urological Hospital
Nadiad, Gujarat, India

Mihir M. Desai, MD

Professor of Clinical Urology
Department of Urology
Keck School of Medicine
University of Southern California
Los Angeles, CA, United States

Roger R. Dmochowski, MD, MA, MMHC, FACS

Professor of Urology
Vanderbilt Medical Center
Professor of Surgery
Section of Surgical Sciences
Vanderbilt Medical Center
Nashville, TN, United States

Laura M. Douglass, MD

Assistant Professor of Urology
Temple University- Lewis Katz School of Medicine
Philadelphia, PA, United States

Daniel D. Dugi III, MD

Professor of Urology, Plastic and Reconstructive Surgery
Oregon Health & Science University
Portland, OR, United States

Rahul Dutta, BS, MD

Urology Fellow
University of California Los Angeles
Los Angeles, CA
Resident in Urology
Atrium Health Wake Forest Baptist
Winston Salem, NC, United States

James A. Eastham, MD

Chief of Urology Surgery
Memorial Sloan Kettering Cancer Center
Professor of Urology
Weill Cornell Medical Center
New York, NY, United States

Sean P. Elliott, MD, MS

Professor of Urology
University of Minnesota
Minneapolis, MN, United States

Ekene A. Enemchukwu, MD, MPH

Associate Professor of Urology
Stanford School of Medicine
Stanford, CA
Director
Stanford Multidisciplinary Pelvic Health Center
Stanford Medicine
Redwood City, CA, United States

Andrea Fa, MD

Research Fellow
Department of Colorectal Surgery
Vanderbilt University Medical Center
Nashville, TN
Surgical Resident
Department of General Surgery
LSU HSC New Orleans
New Orleans, LA, United States

Richard J. Fantus, MD

Assistant Professor of Urology
Department of Urology
University of Kansas
Kansas City, KS
Trauma Medical Director
Chief, Section of Surgical Critical Care
Advocate Illinois Masonic Medical Center
Clinical Professor of Surgery
University of Illinois College of Medicine
Chicago, IL, United States

Sarah F. Faris, MD

Associate Professor
Department of Surgery
Section of Urology
University of Chicago
Chicago, IL, United States

Michael Felice, MD

Resident in Urology
Loyola University Medical Center
Maywood, IL, United States

Ethan L. Ferguson, MD

Assistant Professor of Urology
Indiana University
Indianapolis, IN, United States

Connor M. Forbes, MD, FRCSC

Assistant Professor of Urology
University of British Columbia
Urologist (Endourology/MIS)
Vancouver General Hospital
Research Scientist
Vancouver Prostate Centre
Research Scientist
Vancouver Stone Centre
Vancouver, BC, Canada

Jordan Robert Foreman, MD

Assistant Professor
Department of Urology
Duke University
Raleigh, NC, United States

Maurice M. Garcia, MD, MAS

Associate Surgeon
Department of Urology
Cedars Sinai Medical Center
Los Angeles, CA, United States

Inderbir S. Gill, MD

Chair of Urology
University of Southern California
Los Angeles, CA, United States

David A. Ginsberg, MD

Professor of Clinical Urology
University of Southern California
Los Angeles, CA, United States

Stephanie Gleicher, MD

Assistant Professor
Urogynecology and Reconstructive Pelvic Surgery
Smith Institute for Urology Northwell Health, New Hyde Park,
NY, United States

Felipe P.A. Glina, MD

Professor Collaborator
Division of Urology and Sexual Medicine
Centro Universitário FMABC
Santo André, São Paulo, Brazil
Andrologist
Department of Urology
AC Camargo Cancer Center
Urologist
Instituto H. Ellis
São Paulo, Brazil

Mitchell G. Goldenberg, MBBS, PhD, FRCSC

Assistant Professor of Clinical Urology
Department of Urology
University of Southern California
Los Angeles, CA, United States

Howard B. Goldman, MD

Professor and Chairman
Glickman Urological and Kidney Institute
Cleveland Clinic Foundation
Cleveland, OH, United States

Marc Goldstein, MD, DSc (Hon), FACS

Matthew P. Hardy Distinguished Professor of Urology and Male
Reproductive Medicine
Department of Urology and Institute for Reproductive Medicine
Weill Cornell Medicine
Surgeon-In-Chief, Male Reproductive Medicine, and Surgery
Department of Urology and Institute for Reproductive
Medicine
New York Presbyterian Hospital – Weill Cornell Medical
Center
Adjunct Senior Scientist
Population Council
Center for Biomedical Research at Rockefeller University
New York, NY, United States

Alex Gomelsky, MD

B.E. Trichel Professor and Chairman
Department of Urology
Louisiana State University Health - Shreveport
Shreveport, LA, United States

Edward M. Gong, MD

Associate Professor of Urology
Northwestern
Chicago, IL, United States

Mark L. Gonzalgo, MD, PhD

Professor and Vice Chair
Department of Urology
University of Miami Miller School of Medicine
Miami, FL, United States

Chad M. Gridley, MD

Assistant Professor of Urology
Department of Urology
Duke University
Durham, NC, United States

Paulo Vitor Barreto Guimaraes, MD

Reconstructive Urologist
Department of Urology
University of Chicago
Chicago, IL, United States

Michael L. Guralnick, MD, FRCSC

Professor
Department of Urologic Surgery
Medical College of Wisconsin
Milwaukee, WI, United States

Khurshid A. Guru, MD

Chair
Department of Urology
Director, Robotic Surgery
Robert P. Huben Endowed Professor of Urologic Oncology
Department of Urology
Roswell Park Comprehensive Cancer Center
Buffalo, NY, United States

Jorge Gutierrez-Aceves, MD

Professor of Urology, Stone Center Director
Cleveland Clinic Foundation
Cleveland, OH, United States

Judith C. Hagedorn, MD, MHS

Associate Professor of Urology
University of Washington
Seattle, WA, United States

Ali Hajiran, MD

Chief of Urologic Oncology and Director of Robotic Surgery
Department of Urology
West Virginia University
Morgantown, WV, United States

Marybeth Hall, MD

Urologist
Department of Urology
Trinity Health IHA Urology
Ann Arbor, MI, United States

David I. Harriman, MD

Assistant Professor
Urologic Sciences
University of British Columbia
Vancouver, BC, Canada

David Hatcher, MD

Resident
Section of Urology
The University of Chicago Medical Center
Chicago, IL, United States

Wayne J.G. Hellstrom, MD, FACS

Professor of Urology; Chief, Section of Andrology
Tulane University School of Medicine
New Orleans, LA, United States

Stanley Duke Herrell, MD

Professor of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Louisa Ho, MD, FRCSC

Urologist
Department of Surgery
St. Paul's Hospital
Vancouver, BC, Canada

Jeffrey M. Holzbeierlein, MD

Professor
Department of Urology
University of Kansas Medical Center
Kansas City, KS
Vice President and Physician in Chief
University of Kansas Cancer Center
University of Kansas Health System
Kansas City, KS, United States

Rogério Huang, MD

Urologist
Department of Urology
Swedish Medical Center
Seattle, WA, United States

Brant A. Inman, MD, MS, FRCSC

Cary N. Robertson Associate Professor of Urology
Department of Surgery
Duke University Medical Center
Co-Director Duke Prostate and Urologic Cancer Center
Department of Surgery
Duke University Medical Center
Durham, NC, United States

Ata Jaffer, MBBS, FRCS (Urol)

Consultant Urologist
Department of Urology
Stepping Hill Hospital
Stockport, Greater Manchester, United Kingdom

Niels V. Johnsen, MD, MPH, FACS

Assistant Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Brett A. Johnson, MD

Assistant Professor
Department of Urology
UT Southwestern Medical Center
Dallas, TX, United States

Gregory A. Joice, MD

Assistant Professor of Urology
Columbia University Medical Center
New York, NY, United States

Shreyas S. Joshi, MD, MPH, FACS

Assistant Professor of Urology
Emory University School of Medicine
Atlanta, GA, United States

Hristos Z. Kaimakliotis, MD

Department of Urology
Indiana University School of Medicine
Indianapolis, IN, United States

Panagiotis Kallidonis, MD, MSc, PhD, FEBU

Associate Professor of Urology
University of Patras
Patras, Greece

Caroline Kang, MD, PhD

Faculty
Department of Urology
Atrium Health Carolinas Medical Center
Charlotte, NC
Clinical Assistant Professor of Urology
Wake Forest School of Medicine
Winston-Salem, NC, United States

Jihad Kaouk, MD, FACS

Professor of Surgery
Director, Center for robotics and Minimally Invasive Surgery
Glickman Urologic Institute
Cleveland Clinic
Cleveland, OH, United States

Steven A. Kaplan, MD

Professor and Director, The Men's Health Program
Department of Urology
Icahn School of Medicine at Mount Sinai
New York, NY
Chair of Research
American Urological Association
United States

Melissa R. Kaufman, MD, PhD, FACS

Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Nicholas L. Kavoussi, MD

Assistant Professor of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Aimal Khan, MD, FACS

Assistant Professor
Department of Surgery
Vanderbilt University Medical Center
Nashville, TN, United States

Archan Khandekar, MD

Clinical Instructor
Department of Urology
University of Miami
Miami, FL, United States

Charles Y. Kim, MD

Professor and Chief of Vascular and Interventional Radiology
Duke University Medical Center
Durham, NC, United States

Adam Kinnaird, MD, PhD

Assistant Professor
Division of Urology, Department of Surgery
University of Alberta
Edmonton, AB, Canada

Roger S. Kirby, MD, FRCS

Director and Founder
Prostate Surgery
The Prostate Centre
Marylebone, London, United Kingdom

Andrew J. Kirsch, MD, FAAP, FACS

Medical Director
Department of Urology
Georgia Urology
Atlanta, GA, United States

Bernhard Kiss, MD

Associate Professor
Department of Urology
Bern University Hospital
Bern, Switzerland

Bodo E. Knudsen, MD, FRCSC

Associate Professor
Vice Chair Clinical Operations
Department of Urology
Wexner Medical Center
The Ohio State University
Columbus, OH, United States

Kathleen C. Kobashi, MD, MBA

Professor and Chair
Department of Urology
Houston Methodist
Houston, TX, United States

Ervin Kocjancic, MD.

Professor of Urology
Department of Surgery
University of Chicago
Chicago, IL, United States

Robert Kovell, MD

Associate Professor
Division of Urology
University of Pennsylvania Health System and the Children's
Hospital of Philadelphia
Philadelphia, PA, United States

Casey G. Kowalik, MD, FACS

Associate Professor of Urology
University of Kansas
Kansas City, KS, United States

Kate H. Kraft, MD, MHPE

Professor of Urology
University of Michigan
Ann Arbor, MI, United States

Amy E. Krambeck, MD

Professor of Urology
Department of Urology
Northwestern Medical
Chief of the Division of Endourology and Stone Disease
Department of Urology
Northwestern Medical
Chicago, IL, United States

Stephen R. Kraus, MD, MBA

Professor and Interim Chair
Department of Urology
University of Texas Health Science Center at San Antonio
San Antonio, TX, United States

Ryan M. Krlin, MD, FPMRS, FACS

Associate Professor
Department of Urology
Louisiana State University Health
New Orleans, LA, United States

Paige K. Kuhlmann, MD

Urology Fellow
UT Southwestern
Dallas, TX, United States

Iason Kyriazis, MD, PhD, MSc, FEBU

Doctor
Modern Urology
Lefkos Stavros - The Athens Clinic
Athens, Greece

Jaime Landman, MD, FRCS

Professor of Urology and Radiology
Chairman
Department of Urology
University of California Irvine
Corona del Mar, CA, United States

Vincent P. Laudone, MD

Medical Director of Surgery
Memorial Sloan Kettering Cancer Center
New York, NY, United States

Bryn M. Launer, MD

Resident Physician
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Aaron A. Laviana, MD, MBA

Assistant Professor of Surgery and Perioperative Care
The University of Texas at Austin Dell Medical School
Austin, TX, United States

Aaron Lay, MD

Associate Professor of Urology
Emory University
Atlanta, GA, United States

Patrick Lec, MD

Fellow Physician
Department of Urology
University of California, Los Angeles
Los Angeles, CA, United States

Eugene W. Lee, MD

Urologist
Department of Urology
Veterans Affairs Palo Alto Health Care System
Palo Alto, CA, United States

Randall A. Lee, MD

Assistant Professor
Department of Urology
Fox Chase Cancer Center
Philadelphia, PA, United States

Gary E. Lemack, MD

Professor
Departments of Urology and Neurology
University of Texas Southwestern Medical Center
Dallas, TX, United States

Aaron C. Lentz, MD

Professor
Department of Urology
Duke University School of Medicine
Durham, NC, United States

Laurence A. Levine, MD

Professor
Department of Urology
Rush University Medical Center
Chicago, IL, United States

Evangelos Liatsikos, MD, PhD

Professor
Department of Urology
University of Patras
Patras, Greece

Jeffery S. Lin, MD

Associate Physician
Department of Urology
Southern California Permanente Medical Group
Los Angeles, CA, United States

James E. Lingeman, MD

Professor
Department of Urology
Indiana University School of Medicine
Indianapolis, IN, United States

Michael E. Lipkin, MD, MBA

Associate Professor of Urology
Duke University
Durham, NC, United States

Andrew Benjamin Liu-Chen, MD

Fellow Physician
Department of Urology
University of Southern California
Los Angeles, CA, United States

Jeffrey Loh-Doyle, MD

Assistant Professor
Department of Urology
University of Southern California
Los Angeles, CA, United States

Zacem Lone, MD, MS

Resident Physician
Department of Urology
Cleveland Clinic Glickman Urological and Kidney Institute
Cleveland, OH, United States

Yair Lotan, MD

Professor of Urology
University of Texas Southwestern Medical Center
Dallas, TX, United States

Amy N. Luckenbaugh, MD

Assistant Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Tom F. Lue, MD, ScD (Hon)

Professor of Urology
University of California, San Francisco
San Francisco, CA, United States

Viraj Maniar, MD

Urologic Oncology Fellow
Department of Urology
University of Oklahoma Health Sciences Center
Oklahoma City, OK, United States

Vitaly Margulis, MD

Professor of Urology
UT Southwestern Medical Center
Dallas, TX, United States

Brian R. Matlaga, MD, MPH

Professor of Urology
James Buchanan Brady Urological Institute
Johns Hopkins University School of Medicine
Baltimore, MD, United States

Andrew G. McIntosh, MD

Assistant Professor
Department of Urology
OU Health
Section Chief
Department of Urology
VAMC
Oklahoma City, OK, United States

Kevin T. McVary, MD-FACS

Director, Center for Male Health
Department of Urology
Stritch School of Medicine
Maywood, IL
Professor of Urology
Stritch School of Medicine
Maywood, IL, United States

Robert A. Medeiros, MD

Assistant Professor of Urology
Duke University School of Medicine
Durham, NC, United States

Luis G. Medina, MD

Minimally Invasive Urologic Oncology Fellow
Department of Urology
University of Southern California
Los Angeles, CA, United States

Nicole L. Miller, MD, FACS

Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Moben Mirza, MD, FACS

Professor
Department of Urology
University of Kansas Medical Center
Kansas City, KS, United States

Rosalia Misseri, MD

Professor of Urology
Indiana University School of Medicine
Indianapolis, IN, United States

Jahan Mohebbi, MD, MPH

Assistant Professor
Division of Vascular and Endovascular Surgery
Massachusetts General Hospital, Harvard Medical School
Boston, MA, United States

Tara Nikonow Morgan, MD

Assistant Professor of Surgery
Department of Urology
Duke University
Raleigh, NC, United States

Kelvin Moses, MD, PhD

Associate Professor
Department of Urology
Joseph A. Smith Directorship in Urologic Oncology
Fellowship Director, Urologic Oncology Fellowship
Nashville, TN, United States

Ravi Munver, MD, FACS

Vice Chair of Urology
Department of Urology
Director of Minimally Invasive and Robotic Urologic Surgery
Director of Living Donor Kidney Surgery
Department of Surgery
Hackensack University Medical Center
Professor of Urology
Department of Urology
Hackensack Meridian School of Medicine
Hackensack, NJ, United States

Katie S. Murray, DO, MS, FACS

Associate Professor of Urology
NYU Langone Health
New York, NY
Chief of Urology
Bellevue Hospital
New York, NY, United States

Bruno Nahar, MD

Associate Professor
Desai Sethi Urology Institute
University of Miami Miller School of Medicine
Miami, FL, United States

Ajay Nangia, MBBS

Professor of Urology
University of Kansas Medical Center
Kansas City, KS, United States

Vikram M. Narayan, MD, FACS

Assistant Professor
Department of Urology
Emory University School of Medicine
Director of Urologic Oncology
Department of Urology
Grady Memorial Hospital
Atlanta, GA, United States

Dmitriy Nikolavsky, MD

Professor
Department of Urology
SUNY Upstate Medical University
Syracuse, NY, United States

Victor W. Nitti, MD

Professor of Urology, Obstetrics and Gynecology
David Geffen School of Medicine at UCLA
Shlomo Raz Chair in Urology
David Geffen School of Medicine at UCLA
Chief Division of Female Pelvic Medicine and
Reconstructive Surgery
Department of Urology
David Geffen School of Medicine at UCLA
Los Angeles, CA, United States

R. Corey O'Connor, MD, FACS

Professor of Urology
Medical College of Wisconsin
Milwaukee, WI, United States

Brock O'Neil, MD

Associate Professor of Urology
University of Utah
Huntsman Cancer Institute
Salt Lake City, UT, United States

Olamide O. Omidele, MD, BS

Resident in Urology
Icahn School of Medicine
New York, NY, United States

Vignesh T. Packiam, BS, MD

Associate Professor of Urology
Rutgers Cancer Institute
New Brunswick, NJ, United States

Priya Padmanabhan, MD, MPH, FACS

Professor of Urology
Oakland University
Royal Oak, MI
Fellowship Director
Urogynecology and Reconstructive Pelvic Surgery
Beaumont, Royal Oak, MI, United States

Dipen J. Parekh, MD

Professor and Chairman
Director of Robotic Surgery
Department of Urology
University of Miami Miller School of Medicine
Chief Operating Officer
University of Miami Health System
Miami, FL, United States

Hiren V. Patel, MD, PhD

Assistant Professor of Urology
Department of Urology
The Ohio State University Wexner Medical Center
Columbus, OH, United States

Ryan F. Paterson, MD, FRSCS

Vice-chair Clinical Operations
Urologic Sciences
University of British Columbia
Vancouver, BC, Canada

Abhijit Pradip Patil, MCh, DrNB, MS

Consultant Urologist and Kidney Transplant Surgeon
Department of Urology
Muljibhai Patel Urological Hospital
Nadiad, India

Leslie M. Peard, MD

Fellow Physician
Department of Urology
Division of Pediatric Urology
Monroe Carell Jr. Children's Hospital at Vanderbilt
Nashville, TN, United States

Margaret S. Pearle, MD, PhD

Professor of Urology
Internal Medicine
UT Southwestern Medical Center
Professor and Vice Chair of Academic Affairs
Department of Urology
UT Southwestern Medical Center
Dallas, TX, United States

David F. Penson, MD, MPH

Professor and Chair
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Angelis Peteinaris, MD, MSc, PhDc

Urologist
Department of Urology
University of Patras
Rion Patras, Greece

Andrew C. Peterson, MD, MPH, FACS

Professor
Urologic Surgery
Duke University
Program Director, Urology Residency
Program Director, Reconstructive Urology Fellowship
Department of Urology
Vice Chair for Education
Durham, NC, United States

Christina J. Peterson, MD

Surgical Resident
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Thomas J. Polascik, MD, FACS

Lawrence C. Katz Distinguished Professor of Urologic Surgery
and Professor of Radiology
Urologic Surgery
Duke University Medical Center
Director of Surgical Technology
Duke Prostate and Urological Cancer Center
Director of Urologic Robotic Surgery
Director, Co-founder of Focal Therapy Society
Focal Therapy Program Duke Cancer Institute
Durham NC, United States

Connor G. Policastro, MD

GURS Fellow
Department of Urology
Atrium Health Wake Forest Baptist
Winston-Salem, NC, United States

Lee Ponsky, MD

Chairman and Professor of Urology
University Hospitals Cleveland Medical Center
Cleveland, OH, United States

John C. Pope IV., BA, MD, MMHC

Professor and Director
Urology, Division: Pediatric Urology
Monroe Carell, Jr.
Children's Hospital at Vanderbilt
Nashville, TN, United States

James R. Porter, MD, FRCS (Glasg)

Director of Robotic Surgery
Department of Urology
Swedish Medical Group
Seattle, WA, United States

Joao G. Porto, MD

Resident Physician
Department of Urology
University of Miami
Miami, FL, United States

Julio M. Pow-Sang, MD

Chair Genito-Urinary Oncology Department
Genito-Urinary Oncology
Moffitt Cancer Center
Tampa, FL, United States

Sanoj Punnen, MD, MAS

Professor
Desai Sethi Urology Institute
University of Miami
Miami, FL, United States

Jose M.E. Quesada Olarte, MD

Fellow Physician
Department of Urology
Rush University Medical Center
Chicago, IL, United States

Roxana Ramos Carpiunteyro, MD

Research Fellow
Department of Urology
Cleveland Clinic
Cleveland, OH, United States

David E. Rapp, MD

Professor
Department of Urology
University of Virginia Health System
Charlottesville, VA, United States

Rushil Rawal, BS

Medical Student
Clinical Researcher
Department of Urology
California University of Science and Medicine
Colton, CA, United States

Amy M. Reed, MD

Endourology and Robotics Fellow
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Amanda B. Reed-Maldonado, MD, FACS

Urologist
Molecular Urology Laboratory
School of Medicine
Department of Urology
University of California
San Francisco, CA, United States

Justin M. Refugia, MD

Resident Physician
Department of Urology
Wake Forest University
Winston Salem, NC, United States

William Stuart Reynolds, MD, MPH

Associate Professor of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Chad R. Ritch, MD, MBA, FACS

Associate Professor
Department of Urology
Desai Sethi Urology Institute
University of Miami
Miami, FL, United States

Jennifer Robles, MD, MPH

Assistant Professor
Department of Urology
Vanderbilt University Medical Center
Chief of Urology Surgery
Tennessee Valley Healthcare System
Nashville, TN, United States

Nirit Rosenblum, MD

Clinical Professor of Urology
Clinical Professor of Obstetrics and Gynecology
NYU Langone Medical Center
New York, NY, United States

Elizabeth Rourke, DO, MPH

Assistant Professor of Urology
Louisiana State University
New Orleans, LA, United States

Jonathan C. Routh, MD, MPH

Paul H. Sherman Distinguished Associate Professor
Departments of Urology, Pediatrics, and Population Health
Duke University School of Medicine
Chief of Children's Surgery
Duke University Hospital
Durham, NC, United States

Eric S. Rovner, MD

Professor
Department of Urology
Medical University of South Carolina, Charleston
South Carolina, SC, United States

Keri J. Rowley, MD

Resident
Department of Urology
The University of Texas Health San Antonio
San Antonio, TX, United States

Jan K. Rudzinski, MD

Urologic Oncologist
Department of Urology
Miami Cancer Institute, Maimi, FL, United States

Bryan S. Sack, MD

Assistant Professor of Urology
University of Michigan
Ann Arbor, MI, United States

Keyan Salari, MD, PhD

Assistant Professor
Department of Urology
Massachusetts General Hospital, Harvard Medical School
Boston, MA, United States

Alejandro Sanchez, MD

Assistant Professor of Surgery
Division of Urology
Huntsman Cancer Institute
University of Utah
Salt Lake City, UT, United States

Richard A. Santucci, MD, FACS, HON FC Urol(SA)

Senior Surgeon
Transgender Surgery
Crane Center for Transgender Surgery
Austin, TX, United States

Peter N. Schlegel, MD

Professor of Urology
Weill Cornell Medicine
Owner/Manager of Urology
New York Mens Health Medical
New York, NY, United States

Bogdana Schmidt, MD, MPH

Assistant Professor
Urologic Oncology
University of Utah
Salt Lake City, UT, United States

Elisabeth M. Sebesta, MD

Assistant Professor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Michelle Jo Semins, MD

Professor, Chief of Urology
WVU Wheeling Hospital
West Virginia University
Wheeling, WV
Assistant Professor of Urology
UPMC
Pittsburgh, PA, United States

Shaan Setia, MD

Clinical Fellow of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Arieh Shalhav, MD

Professor of Surgery
University of Chicago
Chicago, IL, United States

Anjali Shekar, MD

Urology Resident
University of Chicago Medicine
Chicago, IL, United States

Max Shelton, MD

Assistant Professor of Urology
Indiana University School of Medicine
Indianapolis, IN, United States

Alexander J. Skokan, MD

Assistant Professor of Urology
University of Washington
Seattle, WA, United States

Ryan P. Smith, MD

Associate Professor of Urology
University of Virginia
Charlottesville, VA, United States

Warren T. Snodgrass, MD

Co-Director
Hypospadiology
Hypospadias Specialty Center
Dallas, TX, United States

Rene Sotelo, MD

Professor of Clinical Urology
Department of Urology
University of Southern California
Los Angeles, CA, United States

Francois Soto-Palou, MD

Assistant Professor of Urology
University of Puerto Rico
San Juan, PR, United States

Massimiliano Spaliviero, MD, FACS

Clinical Assistant Professor
Department of Urology
Stony Brook University
Stony Brook, NY, United States

Philippe E. Spiess, MD, MS, FACS, FRCS(C)

Professor and Assistant Chief of Surgery
Genitourinary Oncology
Moffitt Cancer Center
Professor of Urology
University of South Florida
Tampa, FL, United States

John T. Stoffel, MD

Professor of Urology
Division Chief, Neurourology/Pelvic Reconstruction
Department of Urology
University of Michigan
Ann Arbor, MI, United States

Benjamin V. Stone, MD

Assistant Professor of Urology
Medical University of South Carolina
Charleston, SC, United States

Nelson N. Stone, MD

Professor of Urology
Radiation Oncology and Oncologic Sciences
The Icahn School of Medicine at Mount Sinai
New York, NY
Chief Medical Officer
Viomerse, Inc.
Pittsford, NY, United States

Kelly L. Stratton, MD

Associate Professor
Department of Urology
University of Oklahoma Health Sciences Center
Oklahoma City, OK, United States

David Strauss, MD

Urology Fellow
Department of Urology
University of Southern California
Los Angeles, CA, United States

Phillip D. Stricker, MBBS, FRACS

Professor of Urology
St. Vincent's Hospital Prostate Cancer Research Centre
Garvan Institute of Medical Research and The Kinghorn Cancer
Centre
Darlinghurst, Sydney, NSW
Professor
Department of Surgery
UNSW Sydney
Sydney, NSW
Emeritus Fellow
Garvan Institute of Research
Sydney, NSW, Australia

Urs E. Studer, MD (Deceased)

Expert Consultant
Department of Urology
University Hospital
Bern, Switzerland

Renea M. Sturm, MD

Assistant Professor of Urology
David Geffen School of Medicine
University of California
Los Angeles, CA, United States

Chandru P. Sundaram, MD, MBA, FACS, FRCS Eng

Welch Professor
Department of Urology
Indiana University School of Medicine
Carmel, IN
Program Director and Director of Minimally Invasive Surgery
Department of Urology
Vice Chair (Quality)
Department of Urology
Indiana University School of Medicine
Service Line Leader
Department of Urology
Indiana University Health University Hospital
Indianapolis, IN, United States

Rachael D. Sussman, MD

Associate Professor
Urology and OBGYN
Medstar Georgetown University Hospital
Washington, DC, United States

Suzette E. Sutherland, MD, MS, FPMRS/URPS

Director of Female Urology, Associate Professor
Department of Urology
University of Washington School of Medicine
Seattle, WA, United States

Ruchika Talwar, MD

Clinical Instructor
Department of Urology
Vanderbilt University Medical Center
Nashville, TN, United States

Zachary E. Tano, MD, MBA

Clinical Instructor
Department of Urology
University of California, Irvine
Orange, CA, United States

Elizabeth J. Tarsi, MD

Fellow Physician
Department of Obstetrics and Gynecology
Louisiana State University Health Science Center
New Orleans, LA, United States

Vasileios Tatanis, MD, PhD, FEAPU

Consultant
Department of Urology
University Hospital of Patras
Patras, Greece

Kae Jack Tay, MBBS, MRCS (Ed), MMed (Surg), MCI, FAMS (Urol)

Director of Urologic Oncology and Senior Consultant
Department of Urology
Singapore General Hospital
SingHealth Duke-NUS Academic Medical Center
Singapore
Associate Professor of Surgery
Duke-NUS Graduate Medical School
Singapore

Jacob Taylor, MD, MPH

Fellow
Department of Urology
University of Texas Southwestern Medical Center
Dallas, TX, United States

Ryan P. Terlecki, MD

Professor of Urology
Wake Forest Baptist Health
Winston Salem, NC, United States

James E. Thompson, MBBS (Hons), FRAC (Urol)

Associate Professor of Urology
St. Vincent's Prostate Cancer Research Centre
Garvan Institute of Medical Research and The Kinghorn Cancer Centre
Darlinghurst, Sydney, NSW, Australia

J. Brantley Thrasher, MD, FACS

Executive Director
American Board of Urology
American Board of Urology, Charlottesville, VA
Chair-elect
American Board of Medical Specialties, Chicago, IL
Emeritus Professor
Department of Urology
University of Kansas Medical Center, Kansas City, KS, United States

Jasmine Tibon, MD

Fellow of Urology
UT Health San Antonio
San Antonio, TX, United States

Matthew D. Timberlake, MD

Associate Professor of Urology and Pediatrics
Texas Tech University Health Sciences Center
Lubbock, TX, United States

Paul J. Turek, MD, FACS, FRSM

Director
Mens Reproductive Health
The Turek Clinic
San Francisco and Beverly Hills, CA, United States

Crystal L. Valadon, MD, MBA

Resident
Department of Urology
University of Kansas Medical Center
Kansas City, KS, United States

Brian A. VanderBrink, MD

Associate Professor of Urology
Division of Pediatric Urology
Cincinnati Children's Hospital Medical Center
Cincinnati, OH, United States

Alex J. Vanni, MD

Professor of Urology
Department of Urology
Lahey Hospital and Medical Center
Burlington, MA, United States

Sandip P. Vasavada, MD

Professor of Surgery (Urology)
Glickman Urological Institute
Cleveland Clinic
Urologic Director Center for Urogynecology and Reconstructive Pelvic Surgery
Glickman Urologic Institute
Cleveland, OH, United States

Julian Wan, MD

Reed Nesbit Professor of Urology
Department of Urology
University of Michigan
Ann Arbor, MI, United States

Alice Y. Wang, MD

Female Pelvic Medicine and Reconstructive Surgery Fellow
Department of Urology
Medical University of South Carolina
Charleston, SC, United States

Meredith C. Wasserman, MD, MS

Fellow, Female Pelvic Medicine and Reconstructive Surgery
Department of Urology
NYU Grossman School of Medicine
New York, NY, United States

Corey S. Weinstein, MD, MSPH

Fellow of Pediatric Urology
Children's Healthcare of Atlanta
Emory University
Atlanta, GA, United States

Hunter Wessells, MD, FACS

Professor and Nelson Chair
Department of Urology
Adjunct Professor of Surgery
Affiliate Member
Harborview Injury Prevention and Research Center
Member
Diabetes Research Center
University of Washington
Seattle, WA, United States

John S. Wiener, MD

Professor of Urology
Duke University Medical Center
Chief
Division of Pediatric Urology
Duke University Medical Center
Durham, NC, United States

Isabella S.C. Williams, MD, MS (Urol), MPH

Doctor
Department of Urology
St. Vincent's Prostate Cancer Research Centre
Garvan Institute of Medical Research and The Kinghorn Cancer
Centre
Darlinghurst, Sydney, NSW, Australia

Jack Christian Winters, MD, FACS

Professor and Chairman
Department of Urology
Louisiana State University Health Sciences Center
New Orleans, LA, United States

Christopher E. Wolter, MD

Assistant Professor of Urology
Mayo Clinic Arizona
Phoenix, AZ, United States

Tarah Woodle, MD

Urologist
Department of Urology
Brooke Army Medical Center
San Antonio, TX, United States

Hadley Wyre, MD

Associate Professor of Urology
University of Kansas
Kansas City, KS, United States

Elizabeth B. Yerkes, MD

Professor of Urology
Northwestern University Feinberg School of Medicine and Ann
and Robert H. Lurie Children's Hospital of Chicago
Attending
Division of Urology
Ann and Robert H. Lurie Children's Hospital of Chicago
Chicago, IL, United States

Courtney Yong, MD

Fellow Physician
Department of Urology
Indiana University
Indianapolis, IN, United States

Alice Yu, MD, MPH

Assistant Member
Department of Genitourinary Oncology
Moffitt Cancer Center
Assistant Professor
Department of Oncologic Sciences
Morsani College of Medicine
University of South Florida
Tampa, FL, United States

David Zekan, MD

Resident Physician
Department of Urology
West Virginia University School of Medicine
Morgantown, WV, United States

Logan W. Zemp, MD

Assistant Professor
GU Oncology
H. Lee Moffitt Cancer Center & Research Institute
Tampa, FL, United States

Yu Zhang, MD

Fellow
Department of Urology
Hackensack University Medical Center
Hackensack, NJ, United States

Lee C. Zhao, MD, MS

Associate Professor of Urology
NYU School of Medicine
New York, NY, United States

Alex Zhu, DO

Resident

Department of Urology

University of Michigan

Ann Arbor, MI, United States

Jacqueline Zillioux, MD

Assistant Professor of Urology

University of Virginia School of Medicine

Charlottesville, VA, United States

What a privilege it is to be asked to write a foreword for this outstanding new fifth volume of *Hinman's Atlas of Urologic Surgery*. It is a joy to write an encomium for the most useful reference textbook in the literature for a trainee urologist. I can say this with some conviction as my son is a fourth year resident in urology at Royal Melbourne Hospital in 2025. I borrowed his fourth edition to make sure that I could give an honest account of the quality of this tome.

The 5th edition is further enhanced by the use of accompanying videos and improvements in the quality of operative photos and illustrations for which *Hinman's* is renowned.

Dr. Jay Smith, renowned editor, writer, and expert surgeon, and his assistant editors, Doctors Howards, Preminger, and Dmochowski, have ensured brilliantly that this timeless text remains contemporary and essential for both surgeons in practice as a preferred reference and as an instructional manual for those more junior still learning their craft in residency.

Technology change, as in all aspects of our life, has meant change in this new *Atlas* affected by the Internet, artificial intelligence, virtual reality, and robotics, all of which have made significant inroads into surgical techniques.

In 1987, I had the great good fortune to meet Dr. Frank Hinman Junior at the University of California San Francisco Urology Department, after he retired as Chief of Urology. He still attended rounds and taught the residents, and I spent a week under his expert and kindly tutelage, gaining insights particularly in applied surgical anatomy.

As we transition into a challenging new tech-driven surgical era, training has transferred from the 120-year-old pedagogy published first in 1904 by Halstead from Johns Hopkins, a “see one, do one and then teach one” method. There were no textbooks then with which to teach trainees. Young surgeons learned by operating on the patient and inevitably made mistakes or errors while under supervision by a master surgeon, teacher mentor.

Technology has changed our craft, and this is evidenced by the change in the written material over the five volumes of *Hinman's*.

The next generation of Gen X and Y surgeons train in an era of profound technology change in surgery. They must use a different language, that of digital technology, genomics, engineering, molecular biology, virtual reality, and artificial intelligence.

Junior residents in urology can now begin training outside the operating room using text, online, virtual reality, and simulation with phantom organ models prior to entering the operating room to operate on live patients. Surgical education and training will improve, and our complication rate, now too high, will be

reduced by better training of young surgeons with a new fit-for-purpose curriculum.

A clear example of change in surgical practice is illustrated by the evolution of radical prostatectomy, historically documented over the five editions of *Hinman's*. Radical prostatectomy, which before 1980 was an operation performed by talented surgeons and was practiced on extremely brave patients, had outcomes that were uniformly poor. This operation now performed robotically is a day surgery, changed from an open surgery associated with major quality-of-life issues for the patient, with up to a 3-week hospital stay. Insights gained by modern imaging with PSMA PET scanning in prostate cancer have changed our approach in surgical management of this ubiquitous cancer. The surgery of combined of pelvic lymph node dissection at radical prostatectomy may now become unnecessary and may drop out of future *Hinman's* textbooks. This is partly due to the insights gained from superlative imaging of PET PSMA scanning to a resolution of 1 mm of the haphazard periprostatic prostatic lymph node drainage. Imaging has shown us there are sites where surgical removal of nodes is impossible, such as pararectal, or even the first nodes imaged residing outside the pelvis.

Still, all surgeons must maintain excellent communication skills. The first rule in Medicine, “listen to your patient,” still prevails, and a compassionate mindset remains a cornerstone to aid recovery of our patients.

There is now an expanding repertoire of urological surgeries which are performed robotically. In countries where this technology exists many of the standard operations that we used to perform, such as open radical prostatectomy, are operations for the history book. A robotic approach now replaces open surgery but adheres to the historic guidance of Walsh's open prostatectomy method. *Hinman's* will continue to contain a guide for those surgeons performing laparoscopic and open surgeries in countries where expensive robotic technology is not available.

The popularity of this atlas attests to the enduring necessity for high-quality textbooks. This book will sit on most practicing urologists desks for reference, even for the most experienced surgeon when contemplating performing a less common procedure.

Dr. Jay Smith and his expert team deserve significant plaudits for maintaining and improving what has been a most important resource for us all in Urology.

Tony Costello, AM, FRACS, FRCSI, MD
Department of Surgery and Urology
Royal Melbourne Hospital
University of Melbourne
2025

Preface

Ever since its inception, *Hinman's Atlas of Urologic Surgery* has been an essential text for urologic surgeons. Each new edition has addressed changes in the field and introduced novel concepts and surgical techniques. It is hard to imagine, though, the virtual revolution in surgical approaches and methodology that have occurred since the last edition was published. This, the *5th Edition of Hinman's Atlas of Urologic Surgery*, assumes even more significance given the evolution of innovative instrumentation, improvements in perioperative care, and enhanced diagnostic and technologic capabilities.

One thing which has not changed, though, is the fundamental principles of surgery. Whether performed with an open surgical incision, an endoscope, or a robotic/laparoscopic platform, knowledge of anatomy, meticulous tissue handling, provision of adequate exposure, and adherence to time-honored concepts are essential in providing optimal outcomes. One of those principles is preparedness. The surgeon must choose the best operation to perform, decide how best to approach the problem, and possess the expertise and skills to accomplish the task safely for the patient. Part of this preparedness comes from proper advanced study of the planned operation. The increased complexity of the field makes an atlas such as *Hinman's* even more essential.

Surgeons today have more educational opportunities than previously. Video recordings and observation of live surgery projected at conferences are highly valuable. However, the merits of detailed surgical descriptions through high-quality illustrations introduce capabilities for enhanced understanding, especially when accompanied by commentary and descriptions by acknowledged experts in the field.

Novice surgeons and trainees undoubtedly benefit from a surgical atlas such as *Hinman's*. I remember when I was a resident never going to the operating room without studying the planned procedure carefully as outlined in *Hinman's*. That should apply equally today. Nonetheless, even highly experienced surgeons gain knowledge by observing and studying operations performed by others. As I read a chapter in *Hinman's* for an operation I may have performed thousands of times, I always learn something.

A premier surgeon is one who, irrespective of how highly they may be regarded, is constantly trying to improve and learn from colleagues.

The domain of urologic surgery has become so diverse and complex that it is difficult for any single individual to master all procedures. Subspecialization is a reality and permits some surgeons to focus in a more concentrated manner on certain populations or disease processes. Even with subspecialization, though, the number and complexity of procedures an expert must master is profuse. The quality of the illustrations, descriptions, commentary, and supplementary videos is invaluable in helping surgeons properly prepare. Novice surgeons can learn the steps of various procedures and better understand their value. Experienced surgeons can better detect the nuances which are important in achieving optimal outcomes.

This is a weighty text, both literally and figuratively. It is contemporary, comprehensive, and concise. However, the mandate to recognize the vastness of the field of urologic surgery and its continued expansion with new capabilities require what combine to create an inclusive and all-encompassing book. An accomplishment of this magnitude requires the input of many people. The Editors are indebted to the many authors and contributors who share their expertise and insights to help instruct colleagues. The team of Associate Editors, Glenn Preminger, Roger Dmochowski, and John Thomas, was essential in planning the book but also in ensuring the quality of each chapter. We are all appreciative of the Publisher, Elsevier, for assistance and guidance and for the quality of the finished text.

A covenant of trust exists between a patient and a surgeon. Part of that trust is the expectation that the surgeon will do everything possible to achieve the knowledge, proficiency, and skills to conduct a specific operation with the expertise expected. This is what the Editors hope the *5th Edition of Hinman's Atlas of Urologic Surgery* will help achieve.

Joseph A. Smith, Jr., MD
Editor

1 SURGICAL BASICS

- 1 Surgical Basics, 1
Jennifer Robles
- 2 Suture Techniques, 10
Lee Ponsky, Matthew Bream, Laura E. Davis
- 3 Reconstructive Techniques, 18
Cooper R. Benson, Steven B. Brandes
- 4 Bowel Stapling and Closure Techniques, 39
Aimal Khan, Andrea Fa
- 5 Methods of Nerve Block (Pudendal, Periprostatic, Spermatic Cord), 44
Jose Quesada-Olarte, Laurence A. Levine
- 6 Basic Laparoscopy, 48
Shaan Setia, Bryn Launer, Nicholas Kavoussi
- 7 Basics of Robotic Surgery, 58
Amy M. Reed, Stanley Duke Herrell

2 KIDNEY: EXCISION

- 8 Surgical Approaches for Open Renal Surgery, Including Open Radical Nephrectomy, 66
Alejandro Sanchez, Brock O'Neil
- 9 Open Partial Nephrectomy, 83
Brant A. Inman
- 10 Open and Laparoscopic Nephroureterectomy, 88
Amy M. Reed, Christina J. Peterson, Nicholas L. Kavoussi
- 11 Vena Caval Thrombectomy, 99
Keyan Salari, Jahan Mohebbi, Michael L. Blute Sr.
- 12 Robotic Radical Nephrectomy and Advanced Caval Surgery: Tumor Thrombectomy, Cavectomy, Caval Replacement, 114
David Strauss, Jan K. Rudzinski, Inderbir S. Gill
- 13 Laparoscopic Nephrectomy, 121
Zachary E. Tano, Sohrab N. Ali, Andrei D. Cumpanas, Rushil Rawal, Jaime Landman
- 14 Laparoscopic and Robotic-Assisted Laparoscopic Partial Nephrectomy, 131
Archan Khandekar, Bruno Nabar
- 15 Endoscopic Management of Upper Tract Urothelial Carcinoma, 137
Courtney Yong, Clinton D. Bahler, Max Shelton, James E. Lingeman, Chandru P. Sundaram
- 16 Topical Management of Upper Tract Tumors, 141
Amy N. Luckenbaugh, Katie S. Murray

3 KIDNEY: RECONSTRUCTION

- 17 Open Pyeloplasty, 145
John S. Wiener
- 18 Renal Trauma, 155
Niels V. Johnsen
- 19 Renal Transplant Recipient, 161
John M. Barry
- 20 Laparoscopic and Robotic Pyeloplasty, 174
Tara Nikonow Morgan, Francois Soto-Palou
- 21 Laparoscopic and Robotic Living Donor Nephrectomy, 181
Yu Zhang, Ravi Munver

- 22 Open Stone Surgery: Anatomic Nephrolithotomy and Pyelolithotomy, 190
Louisa Ho, Jorge Gutierrez-Aceves

4 ENDOSCOPIC AND PERCUTANEOUS RENAL SURGERY

- 23 Anatomy of the Renal Endoscopy, 199
Vasileios Tatanis, Panagiotis Kallidonis, Angelis Peteinaris, Iason Kyriazis, Evangelos Liatsikos
- 24 Percutaneous Renal Access, 210
T. Max Shelton, Michael S. Borofsky, James E. Lingeman
- 25 Percutaneous Nephrolithotomy, 219
Bodo E. Knudsen
- 26 Miniperc with Suction, 233
Abhijit Patil, Mahesh Desai
- 27 Renal Cryosurgery, 243
Kae Jack Tay, Charles Kim, Thomas J. Polascik

5 ADRENAL EXCISION

- 28 Robotic, Laparoscopic, and Open Approaches to the Adrenal Gland (Benign), 250
Vignesh Packiam, David Hatcher, Arie Shalhav, Kelvin Moses
- 29 Laparoscopic and Robotic Approaches to the Adrenal Gland, 266
Ethan L. Ferguson, Jihad H. Kaouk

6 URETERAL RECONSTRUCTION AND EXCISION

- 30 Ureteroneocystostomy, 276
Leslie M. Peard, John C. Pope IV
- 31 Bladder Flap Repair (Boari), 292
Priya Padmanabhan
- 32 Ureteral Stricture Repair and Ureterolysis, 295
Andrew C. Peterson
- 33 Ileal Ureteral Replacement, 303
Michael L. Guralnick, R. Corey O'Connor
- 34 Ureterolithotomy, 307
Amy E. Krambeck, Andrew Blackburne
- 35 Endoscopic Management of Vesicoureteral Reflux, 312
Corey S. Weinstein, Andrew J. Kirsch

7 ENDOSCOPIC URETERAL SURGERY

- 36 Ureteroscopic Instrumentation, 315
Connor M. Forbes, David I. Harriman, Ryan F. Paterson, Ben H. Chew
- 37A Ureteroscopic Management of Ureteral Calculi, 323
Robert A. Medeiros, Jodi A. Antonelli, Michelle Jo Semins, Brian R. Matlaga
- 37B Ureteroscopic Management of Renal Calculi, 327
Michael E. Lipkin
- 38 Ureteroscopic Endopyelotomy and Endoureterotomy, 329
Aaron H. Lay, Brett A. Johnson, Margaret S. Pearle
- 39 Endoscopic Incision of Ureteroceles, 335
Earl Y. Cheng, Edward M. Gong

8 BLADDER: EXCISION

- 40 Transurethral Resection of Bladder Tumors, 337
Shreyas S. Joshi, Vikram Narayan
- 41 Partial Cystectomy, 340
Jacob Taylor, Vitaly Margulis, Yair Lotan
- 42 Radical Cystectomy in the Male, 345
Amy N. Luckenbaugh, Sam S. Chang
- 43 Radical Cystectomy in Female Patients, 352
Svetlana Avulova
- 44 Urectomy, 358
Bogdana Schmidt, Alejandro Sanchez, Christopher B. Dechet
- 45 Radical Urachectomy, 362
Alice Yu, Michael L. Blute Sr.
- 46 Pelvic Lymphadenectomy, 366
Peter E. Clark
- 47 Cystolithotomy, 379
Anjali Shekar, Sarah F. Faris
- 48 Robot-Assisted Radical Cystectomy: The “Technique of Spaces” in Male and Female Patients, 381
Zaeem Lone, Muqsit Buchh, Khurshid A. Guru

9 CONTINENT RECONSTRUCTION

- 49 Ileocecal Reservoir, 386
Clint Cary, Hristos Z. Kaimakliotis
- 50 Appendicovesicostomy, 392
Brian A. VanderBrink
- 51 Ileal Orthotopic Bladder Substitution, 400
Bernhard Kiss, Urs E. Studer, Fiona C. Burkhard
- 52 Robotic Urinary Diversion, 407
Randall A. Lee, Andrew Chen, Monish Aron, Mihir M. Desai

10 BLADDER AUGMENTATION

- 53 Bladder Augmentation With Bowel, 432
Cyrus M. Adams, Rosalia Misseri
- 54 Ureterocystoplasty, 436
Renea M. Sturm, Elizabeth B. Yerkes

11 VESICOVAGINAL FISTULA REPAIR

- 55 Transvaginal Repair of Vesicovaginal Fistula, 439
Marisa Clifton, Howard B. Goldman
- 56 Transvesical Repair of Vesicovaginal Fistula, 445
Ekene A. Enemchukwu, Nirit Rosenblum
- 57 Transperitoneal Vesicovaginal Fistula Repair, 450
Jacqueline Zilliox, Sandip P. Vasavada
- 58 Female Vesical Neck Closure, 454
Alex Zhu, John Stoffel

12 PROSTATE: BENIGN

- 59 Transurethral Resection and Transurethral Incision of the Prostates, 461
Jennifer Robles
- 60 Anatomical Endoscopic Laser Enucleation of the Prostate, 469
Naeem Bhojani, Nicole L. Miller
- 61 Office-Based Treatment of BPH, 477
Justin M. Refugia, Rahul Dutta, Gopal H. Badlani
- 62 Retropubic Prostatectomy, 490
Olamide O. Omidale, Steven A. Kaplan

- 63 Suprapubic Prostatectomy, 499
Michael Felice, Kevin T. McVary
- 64 Robotic and Laparoscopic Simple Prostatectomy, 508
Luis G. Medina, Randall A. Lee, Rene Sotelo

13 PROSTATE: MALIGNANCY

- 65 Anatomy and Principles of Excision of the Prostate, 518
Archan Khandekar, Joao G. Porto, Sanjay Punnen
- 66 Transrectal Ultrasound-Directed Prostate Biopsy, 526
Vincent D. D'Andrea, Benjamin V. Stone
- 67 Transperineal Prostate Biopsy, 532
Isabella S.C. Williams, James E. Thompson, Phillip D. Stricker
- 68 Prostate Biopsy With MR Fusion, 540
David F. Penson
- 69 Radical Retropubic Prostatectomy, 545
Michael S. Cookson, Brian W. Cross, Viraj Maniar
- 70 Radical Perineal Prostatectomy, 556
Moben Mirza, J. Brantley Thrasher
- 71 Pelvic Lymph Node Dissection, 566
Massimiliano Spaliviero, Vincent P. Laudone, James A. Eastham
- 72 Transperitoneal Robotic-Assisted Laparoscopic Prostatectomy, 582
Ata Jaffer, Paul Catbcart, Roger S. Kirby, Ben Challacombe
- 73 Anterior Fascia-Sparing (Retzius-Sparing) Robotic Radical Prostatectomy, 592
Yasin Bhanji, Ridwan Alam, Mohamad E. Allaf
- 74 Single-Port Robotic Prostatectomy, 597
Jihad Kaouk, Roxana Ramos
- 75 Prostate Cancer Cryosurgery, 610
Joseph Chin, Adam Kinnaird, Bimal Bhindi
- 76 Focal Therapies in the Treatment of Localized Prostate Cancer, 616
Sriram Deivasigamani, Eric S. Adams, Thomas J. Polascik
- 77 Brachytherapy, 639
Nelson N. Stone

14 FEMALE GENITAL RECONSTRUCTION

- 78 Vaginoplasty and Vulvoplasty, 644
Jeffery S. Lin, Laura M. Douglass, Joshua A. Cohn, Rachel Bluebond-Langner, Lee C. Zhao
- 79 Urethrovaginal Fistula Repair, 660
Kathleen C. Kobashi, Eugene W. Lee, David E. Rapp, Annie Chen
- 80 Bulbocavernosus Muscle and Fat Pad Supplement, 664
Casey G. Kowalik
- 81 Female Urethral Diverticulectomy, 672
Alice Y. Wang, Eric S. Rovner
- 82 Female Urethral Reconstruction, 682
Patrick Lec, Victor W. Nitti
- 83 Urethral Prolapse—Caruncle, 690
W. Stuart Reynolds
- 84 Anterior Pelvic Organ Prolapse Repair, 692
Elizabeth J. Tarsi, Jack Christian Winters, Elizabeth Rourke, Ryan M. Krlin
- 85 Enterocoele Repair, 700
Rachael D. Sussman, Elizabeth Timbrook Brown, Roger R. Dmochowski
- 86 Rectocoele Repair, 706
Elisabeth M. Sebesta, Joshua A. Cohn, Elizabeth Timbrook Brown, W. Stuart Reynolds, Melissa R. Kaufman, Roger R. Dmochowski

15 URETHRAL: RECONSTRUCTION

- 87 Reconstruction of the Fossa Navicularis, 711
Hiren V. Patel, Benjamin N. Breyer
- 88 Reconstruction of Strictures of the Penile Urethra, 716
Sean P. Elliott
- 89 Reconstruction of Strictures of the Bulbar Urethra, 730
Alex J. Vanni
- 90 Reconstruction of Pelvic Fracture Urethral Injuries, 740
Christopher R. Chapple
- 91 Transperineal Approach for Rectourethral Fistula Repair, 755
Jeffery S. Lin, Alexander J. Skokan, Joy Chen, Judith C. Hagedorn
- 92 Direct Vision Internal Urethrotomy, 759
Chad M. Gridley

16 URETHRAL SPHINCTERIC PROCEDURES

- 93 Autologous Pubovaginal Sling, 762
Keri J. Rowley, Jasmine Tibon, Stephen R. Kraus
- 94 Tension-Free Vaginal Tape/Suprapubic Midurethral Sling, 771
Christopher E. Wolter
- 95 Transobturator Midurethral Slings, 776
Alex Gomelsky
- 96 Single Incision Midurethral Sling (SIS), 784
Suzette E. Sutherland
- 97 Bulking Agents for Incontinence, 789
Elizabeth Timbrook Brown, Roger R. Dmochowski
- 98 Artificial Urinary Sphincter, 791
David W. Chapman, Jeffrey Loh-Doyle, Mitchell G. Goldenberg, Teresa L. Danforth, David A. Ginsberg
- 99 Male Urethral Sling, 799
Ryan P. Terlecki, Connor G. Policastro, R. Caleb Kovell
- 100 Sacral Neuromodulation, 804
Meredith C. Wasserman, Benjamin M. Brucker
- 101 Injection of Botulinum Toxin for Overactive Bladder, 814
Gary E. Lemack, Paige Kuhlmann

17 GENDER AFFIRMATION SURGERY

- 102 Principles of Gender-Affirming Genital Surgery, 820
Richard A. Santucci, Brenna L. Briles
- 103 Male to Female Gender-Affirming Surgery, 827
Ervin Kocjancic, Paulo Vitor Barreto Guimaraes
- 104 Phalloplasty With and Without Urethral Lengthening, 837
Maurice M. Garcia
- 105 Complications of Gender-Affirmation Surgery, 850
Dmitriy Nikolavsky, Daniel D. Dugi III.

18 TESTIS: REPAIR AND RECONSTRUCTION

- 106 Testis Biopsy, 862
Jacob M. Bardell, Richard J. Fantus, Ajay K. Nangia
- 107 Sperm Retrieval, 866
Peter N. Schlegel
- 108 Varicocele Ligation, 869
Paul J. Turek
- 109 Simple Orchiectomy, 875
Andrew G. McIntosh, Kelly L. Stratton
- 110 Vasectomy, 878
Victor M. Brugh III

- 111 Vasovasostomy and Vasoepididymostomy, 881
Ryan P. Smith, Raymond A. Costabile
- 112 Epididymal Cyst Excision (Spermatoclectomy), 888
Ryan P. Smith
- 113 Epididymectomy, 890
Wayne J.G. Hellstrom, Felipe P.A. Glina
- 114 Undescended Testis, 892
Sean T. Corbett, Matthew D. Timberlake
- 115 Reduction of Testicular Torsion, 909
Hillary Copp, Kai-wen Chuang

19 TESTIS: MALIGNANCY

- 116 Testis-Sparing Surgery for Benign and Malignant Tumors, 913
Caroline Kang, Marc Goldstein
- 117 Radical Orchiectomy, 916
Mary E. Hall
- 118 Retroperitoneal Lymph Node Dissection, 919
Ruchika Talwar, Olutiwa Akinsola, Kelvin A. Moses
- 119 Robotic Retroperitoneal Lymph Node Dissection, 926
James Porter, Rogerio Huang

20 PENIS: CORRECTION AND RECONSTRUCTION

- 120 Dorsal Slit and Circumcision, 936
Julian Wan, Kate H. Kraft, Bryan S. Sack
- Dorsal Slit and Preputioplasty, 941
- 121 Penile Curvature in Pediatric Patients, 944
Aaron P. Bayne
- 122 Adult Acquired Buried Penis, 949
Stephanie Gleicher, Niels V. Johnsen
- 123 Penile Prosthesis Implantation, 955
Jordan R. Foreman, Aaron C. Lentz
- 124 Procedures for Peyronie Disease, 972
Benjamin N. Breyer, Amanda B. Reed-Maldonado, Tom F. Lue
- 125 Operations for Priapism, 980
Gregory A. Joice, Joseph P. Alukal
- 126 Repair of Genital Injuries, 989
Joshua A. Broghammer, Hunter Wessells

21 PENIS: HYPOSPADIAS

- 127 Pediatric Meatotomy and Distal Reconstruction, 998
Jonathan C. Routh
- 128 STAC Repair for Hypospadias With 30° or More Curvature, 1003
Warren Snodgrass, Nicol Corbin Bush

22 PENIS: MALIGNANCY

- 129 Partial Penectomy, 1012
Mark L. Gonzalgo, Chad R. Ritch, Dipen J. Parekh
- 130 Total Penectomy, 1016
Crystal L. Valadon, Hadley Wyre, Jeffrey M. Holzbeierlein
- 131 Ilioinguinal Lymphadenectomy, 1019
Logan W. Zemp, Ali Hajiran, David Zekan, Philippe E. Spiess, Julio M. Pow-Sang
- 132 Robotic Inguinal Lymphadenectomy, 1030
Aaron A. Laviana, Tarah Woodle, Nirupama Ancha

Index, 1036

Video Contents

SECTION 1: SURGICAL BASICS

Demonstration of an Open Side-to-Side Stapled Anastomosis

Ch. 4, Video 4.1 – Aimal Khan, Andrea Fa

Demonstration of a Robotic Side-to-Side Stapled Anastomosis:
The Bowel is Placed in an Antiperistaltic Configuration

Ch. 4, Video 4.2 – Aimal Khan, Andrea Fa

Demonstration of a Robotic Side-to-Side Stapled Anastomosis:
The Bowel is Placed in an Isoperistaltic Configuration

Ch. 4, Video 4.3 – Aimal Khan, Andrea Fa

Pudendal and Perineal Nerve Block Injection Procedure

Ch. 5, Video 5.1 – Jose Quesada-Olarte, Laurence A. Levine

Spermatic Cord Block Injection Procedure

Ch. 5, Video 5.2 – Jose Quesada-Olarte, Laurence A. Levine

Periprostatic Nerve Block Injection Procedure for Transperineal
Prostate Biopsy

Ch. 5, Video 5.3 – Jose Quesada-Olarte, Laurence A. Levine

SECTION 2: KIDNEY: EXCISION

Open Partial Nephrectomy

Ch. 9, Video 9.1 – Brant A. Inman

Removal of Bland Thrombus and Placement of Inferior Vena
Cava Filter During Tumor Thrombectomy

Ch. 11, Video 11.1 – Keyan Salari, Jahan Mohebali,
Michael L. Blute Sr.

SECTION 3: KIDNEY: RECONSTRUCTION

Medializing gonadal

Ch. 20, Video 20.1 – Tara Nikonow Morgan,
Francois Soto-Palou

Spatulation of Uter

Ch. 20, Video 20.2 – Tara Nikonow Morgan,
Francois Soto-Palou

Trimming Redundant Pelvis

Ch. 20, Video 20.3 – Tara Nikonow Morgan,
Francois Soto-Palou

Renoscopy Stone Extraction

Ch. 20, Video 20.4 – Tara Nikonow Morgan,
Francois Soto-Palou

Anastomosis anchoring

Ch. 20, Video 20.5 – Tara Nikonow Morgan,
Francois Soto-Palou

Anastomosis posterior

Ch. 20, Video 20.6 – Tara Nikonow Morgan,
Francois Soto-Palou

Double-J ureteral stent advanced

Ch. 20, Video 20.7 – Tara Nikonow Morgan,
Francois Soto-Palou

SECTION 4: ENDOSCOPIC AND PERCUTANEOUS RENAL SURGERY

Percutaneous Renal Access.

Ch. 24, Video 24.1 – T. Max Shelton, Michael S. Borofsky,
James E. Lingeman

Miniperc with Suction. Video Shows Percutaneous Access and
Miniperc for Renal Stones.

Ch. 26, Video 26.1 – Abhijit Patil, Mahesh Desai

SECTION 5: ADRENAL EXCISION

Robotic Adrenalectomy Step-by-Step

Ch. 29, Video 29.1 – Ethan L. Ferguson, Jihad H. Kaouk

SECTION 8: BLADDER: EXCISION

Robot-Assisted Partial Cystectomy.

Ch. 41, Video 41.1 – Jacob Taylor, Vitaly Margulis,
Yair Lotan

SECTION 11: VESICOVAGINAL FISTULA REPAIR

Visualization and Catheter Placement

Ch. 55, Video 55.1 – Marisa Clifton, Howard B. Goldman
Hinman's Excision of Fistula and Mobilizing Bladder.

Ch. 55, Video 55.2 – Marisa Clifton, Howard B. Goldman
Hinman's Closure of Bladder and Vaginal Skin

Ch. 55, Video 55.2 – Marisa Clifton, Howard B. Goldman
Robotic VVF Repair. Courtesy Dr. Sandip Vasavada.

Ch. 56, Video 56.1 – Ekene A. Enemchukwu,
Nirit Rosenblum

SECTION 12: PROSTATE: BENIGN

Endoscopic enucleation of the prostate using the holmium
lase

Ch. 60, Video 60.1 – Naeem Bhojani, Nicole L. Miller

En bloc thulium fiber laser prostate enucleation procedure

Ch. 60, Video 60.2 – Naeem Bhojani, Nicole L. Miller

Early Apical Release

Ch. 60, Video 60.3 – Naeem Bhojani, Nicole L. Miller

Morcellation.

Ch. 60, Video 60.4 – Naeem Bhojani, Nicole L. Miller

Rezum Procedure Video.

Ch. 61, Video 61.1 – Justin M. Refugia, Rahul Dutta,
Gopal H. Badlani

UroLift 2 Procedure

Ch. 61, Video 61.2 – Justin M. Refugia, Rahul Dutta,
Gopal H. Badlani

SECTION 14: FEMALE GENITAL RECONSTRUCTION

Female Urethral Diverticulectomy Procedure

Ch. 81, Video 81.1 – *Alice Y. Wang, Eric S. Rovner*

Proximally-based ventral flap urethroplasty

Ch. 82, Video 82.1 – *Patrick Lec, Victor W. Nitti*

Tubularized Vaginal Flap Urethroplasty

Ch. 82, Video 82.2 – *Patrick Lec, Victor W. Nitti*

Dorsal Onlay Urethroplasty Using a Free Graft

Ch. 82, Video 82.3 – *Patrick Lec, Victor W. Nitti*

SECTION 15: URETHRAL RECONSTRUCTION

Step-by-Step Transurethral Ventral Buccal Mucosa Inlay Urethroplasty Technique.

Ch. 87, Video 87.1 – *Hiren V. Patel, Benjamin N. Breyer*

Dorsal BMG Urethroplasty

Ch. 89, Video 89.1 – *Alex J. Vanni*

EPA Urethroplasty

Ch. 89, Video 89.2 – *Alex J. Vanni*

Direct Vision Internal Urethrotomy.

Ch. 92, Video 92.1 – *Chad M. Gridley*

SECTION 16: URETHRAL SPHINCTERIC PROCEDURES

Surgical Technique for Autologous Pubovaginal Sling Placement

Ch. 93, Video 93.1 – *Keri J. Rowley, Jasmine Tibon, Stephen R. Kraus*

Sacral Neuromodulation: Full Device Explant

Ch. 100, Video 100.1 – *Meredith C. Wasserman, Benjamin M. Brucker*

Sacral Neuromodulation: Staged Implant

Ch. 100, Video 100.2 – *Meredith C. Wasserman, Benjamin M. Brucker*

Sacral Neuromodulation: Full Implant

Ch. 100, Video 100.3 – *Meredith C. Wasserman, Benjamin M. Brucker*

Cystoscopy on a 35 year old female with Multiple Sclerosis complicated by neurogenic overactive bladder, receiving repeat intradetrusor botulinum toxin injections

Ch. 101, Video 101.1 – *Gary E. Lemack, Paige Kuhlmann*

SECTION 17: GENDER AFFIRMATION SURGERY

Penile Inversion Vaginoplasty Technique

Ch. 103, Video 103.1 – *Ervin Kocjancic, Paulo Vitor Barreto Guimaraes*

Robotic Peritoneal Flap Vaginoplasty

Ch. 103, Video 103.2 – *Ervin Kocjancic, Paulo Vitor Barreto Guimaraes*

Clitoroplasty Technique

Ch. 103, Video 103.3 – *Ervin Kocjancic, Paulo Vitor Barreto Guimaraes*

Panurethral Neophallic Obliteration Repair with Staged BMG and Reobliteration of Recurrent Vaginal Cavity Using “Upcycled” Gracilis Flap

Ch. 105, Video 105.1 – *Dmitriy Nikolavsky, Daniel D. Dugi III*

Anastomotic Neophallic Stricture Repair Using Single-Stage, Double-Face BMG

Ch. 105, Video 105.2 – *Dmitriy Nikolavsky, Daniel D. Dugi III*

Robotic Redo Vaginoplasty Using Perineal/Urethral Excess Tissue

Ch. 105, Video 105.3 – *Dmitriy Nikolavsky, Daniel D. Dugi III*

Prostato-Neovaginal Fistula Repair in Patient with Prior TURP

Ch. 105, Video 105.4 – *Dmitriy Nikolavsky, Daniel D. Dugi III*

Neovaginal Stenosis Repair with Lateral BMG Inlays (Using Improvised “Sewing Machine”)

Ch. 105, Video 105.5 – *Dmitriy Nikolavsky, Daniel D. Dugi III*

SECTION 20: PENIS: CORRECTION AND RECONSTRUCTION

Penile plication

Ch. 124, Video 124.1 – *Benjamin N. Breyer, Amanda B. Reed-Maldonado, Tom F. Lue*

This page intentionally left blank

STRATEGY AND TACTICS

Perhaps at no time since the advent of transurethral prostatectomy by Dr. Hugh Hampton Young more than a century ago has the repertoire of urologic techniques advanced as rapidly as during the last decade. Today's urologist has access to a vast array of ever-expanding technologies, with seemingly novel iterations presented every week. Minimally invasive approaches have replaced several time-honored fundamental urologic procedures. The manual and mental skills required to appropriately evaluate and perform these advanced procedures have generated a substantial increase in expectations for urologists and their patients. For the contemporary urologist, choosing a correct operative strategy now incorporates not only appreciation of historical methods but also a critical evaluation of current evidence. Additionally, in this era of expanding oversight and scrutiny, understanding quality measures and grading of complications has now become a fundamental aspect of surgical practice.

This atlas is designed primarily to assist the urologic surgeon in developing an appropriate tactic to approach the myriad technical issues involved with urologic operative procedures. Several axioms heard—usually rather stridently—during surgical training are worth repetition as they represent fundamental principles to drive superior technique and should become second nature to the experienced surgeon. These elemental strategies were eloquently and enthusiastically described by Dr. Hinman in the prior edition of his atlas and are paraphrased and expanded below.

Foremost, having a strategy involves knowledge of your patient and their pathology. Although unexpected findings are frequent during surgery, attention to detail and preoperative knowledge of the patient and the disease process can minimize the element of surprise, which could affect patient outcomes. Be compulsive about detail. Dr. Hinman counseled us to ensure adequate exposure; fend off difficult planes and vascular traps; use delicate technique; irrigate debris; obtain good hemostasis; close dead spaces; and provide adequate drainage. We are directed to have a plan, promote a team effort, and be gentle, but not indecisive. Dr. Hinman reminds us to tie sutures just to approximate the tissue; dissect and follow the natural tissue planes; work from known to unknown; keep tissues moist and covered; and above all, to keep calm and conduct yourself like a leader. Even with the technical advances that have almost revolutionized urologic surgery, these principles of preparation and technique remain fundamental.

With these mentoring concepts, the continued mission of this atlas is to share the knowledge, and admonitions, of experts with pronounced and specialized surgical experience. Reviewing the chapters prior to embarking on a particular procedure should provide the urologist with access to not only a critical resource in step-by-step technique but also serve as a caution for the pitfalls of which one must beware. Surgery is an apprenticeship learned literally at the shoulder of those who have chosen to impart their

skills. Foremost, the ultimate goal of this atlas is to serve and benefit our patients.

PREOPERATIVE EVALUATION

With explosively expanding medical knowledge, the complete evaluation of the patient prior to undertaking any operative procedure, except in the most dire of circumstances, merits substantial consideration. As limits are pushed of both young and advanced age in the urology patient cohort, sufficient preoperative knowledge can dramatically impact the operative outcome and allow more efficient communication with colleagues from other medical and surgical disciplines. The critical components of urologic preoperative evaluation will be reviewed in this chapter; for an even more thorough exploration, the American Urological Association review paper "Optimizing Outcomes in Urological Surgery" is recommended reading.

Evaluation of Risks

The American Society of Anesthesiology (ASA) has created a Physical Status Classification System to describe patients' preoperative physical condition and group those at risk for experiencing an adverse event related to general anesthesia (Table 1.1). ASA I represents a normal, healthy individual, while ASA IV represents a patient with an incapacitating systemic disease that is a constant threat to life. Several calculators incorporate ASA classification along with other pertinent variables to estimate surgical risk, but the preeminent is the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) risk calculator (<http://www.riskcalculator.facs.org/>). This nationally validated tool estimates the chance of an unfavorable outcome (such as a complication or death) after surgery. Instruments such as ACS NSQIP can assist both the surgeon and anesthesiologist in appropriate risk stratification and patient counseling.

Issues with pulmonary function and postoperative recovery from intubation are most frequently a consequence of preexisting conditions that place the patient at particular pulmonary risk. In patients with obstructive lung disease or severe asthma, it is best to consult with the pulmonologist or anesthesiologist about the safest route to provide the surgical intervention. Intubation may be unavoidable, but regardless, appropriate counseling requires recognition of the hazards. Patients who smoke should be counseled that smoking significantly increases the risk of postoperative complications, particularly wound-healing and pulmonary issues.

Cardiac status has long been appreciated as a significant risk factor for perioperative mortality and the past decade has witnessed remarkable changes in the evaluation and management of the cardiac patient. Patients with significant, high-risk cardiac history should be evaluated by their cardiologist for optimization and clearance prior to surgery. Of paramount importance for surgeons is the management of an ever-expanding repertoire of antithrombotic medications.

TABLE 1.1 AMERICAN SOCIETY OF ANESTHESIOLOGY PHYSICAL CLASSIFICATION SYSTEM

Classification	Definition	Example, Including, but Not Limited to:
ASA I	A normal healthy patient	Healthy, nonsmoking, no or minimal alcohol use.
ASA II	A patient with mild systemic disease	Mild disease only without substantive functional limitations. Examples include: current smoker, social alcohol drinker, pregnancy, obesity (30<BMI<40), well-controlled DM/HTN.
ASA III	A patient with severe systemic disease that is not life threatening	Substantiative functional limitations; one or more moderate to severe diseases. Examples include: Poorly controlled DM or HTN, COPD, morbid obesity (BMI ≥40), active hepatitis, alcohol dependence/abuse, implanted pacemaker, ESRD undergoing regularly scheduled dialysis, MI, CVA, TIA, or CAD/stents.
ASA IV	A patient with severe systemic disease that is a constant threat to life	Functional limitation from severe, life-threatening disease. Examples include: Recent (<3 months) MI, CVA, TIA, or CAD/stents, ongoing cardiac ischemia or severe valve dysfunction, severe reduction of ejection fraction, sepsis, DIC, ARD, or ESRD not undergoing regularly scheduled dialysis.
ASA V	A moribund patient who is not expected to survive without an operation	Survival not expected beyond the next 24 h without surgery. Examples include: Ruptured abdominal/thoracic aneurysm, massive trauma, intracranial bleed with mass effect, ischemic bowel in the face of significant cardiac pathology or multiple-organ/system dysfunction.
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes	

Excerpted from "Statement on ASA Physical Status Classification System." <http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system>, 2020 of the American Society of Anesthesiologists. A copy of the full text can be obtained from ASA, 1061 American Lane Schaumburg, IL 60173-4973 or online at www.asahq.org.

Anticoagulation/Antiplatelet Medication Management

Oral anticoagulant (AC) and antiplatelet (AP) therapies require comprehensive attention in the perioperative period to avoid complications with surgical hemorrhage as well as the potential systemic repercussions of discontinuation of these therapies. The first step is to determine whether the anticoagulant/antiplatelet medication needs to be held. Most cases can be done safely without discontinuing aspirin and some urologic cases, such as ureteroscopy, can be performed safely on other anticoagulant/antiplatelet agents if needed (though there is an increased risk of minor bleeding complications). To determine the duration of holding the AC/AP agent prior to surgery, two risks must be considered: the risk to the patient from holding the medication (based on their medical risk factors) and the risk of bleeding from the procedure. When holding these agents, bridging with heparin or enoxaparin is no longer recommended for most patients. [Table 1.2](#) provides more details on recommended durations for holding varying AC/AP medications based on these risks. With complex patients, guidance from a multidisciplinary team including cardiology and primary care is often prudent to ensure optimal care is accomplished.

Venous Thromboembolism (VTE) Prophylaxis

Surgical patients are at risk for the potentially fatal complications of deep venous thrombosis (DVT) and pulmonary embolism (PE). The risk increases further for patients undergoing pelvic surgery, especially if legs are in stirrups for a prolonged period. With recognition of the heightened risk in the urologic patient, the AUA best practice policy statement "Prevention of Deep Vein Thrombosis in Patients Undergoing Urologic Surgery" was developed ([Table 1.3](#)). This policy statement integrates available evidence from the urologic and surgical literature into treatment strategies for mechanical and pharmacologic prophylaxis for each category of urologic surgery and includes patient risk stratification. The European Association of Urology also has specific thromboprophylaxis guidelines for many urologic procedures and as an in-depth resource, the American College of Chest Physicians publishes extensive nonurology-specific recommendations for the prevention of thrombosis in surgical patients.

Nutrition

Special emphasis should be given to assessment of the patient's preoperative nutritional status as many urology patients, particularly those with malignancy or renal dysfunction, may have recent weight loss or nutritional deficits related to chronic illness. Nutritional deficiency can predispose the patient to issues with poor wound healing as well as prolonged recovery. Preoperative evaluation of risk factors may include both serum laboratories in addition to consultation with nutrition specialists for high-risk individuals. Nutritional supplements at least 10 days prior to major surgery have been shown to decrease inflammatory markers, complications, and length of stay. The American Society of Anesthesia guidelines now allow a light (nonfat, nonmeat) meal up to 6 h before surgery and clear liquids up to 2 h before most surgeries to reduce prolonged acute presurgical fasting.

Anesthesiology Evaluation

Issues involving anesthesia evaluation are becoming more prevalent with the continual amplification of patient acuity and procedure complexity, many of which are now managed on an outpatient basis. Appropriate attention is mandated to control preoperative hypertension and electrolyte abnormalities as these may become more pronounced during general anesthesia. The preoperative anesthesia evaluation is designed to assess basic cardiac, pulmonary, and systemic risk factors that may influence tolerance and recovery from both anesthesia and the surgical procedure. Although frequently there are mechanisms in place to notify the surgeon of any abnormalities uncovered by these tests, it remains the responsibility of the operative surgeon to review all available data prior to the procedure and assess the fitness of the patient to proceed with the planned surgical procedure.

Bowel Preparation

There has been considerable controversy about whether preoperative mechanical bowel preparation (substances such as polyethylene glycol which induce voiding of the intestinal and

TABLE 1.2 PERIOPERATIVE MANAGEMENT OF ANTICOAGULATION/ANTIPLATELET THERAPIES

Anticoagulant/Antiplatelet Therapy	Time to Peak Effect (hours)	Hold Duration Low-Bleed Risk Surgery	Hold Duration High-Bleed Risk Surgery	Notes
Aspirin	1	5–7 days ^a	5–7 days ^a	Nonreversible
Clopidogrel	2–5	5 days	5–7 days	Nonreversible
Heparin (unfractionated)	Immediate IV; within 6 h SQ	4–6 h	6–12 h	Reversible with protamine
Enoxaparin	3–6	12–24 h	24 h	Partially reversible with protamine
Apixaban	1–3	Last dose 1 days before surgery	Last dose 2 days before surgery	Reversible with Andexanet alfa
Dabigatran	1–3	1 day (CrCl > 50 mL/min) & 2 days if (CrCl < 50 mL/min)	2 days (CrCl > 50 mL/min) & 4 days if (CrCl < 50 mL/min)	Reversible with idarucizumab
Edoxaban	1–2	Last dose 1 days before surgery	Last dose 2 days before surgery	Reversible with prothrombin complex concentrate
Rivaroxaban	2–4	Last dose 1 days before surgery	Last dose 2 days before surgery	Reversible with Andexanet alfa
Warfarin	5–7 days	5 days	7 days	Reversible with vitamin K or plasma

^aAspirin can be safely continued through most types of elective surgery, but if choosing to hold, 5–7 days is recommended for full effect.

Douketis, J.D., A.C. Spyropoulos, M. Hassan Murad, et al. Perioperative management of antithrombotic therapy: an American College of chest Physicians clinical practice guideline. 2022. *Chest* 162(5): e207–e243.

TABLE 1.3 VENOUS THROMBOEMBOLISM PROPHYLAXIS RECOMMENDATIONS

Patient Risk Stratification	Description	Prophylactic Treatments
Low risk	Minor surgery in patient <40 years with no additional risk factors	No prophylaxis other than early ambulation
Moderate risk	Minor surgery in patients with additional risk factors Surgery in patients aged 40–60 years with no additional risk factors	Heparin 5000 units every 12 h subcutaneous OR Enoxaparin 40 mg subcutaneous daily OR Pneumatic compression device if risk of bleeding is high
High risk	Surgery in patients >60 years Surgery in patients aged 40–60 years with additional risk factors	Heparin 5000 units every 12 h subcutaneous OR Enoxaparin 40 mg subcutaneous daily OR Pneumatic compression device if risk of bleeding is high
Highest risk	Surgery in patients with multiple risk factors (e.g., age >40 years, cancer, prior VTE)	Enoxaparin 40 mg subcutaneous daily AND adjuvant pneumatic compression device OR Heparin 5000 units every 8 h subcutaneous AND adjuvant pneumatic compression device

From Forrest JB, Clemens JQ, Finamore P et al. AUA Best Practice Statement for the prevention of deep vein thrombosis in patients undergoing urologic surgery. *J Urol*. 2009; 181: 1170–7, updated 2014. [https://www.auanet.org/guidelines-and-quality/quality-and-measurement/quality-improvement/clinical-consensus-statement-and-quality-improvement-issue-brief-\(ccs-and-qibb\)/anticoagulation-and-antiplatelet-therapy](https://www.auanet.org/guidelines-and-quality/quality-and-measurement/quality-improvement/clinical-consensus-statement-and-quality-improvement-issue-brief-(ccs-and-qibb)/anticoagulation-and-antiplatelet-therapy)

colonic contents) is beneficial compared to oral antibiotics alone prior to surgery involving the bowel. A recent Cochrane Review found that there is moderate-certainty evidence that a mechanical bowel preparation in combination with oral antibiotic bowel preparation reduces the risk of SSIs compared to mechanical bowel preparation alone. Studies showing that mechanical bowel preparation has *no* benefit compared to oral antibiotics alone were deemed to be of low-certainty and more robust studies were recommended.

PERIOPERATIVE PREPARATION

Preparation of the Operative Site

The preoperative checklist presented in [Box 1.1](#) details the majority of items surgeons should consider prior to proceeding to the operating room.

Marking

Because of national safety initiatives, currently most hospitals and surgery centers require marking of the surgical site before proceeding to the operating room. This safety measure is of particular significance in urology, where intervention on one of dual organs is performed routinely. The critical nature of this reassurance to the surgeon and the patient cannot be underestimated as wrong-site surgery is considered by most organizations as a “never occur” event. For cases involving midline structures, such as penile or vaginal surgeries, site marking may not be required.

Shaving and Epilation

Shaving increases bacterial colonization and is ideally done as near to the time of operation as feasible. Only areas where hair would interfere with surgery should be shaved, as microtrauma from shaving is presumed to increase the risk of infection. Electric clippers with replaceable cartridge blades are now often mandated by

BOX 1.1 PREOPERATIVE CHECKLIST FOR SURGEONS

Assess Operative Risk

Surgical history
Social needs/support
Functional status
Frailty assessment
Surgical risk calculator
Pulmonary and cardiac risk assessment
Medications (anticoagulants, corticosteroids, antibiotics)
Nutrition
Obesity
Wound healing (anemia, irradiation, vitamin deficiency)
Patient preparation

Patient Education & Setting Expectations

Informed consent
Blood banking (if needed)
Site marking
Skin preparation
Bowel preparation
Preanesthetic medication
Antibiotics
Hydration
Medications

hospital committees as they provide less opportunity than razors for skin damage and subsequent bacterial colonization.

Skin Preparation

Once the patient is appropriately positioned and shaved, a skin antiseptic should be applied to the surgical area to reduce the risk of surgical site infection (SSI). The World Health Organization's global guidelines for the prevention of SSI recommend the use of alcohol-based preparations over aqueous ones. While chlorhexidine has been shown to achieve the highest levels of skin decontamination, studies comparing chlorhexidine versus iodine-based preparations for SSI reduction have had flaws and mixed results. A recent large metaanalysis published in *Lancet* found that 2%–2.5% chlorhexidine alcohol and 1.5% olanexidine solutions significantly reduced SSIs compared to iodine solutions in nonclean cases. Implantations of genitourinary prosthetics are cases where sterility is of the utmost importance and chlorhexidine-alcohol preparations have been shown to reduce the rate of SSIs compared to iodine-based solutions. Of note, there is limited evidence for the efficacy of use of chlorhexidine-based washes or wipes preoperatively for SSI reduction so the World Health Organization and others recommend patients shower with antimicrobial soap.

Surgeon Hair and Skin Preparation

The Association of Operating Room Nurses recommends that surgeons cover their scalp and hair with some form of covering, but the type of covering is up to surgeon preference as no association has been found between the type of hair covering (i.e., smaller cap vs. larger bouffant) and SSI rates. Water-based antimicrobial scrubs and chlorhexidine-based handrubs have been shown to have equivalent efficacy and either is recommended prior to putting on sterile gloves.

Perioperative Antibiotics

Surgical site infection rates are significantly impacted by the selection and timing of perioperative antibiotics. The AUA has published best practice guidelines specifically addressing antibiotic prophylaxis in urologic surgery (Table 1.4). The AUA guidelines also specifically address special situations such as antibiotic prophylaxis for mechanical cardiac valves, endourologic, and

office-based procedures. The European Association of Urology, Surgical Infection Society, and several other subspecialty societies also publish antibiotic prophylaxis guidelines regularly. The American College of Surgeons recommends that perioperative antibiotics should be administered within 60 min of incision (unless a prolonged antibiotic infusion time is required) and there is strong evidence of reduced outcomes if antibiotics are given >120 min prior to incision. Antibiotics should be redosed during long cases based on their half-lives.

Protection During Surgery

Room temperature in the operating room must be a balance between surgeon comfort and maintenance of appropriate patient warmth. For children and infants, room temperature must be elevated substantially to reduce the insensible loss of body heat. Intraoperative hypothermia has been associated with cardiac complications, reduced coagulation, and increased SSI rates.

The appropriate position for the patient is shown in this atlas for each operation, but the details for protection of the patient vary. Be thorough in placing foam padding over all bony prominences to avoid damage to adjacent nerve trunks. Avoid positions that put a strain on the muscles, ligaments, and joints. Brachial plexus injuries can be avoided by ensuring the arms are never extended more than 90° from the trunk and that a pad is placed caudal to the axilla in lateral position. Of specific concern for urologists is the patient in lithotomy position where sustained pressure may result in not only neuropraxia of the peroneal nerve (from pressure on the lateral head of the fibula) but compartment syndromes. Movement of the stirrups every few hours may release pressure points and prevent such dire consequences. For minor procedures in children, use a restraining wrap (papoose board).

Choice of irrigation fluids utilized during endoscopic surgery is critical. Intravascular absorption of hypotonic solutions may manifest in a heterogeneous array of symptoms primarily due to hyponatremia which are commonly referred to as transurethral resection (TUR) syndrome. Although classically described for transurethral prostate resection, TUR syndrome and fluid overload may occur with any endoscopic procedure.

General principles to reduce fluid overload include use of non-electrolyte solutions with osmolality similar to serum, most commonly normal saline. If this is not available, 1.5% glycine may be used. Fluid should ideally be warmed in procedures using a large volume of fluid such as prostate enucleation. Use of the lowest-pressure irrigation possible will additionally help prevent fluid absorption.

ANESTHESIA

Fluid and Electrolyte Replacement

Fluid losses increase during surgery because of myriad factors in addition to blood loss, including anesthesia, operating room lights, skin exposure, and visceral organ exposure. Inflammatory responses secondary to the insult of surgery provoke fluid accumulation in tissues outside of the vascular space. The anesthesia team should carefully provide sufficient fluid to replace these insensible losses and volume depletion due to third-spacing. By monitoring blood loss during the case and communicating this information, you can help the anesthesia team stay prepared and ahead of any possible physiologic derangements that may occur.

Local Anesthesia

Several urologic procedures are comfortably performed with the use of local anesthesia. Injections of local agents at the conclusion

- Low-molecular-weight heparin (LMWH), 345, 385
- Lymph node (LN), 566–567, 597, 1034
dissection templates, 931
removal technique, 931–933
- Lymph node dissection, pelvic (PLND), 566–581
anatomical templates, 567, 567f
imaging-guided surgery, 568–569
intraoperative complications, 575
minimal number of lymph nodes, 567–568
open standard, 569–571
patient selection, 566–567
postoperative care, 574–575
postoperative complications, 575–579
preoperative considerations, 566–569
robot-assisted standard, 571–573, 572f
salvage, 573–574
sentinel lymph node (SLN), 568–569
therapeutic benefit, 568
- Lymph node dissection, retroperitoneal (RPLND), 919–925
closure and postoperative care for, 923–925
gonadal veins in, 922
indications for chemotherapy, 919
interaortocaval packet in, 921
nerve-sparing technique for, 922, 923f
paraortic packet in, 921–922
paracaval packet in, 921
preoperative preparation for, 919
preoperative staging, 919
primary, indications for, 919
spermatic cord, 922
surgical approaches and technique for, 919–923
- Lymph node involvement (LNI), 566
- Lymphadenectomy, pelvic, 366–378
female, 367, 367f
male, 366–367
bladder, mobilizing, 367, 370f
lymphatic tissue, sweeping, 367, 369f
midline incision, 366, 367f
oburator fossa, 367, 371f
urachus, retraction, 366, 367f
- pelvic exenteration, 369–378
female patients, 374–377
male patients, 370–374
postoperative problems, 377–378
preoperative preparation, 369–370
postoperative problems, 367–369
- Lymphatic drainage, prostate, 520–521, 520f
- Lymphatic tissue, 933
- Lymphedema, 577
- Lymphocele, 367–369
- Lymphovascular invasion, 926–927
- M**
- Magnetic resonance imaging (MRI), 46, 477, 532, 566, 598, 612, 627, 690–691
- adrenal imaging, 267
- guided laser ablation, 637
- scan, 1030
- ultrasound fusion biopsy, 529–530
- Male urethra, configuration of, 743
crural rerouting, 751f–752f
crural separation, 747f–748f
gorget speculum, 745f
inferior pubectomy, 750f
supra-crural rerouting, 749f
- Male urethral sling, 799–803
background, 799
combination procedures, 802
- Male urethral sling (*Continued*)
patient positioning, 799–800
patient selection and preoperative preparation, 799
postoperative care and complications, 802
quadratic, 802
surgical instruments, 799
surgical steps, 800–802, 800f
- Malignancy ureteral strictures, 295
- Malignancy, prostate
prostate cancer cryosurgery, 610–615
intraoperative patient preparation and positioning, 613–615, 613f
mechanism of action, 610
postoperative care, 557–558
patient selection, 610
preoperative preparation, 613
- radical perineal prostatectomy, 556–565
apical dissection, 560, 562f
bladder neck dissection, 560–561, 562f
central tendon division, 556, 557f
closure, 564, 565f
incision, 556, 557f
instruments and equipment, 556, 557f
nerve sparing, 558–560, 561f
positioning, 556, 557f
postoperative care, 565
preoperative preparation and planning, 556
prostate pedicles and seminal vesicles, 561–563, 563f
puboprostatic ligament division, 560, 562f
rectal isolation and mobilization, 557, 559f
rectourethral division, 557–558, 560f
surgical approach, 556–564
Thompson retractor and pearly gates of Young, 558, 560f
vesicourethral anastomosis, 563, 564f
- radical retropubic prostatectomy, 545–555
alternative urethral suture method, 552
apical prostatic dissection, 548
bladder neck anastomosis, 551–552, 554f
bladder neck dissection, 550–551, 552f
bladder neck reconstruction, 551, 553f
bunching of dorsal venous complex, 546, 549f
dissection of seminal vesicles and vas deferens, 550, 552f
division of anterior urethra, 548
division of dorsal venous complex, 546–548
division of posterior urethra and rectourethral muscle, 549
drain placement and wound closure, 552–553
endopelvic fascia, 546, 547f
exposure, 545
incision, 545, 546f
incision of puboprostatic ligaments, 546, 548f
instruments, 545
intraoperative problems, 553–554
ligation of lateral prostatic pedicles, 550, 552f
operative technique, 545–553
pelvic node dissection, 546
perioperative and postoperative care, 553
placement of urethral sutures, 548, 550f
position, 545, 546f
postoperative problems, 554–555
preservation and dissection of neurovascular bundles, 549–550, 550f
retractor placement, 545–546
transperitoneal robotic-assisted laparoscopic prostatectomy, 582–591
control of dorsal vein complex, 584–585, 584f
- Malignancy, prostate (*Continued*)
control of pedicle, 588–589, 588f
development of posterior plane, 587, 587f
dissection of bladder neck, 585–586, 585f
division of urethra, 589–590, 589f
exposure of prostate, 583–584, 583f
extended pelvic lymphadenectomy, 591
patient positioning, 582
port placement, 582–583, 582f
postoperative care, 591
preservation of neurovascular bundle, 587–588, 588f
seminal vesicle dissection, 586–587, 586f
surgical technique for, 582–591
undocking of robot and wound closure, 591
vesicourethral anastomosis, 590–591, 590f
- Malignant tumors, testis-sparing surgery for, 913
closure of tunica albuginea, 915f
cord and gubernaculum clamped, 913f
dissection of intratesticular mass using microneedle holder, 914f
opening of tunica albuginea over site of mass, 914f
ultrasound identification of intratesticular mass, 914f
- Malleable blade, 346–347
radical cystectomy in female patients, 353, 353f
- Marsupialization (Spence-Duckett), 673
- Martius flap, 662–664
combined, and labial flap, 668–670, 670f
fistula repair, 660, 662f
mobilization, options, 664, 666f
modified, 664–667
blunt dissection, 664, 665f
labial incision, closing, 665, 666f
mobilization, 666f, 667
retropubic space, transfer, 666, 668f
secure, 669–671, 671f
semi-circular incision, 665–666
suture, 665, 666f
transfer of fibrofatty flap, 670–671
tunnel, creating, 664, 671f
vaginal wall flap, advance, 665, 667f
vertical incision, 664, 665f
in situ, 667–668, 668f
- Massive hemorrhage, vena caval thrombectomy, 113
- Mastisol, 858
- Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome, 644
- McDougal clamp, 347, 350f
- McIndoe procedure, 346f, 644
- Meatal stenosis, 856–858, 998, 1018
- Mechanical failure, penile prosthesis implantation, 970
- Medial biopsies, 529
- Medial vena cava, 933–934
- Median lobe, 462
bladder neck incision and enucleation of, 471–472
- Medical care, 820
- Meshed split-thickness skin grafting, scrotum, 992, 992f
- Mesh exposure, 787
- Mesh extrusion, 787
- Meta-analysis, 537
- Metabolic acidosis, ileal orthotopic bladder substitution, 404
- Metabolic endocrine evaluation, 268
- Metastasectomy, adrenal gland, 269–270
- Meticulous hemostasis, 827
- Metoidioplasty, 822–823
- Michigan Urological Surgery Improvement Collaborative (MUSIC) template, 537

Micropenis. *See* Hidden penis
 Microporous skin tape, 18
 Microscopic epididymal sperm aspiration, sperm retrieval, 866–867, 867f
 Microsurgical testicular sperm extraction, sperm retrieval, 867–868, 867f
 Microvascular orchiopexy, 906–908
 Midline incision, 341, 653, 749
 Midurethral sling (MUS), 776
 tension-free vaginal tape, 771–775
 transobturator, 776–783
 Millin, Terence, 490
 Millin technique (transverse capsular incision), for
 retropubic prostatectomy, 490–491, 492f
 closure of capsule, 491, 494f
 enucleation of adenoma, 490–491, 492f
 trigonization of bladder, 491, 493f
 Mini-PCNL, 219, 228, 235–237
 Minimally invasive side-to-side stapled anastomosis, 41
 Minimally invasive surgery (MIS), 508, 926
 Minimally invasive surgical therapies (MISTs), 477
 advantages and disadvantages of, 477t
 Miniperc, 233
 conventional prone position for, 234f
 dilation and sheath, 235
 14-Fr fascial dilator, 237f
 guidewire passed in pelviccalyceal system (PCS), 237f
 energy sources, 235, 240f
 with EMS trilogy, 241f
 with laser, 240f
 with olympusshockpulse, 241f
 exit strategy, 235
 endoscopic view of complete stone clearance, 241f
 fluoroscopic image showing DJ stent, 242f
 tubeless miniperc, 241f
 indications, 233
 nephroscopy and stone extraction, 235
 complete superperc sheath ecosystem, 239f
 fluoroscopic picture of miniperc sheath with nephroscope, 240f
 sheath with suction armamentarium, 238f
 sheath with suction detachable Shah Superperc sheath, 239f
 operating room setup and equipment, 233
 operating room setup for, 233f
 patient position, 233
 postoperative follow-up, 235
 preoperative evaluation, 233
 retrograde access, 234, 234f
 review of literature, 235–237
 with suction, 233f
 supine position for, 234f
 ultrasound-guided renal access, 234–235
 Minor liver injuries, 129
 Missed bowel injuries, 54
 Mitomycin gel, 142
 Mitrofanoff principle, 392
 Modern reconstructive techniques, 18
 Modified Barzell template, 535
 Mogen clamp technique, 938–939
 Momentary Squeeze (MS), 955
 Monopolar devices, 633
 Monopolar hook, 508
 Monopolar scissor, 930
 Morbidity and Mortality conferences, 7
 Morcellators/morcellation, 51

“Mount Everest Technique”, 527–528
 MR fusion, prostate biopsy, 540–544
 indications, 540
 local anesthetic injection, 542
 mapping, 542–544, 543f
 patient preparation and positioning, 541–542, 542f
 platforms, 540–541, 542f
 prostate contouring, 540, 541f
 three-dimensional reconstruction of prostate, 540
 ultrasonic evaluation of prostate, 542
 ultrasonic image capture and prostate segmentation, 542, 542f
 99mTc dimercaptosuccinic acid (DMSA), 203
 Multichannel cannula and robotic instruments, 601–602
 Multidisciplinary approach, 755
 Multiparametric magnetic resonance imaging (mpMRI), 529–530, 535, 566, 616
 Multiple sclerosis (MS), 814, 818
 Multiport (MP) robotic platforms, 597
 Muscle flaps, 24
 Muscle invasive bladder cancer (MIBC), 340
 Muscle-invasive tumors, 340
 Musculocutaneous flap, 24–30, 29f
 Musculocutaneous latissimus dorsi (MLD), 824
 Musculoskeletal injuries, laparoscopy, 55
 Myelolipoma, 269

N

NanoKnife, 629
 Narrow-band imaging (NBI), 138–139, 338
 Nasogastric tube, 654
 National Comprehensive Cancer Network (NCCN), 566, 597
 Near-infrared fluorescence (NIRF) imaging, 568–569, 1030
 Needle biopsy, 863
 Needle placement technique, 807
 Negative predictive value (NPV), 566
 Neoclitoris, 828
 Neourethra, 850
 construction, 844
 tubularization, 1009
 Neovaginal canal, 650
 Neovaginal dilation, 858–859
 Nephrectomy
 after failed transplantation, 173
 laparoscopic, 121–130
 complications, 121
 establishing pneumoperitoneum, 122, 122f
 hemostasis and closure, 128
 hilar dissection/ligation of renal artery and vein, 125–126, 125f
 intraoperative procedure specific complications, 129
 lateral dissection, 126–127
 patient positioning and protection, 121–122, 121f
 postoperative care, 128–129
 preoperative considerations, 121
 preoperative preparations, 121
 retroperitoneal simple nephrectomy, 129–130
 specimen entrapment and removal, 127–128, 128f
 steps for left, 122–124, 123f
 steps for right, 124–125, 125f
 superior dissection, adrenal gland, 126, 126f

Nephrectomy (Continued)

 trocar positioning, 122, 123f
 ureteral dissection, occlusion, and division, 127, 127f
 laparoscopic and robotic living donor
 nephrectomy, 181–189
 adjunctive measures, 188
 hand-assisted, 186–187
 laparoendoscopic single-site, 187–188
 left, conventional, 181–185, 182f
 operative technique, 181–188
 patient positioning, 181–188
 postoperative considerations, 188
 preoperative preparation and planning, 181
 right, conventional, 183f, 186
 robot-assisted, 187–188
 surgical incision, 181–188
 open partial, 83–87.e1
 large cortical tumors, wedge resection, 83–84
 large polar tumors, segmental nephrectomy, 84–85, 85f
 large tumors, heminephrectomy, 85–86
 postoperative bleeding, 87
 postoperative problems, 86–87
 preoperative considerations, 83
 preparation and exposure, 83, 84f
 renal insufficiency, 87
 small cortical tumors, enucleation, 83, 84f
 urinary leak and fistula, 86–87
 partial
 clamping, 134, 134f
 complications, 136
 dissection and mobilization, 133–134, 133f
 mass excision, 134–135, 135f
 port placement, 133, 133f
 positioning, 132–133, 132f
 postoperative care, 135
 preprocedure steps, 132
 radical, open, 66–82
 abdominal and chest wall, 66, 67f
 anatomic basis for incisions, 66
 anterior approaches, 66–77
 chevron incision, 72f, 74–76
 choice of surgical approach, 66–81, 69t
 eleventh rib transcostal incision, 78–79, 79f
 extraperitoneal approach, 69–71
 flank approaches, 77–81, 77f
 indications, 72t
 injury to duodenum, 81
 injury to gut vasculature, 81
 injury to liver and spleen, 81
 injury to pancreas, 81–82
 intraoperative complications, 81–82
 midline transperitoneal incision (laparotomy), 66–69, 68f
 modified thoracoabdominal, extraperitoneal Hockey-Stick incision, 76–77, 76f
 postoperative complications, 81–82
 pulmonary complications, 82
 retroperitoneal space, 66, 68f
 subcostal incision, 69–74
 thoracoabdominal incision, 80–81, 80f
 three-dimensional relationships, 66, 68f
 transperitoneal approach, 72–74, 72t, 73f
 twelfth rib supracostal incision, 77–78, 78f
 segmental, large polar tumors, 84–85

- Nephrectomy
 intraoperative procedure-specific complications
 left-sided nephrectomy, 129
 right-sided nephrectomy, 129
 obtaining access, 122
- Nephrolithotomy
 anatomic, 190–193
 closure, 191–192, 192f
 operative technique, 190–191, 190f
 patient positioning and surgical incision, 190
 postoperative care and complications, 192–193
 preoperative planning and preparation, 190
- Nephropexy, 151–152
- Nephroscope of miniperc, 235
- Nephrostomy tract access, percutaneous resection, 138, 138f
- Nephrostomy tube, 142
- Nephroureterectomy, laparoscopic, 89–90
 distal ureterectomy, 94–96
 intraoperative intravesical chemotherapy, 89
 lymphadenectomy, 88–89, 89f
 neoadjuvant chemotherapy, 88
 open, 89–90
 overview of techniques, 91–93
 postoperative care, 97
 preoperative considerations, 88
 using proximal ureter, 90
 staging of malignancy, 88
 upper tract malignancy, diagnosing, 88
- Nephroureterectomy, open, 89–90
 postoperative care, 97
 preoperative considerations, 88
 techniques, 90–91, 90t
 single-incision approach, 91, 91f
 two-incision approach, 90, 91f
- Nephroureterectomy, open and laparoscopic, 89–90
 adjuvant chemotherapy, 88
 hand-assisted laparoscopic nephroureterectomy, 93–94
 distal ureterectomy, 94
 open distal ureterectomy, 94
 retroperitoneal laparoscopic approach, 94
 robot-assisted laparoscopic
 nephroureterectomy, 93
 single-port laparoscopic and robotic
 nephroureterectomy, 93
 kidney-sparing management, 88
 risk stratification, 88
 treatment, 88–89
- Nerve block
 pharmacology, 44
 pudendal nerve block, 44
 spermatic cord block, 44–46
 suggested readings, 47
 ultrasonic evaluation of prostate and injection of
 local anesthetic, 46
 prostate nerve block, 46
 transperineal periprostatic infiltration of local
 anesthetic, 47f
 transperinealanesthetic skin injection, 47f
- Nerve injury, 368, 377
- Nerve sparing, 558–560, 931
- Nitropaste, 818
- Nitrous oxide, 620
- Nonobstructive urinary retention (NOUR), 804
- Nonpalpable testis, 897
 diagnostic laparoscopy, 897–900
 children, 893f, 897
 positioning, 897
- Nonpalpable testis (*Continued*)
 open surgery, 900–908, 902t
 extended inguinal approach, 902
 Laroque incision, 903
 midline transperitoneal approach, 900–902, 902f
- Nonparticulate polyacrylamide hydrogel, injection
 procedure for, 789
 procedure, 789
 prior to procedure, 789
- Nonseminomatous term cell tumor (NSGCT), 926
- Nonsteroidal antiinflammatory drugs (NSAIDs), 7
- Nontransecting anastomotic urethroplasty (NTAU), 734
- Nutrition, preoperative assessment, 2
- O**
- Obstruction, 339
- Obturator nodes, 576f
- O' Connor technique, 446
- Octreotide, 935
- Off-clamp, 134
- Office-based anesthesia (OBA), 477
- Older adults, 345
- Omentum, mobilization, 35–36
 anatomy, 35, 36f
 laparoscopic technique, 36
 physiology, 35
 surgical technique, 35–36, 37f–38f
- OnabotulinumtoxinA, 814, 819
- Open distal ureterectomy, 94
- Open Hasson technique, 381
- Open partial cystectomy, techniques of, 341
- "Open" position, 41, 42f
- Open radical retropubic prostatectomy, 545
- Open side-to-side anastomosis, 40
- Open stone surgery, 190–198
- Operating room
 room temperature, 4
 transurethral injection technique, 790f
- Operative management, 5–9
 complications during, avoidance, 7
 fluid requirements, 7
 infection, 5
 pain management, 7–8
 wound management, 8
- Operative microscope, 881
- Operative site, preparation, 3–4
 bowel preparation, 2–3
 contamination, 6
 marking, 3
 preoperative checklist, 3, 4b
 shaving and epilation, 3–4
 skin preparation, 4
- Opioids, 8, 364
- Optilume BPH device, 485
- Optimal placement, 809
- Oral diet, 385
- Oral sodium phosphate, 345
- Orchidectomy, 822
- Orchiectomy
 epididymis-sparing, 875, 876f
 radical, 916
 curvilinear incision, 916, 916f
 dissection at level of pubic tubercle, 916, 917f
 retraction of ilioinguinal nerve, 916f
 surgical procedure, 916–918, 916f
 traction of spermatic cord, 916, 917f
 simple, 875, 875f
- Orchiopexy, 892
 caudal blocks, 5
 Fowler-Stephens, 900
 high ligation, 903–904
 open surgical technique, 903–904
 postoperative problems, 904
- inguinal, 892–895
 closure, 894–895, 896f
 dartos pouch, creation, 892–894, 895f
 delivery of testis and cord mobilization, 892, 894f
 dissection, 892, 893f
 hernia defect, repair, 892, 894f
 postoperative problems, 896t
 relocation of testis, 894, 896f
 troubleshooting, 895
- laparoscopic, 897–898
 complications, 900, 901t–902t
 localizing testis, 897–898, 899t
 single-stage, 898–900, 899f
 two-stage, 900
- low ligation, 904–905, 904f
 microvascular, 906–908, 906f
 preoperative considerations, 892, 893f
 redo, 905–906, 907f
- scrotal, 896–897
 dissection, 896–897, 896f
 mobilization of cord, 897, 897f
 relocation of testis, 897
 troubleshooting, 897
- Organ ischemia, vena caval thrombectomy, 113
- Orogastric tube, 928
- Orthotopic urinary diversion
 preparation, 349
 radical cystectomy, 355
- Ovarian pedicle, 382
- Ovarian vessels, 352, 353f
- Overactive bladder (OAB), 814
 considerations, 819
 dysport, 819
 special indications, 819
 use of botulinum toxin (BT) for urologic
 conditions than OAB, 819
- postprocedure, 818–819
 adverse effects, 818
 distant spread of toxin, 818–819
 expectations, 818
 follow-up, 818
 medications, 818
 retreatment, 819
 urinary retention, 818
 urinary tract infection (UTI), 818
- preprocedure considerations, 814
 contraindications, 814
 patient counseling, 814
 warnings, 814
 work-up, 814
- procedure, 814–818
 anesthesia, 814–815
 antibiotics, 815
 botulinum toxin (BT) preparation, 815
 injection template, 817
 intraoperative complications, 818
 needles available for intravesical injection of
 botulinum toxin, 816t
 procedure details, 815–817
 procedure setting, 814
 scope type and positioning, 815
- Overall survival (OS), 88

P

- Pain, 45, 812
 - management, 7–8
 - analgesia, 7–8
 - nerve blocks, 5
 - postoperative analgesia, 7–8
 - flank, vesicoureteral reflux, 314
 - Pancreas, injuries, 54
 - Papoose board (restraining wrap), 4
 - Paraaortic packet, 934
 - Paracaval dissection, 933
 - Paracaval lymphatics, 931, 933–934
 - Paragangliomas, 269
 - Paraphimosis, dorsal slit procedure, 942
 - Paravaginal repair
 - retropubic, 695–697, 698f–699f
 - vaginal, 694–695, 696f–697f
 - Parkinson disease, 804
 - Pars fixa strictures single stage, repairs of, 850–852
 - Pars pendulans, 850
 - Partial adrenalectomy, 274
 - Partial cystectomy, 340
 - overview of techniques of, 340–343
 - axial computed tomography image, 341f
 - midline incision, 341f
 - techniques of open partial cystectomy, 341
 - techniques of robotic partial cystectomy, 341–342
 - preoperative considerations, 340
 - indications and staging, 340
 - perioperative chemotherapy, 340
 - Partial gland ablation (PGA), 620
 - Partial nephrectomy
 - clamping, 133f, 134
 - complications, 135f, 136
 - dissection and mobilization, 133–134, 133f
 - mass excision, 134–135, 135f
 - port placement, 133, 133f
 - positioning, 132–133, 132f
 - postoperative care, 135
 - preprocedure steps, 132
 - Partial penectomy, 1012–1015
 - complications, 1015
 - operative technique, 1012–1015, 1013f
 - patient positioning, 1012, 1012f
 - planning, 1012
 - postoperative care, 1015
 - preoperative preparation, 1012
 - surgical incision, 1012, 1012f
 - Passive drains. *See* Drains/drainage tubes
 - Patch cavoplasty, 111, 111f
 - Patient cart, 59, 59f, 61
 - Patient positioning, 132
 - and docking, 114
 - partial penectomy, 1012, 1012f
 - Patient-reported outcome measures (PROMs), 730
 - Patient's preoperative health status, evaluation and optimization of, 820–821
 - Pediatric meatotomy, 998–1002
 - complications, 998
 - operative technique, 998, 998f
 - patient positioning, 998
 - planning, 998
 - postoperative care, 998
 - preoperative preparation, 998
 - surgical incision, 998
 - Pedicle dorsal foreskin flaps. *See* Byars flap
 - Pedicles, division, 347–348
 - Pelvic/lyceal system (PCS), 199, 207, 233
 - 3D reconstruction of, 200f, 202f
 - endourologic implications, 199
 - anatomic background, 199
 - infundibular sizing and angles in collecting system, 199
 - orientation of collecting system, 199
 - Pelvic ectopic kidney (PEK), 205–206, 206f–207f
 - Pelvic flap pyeloplasty, 149
 - Pelvic fracture-related urethral injuries (PFUIs), 740
 - Pelvic fracture urethral distraction defect (PFUDD), 740
 - Pelvic fracture urethral injuries
 - configuration of male urethra, 743
 - postoperative care, 743
 - surgical instruments, 741–743
 - curved fine suction tool, 742
 - Hey–Groves Introducer, 742
 - turner–Warwick curved Needleholder, 742
 - Turner–Warwick ring retractor, 743
 - urethral dilators, 742
 - synchronous ascending and descending urethrogram study, 740f
 - Pelvic lymph node dissection (PLND), 384, 595, 597
 - Pelvic organ prolapse (POP) repair, anterior, 692–699
 - anterior colporrhaphy, 692, 693f
 - grafts, anterior compartment repairs using, 694, 694f
 - paravaginal repair
 - retropubic, 695–697, 698f
 - vaginal, 694–695, 696f–697f
 - Pelvis surgery, 61
 - Pelvis
 - after irrigation, 355
 - lymph node dissection (PLND). *See* Lymph node dissection, pelvic (PLND)
 - lymphadenectomy, 366–378
 - bladder, mobilizing, 367, 370f
 - female, 367, 372f
 - female patients, 372f, 374–377
 - lymphatic tissue, sweeping, 366, 369f
 - male, 366–367
 - male patients, 370–374, 372f
 - midline incision, 367f, 370
 - obturator fossa, 367, 371f
 - pelvic exenteration, 369–378
 - postoperative problems, 367–369
 - preoperative preparation, 369–370
 - urachus, retraction, 366, 367f
 - total pelvic exenteration
 - bladder, retraction, 367, 369f
 - colon, division, 370, 370f
 - colon mesentery, division, 370, 373f
 - female patients, 372f, 374–377
 - male patients, 370–374, 372f
 - middle rectal artery, identification, 374, 375f
 - perineal dissection, 374
 - plane, development, 366, 375f
 - specimen, removal, 370, 376f
 - suture, placement, 374f
 - ureter, ligation and division, 370–371, 373f
 - Penectomy
 - partial penectomy, 1012–1015
 - complications, 1015
 - operative technique, 1012–1015, 1013f
 - patient positioning, 1012
 - Penectomy (*Continued*)
 - planning, 1012
 - postoperative care, 1015
 - preoperative preparation, 1012
 - surgical incision, 1012, 1012f
 - penile cancers, 1016
 - Penile disassembly, 646–648
 - Penile inversion vaginoplasty (PIV), 648–650, 827–830
 - Penile prosthesis implantation
 - Coloplast titan, 960–964
 - closing, 964
 - closure, 966
 - cylinder and reservoir prep with reservoir placement, 961–966
 - cylinder placement, 963, 966
 - cylinder sizing, 960–961, 964
 - preliminary dissection, 960–961, 964, 966
 - pump placement, 964, 966
 - series, 964–966
 - complications, 968–970
 - implantation of AMS, 960–964
 - closing, 964
 - closure, 966
 - cylinder and reservoir prep with reservoir placement, 961–966
 - cylinder placement, 963, 966
 - cylinder sizing, 960–961, 964
 - preliminary dissection, 960–961, 964, 966
 - pump placement, 964, 966
 - series, 964–966
 - infection prevention, 957–959
 - operating room equipment, 959
 - postoperative care, 968
 - preoperative preparation, 956–957
 - results, 964
 - Rigicon infla10 x inflatable penile prosthesis
 - closing, 964
 - closure, 966
 - cylinder and reservoir prep with reservoir placement, 961–966
 - cylinder placement, 963, 966
 - cylinder sizing, 960–961, 964
 - via infrapubic approach, 964–966
 - via penoscrotal approach, 960–964
 - preliminary dissection, 960–961, 964, 966
 - pump placement, 964, 966
 - via subcoronal approach, 966
 - surgical approaches, 959–960
 - for semirigid penile prosthesis, 966–970
- Penile reconstruction, 949, 953
 - split-thickness skin grafting (STSG), 953
- Penile release, 951
- Penile shaft skin, 1005–1007
- Penile skin
 - flap, 828
 - lengthening, 1004
- Penis
 - anatomy, 717f
 - buried, 939
 - revision circumcision, 939–940
 - circumcision, 936–943
 - alternative techniques, 937–938, 938f
 - caudal blocks, 938
 - Gomco clamp technique, 938, 939f
 - Plastibell technique, 938–939, 939f
 - postoperative problems, 940–941
 - revision, 939–940
 - sleeve (double-incision) technique, 936–937, 937f

Penis (*Continued*)

- curvature, pediatric patients, 944–948
 - dorsal midline plication, 947–948, 947f
 - lateral, 945–948, 946f
- penile torsion, 944–945, 944f
- tunica albuginea plication, 946–947, 947f
- fracture, 992–993
- genital injuries
 - avulsion injuries, 989, 990f
 - bite injuries, 989
 - burn injuries, 989
 - complex injuries, 993
 - fracture, 992–993
 - full-thickness, 990
 - laceration, 989, 990f
 - meshed split-thickness, 991f
 - operative technique, 993, 993f
 - patient positioning, 989
 - positioning, 989
 - postoperative care, 989
 - preoperative planning, 989, 990f
 - preparation, 990
 - reimplantation, 993–996
 - repair, 989–997
 - securing, 990–992, 991f
 - skin grafting, 990–992
 - skin loss, 989
 - split-thickness, 990
 - testicular rupture, 996–997
 - unexpanded, split-thickness, 990, 991f
- neuroanatomy, 946f
- penile prosthesis implantation, 955–956
 - complications, 968–970
 - infection prevention, 957–959
 - operating room equipment, 959
 - postoperative care, 968
 - preoperative preparation, 956–957
 - results, 970
 - surgical approaches, 966–970
 - types, 955–956
- priapism
 - cavernodorsal vein (Barry) shunt, 983–984, 988f
 - cavernosaphenous (Grayhack) shunt, 983, 987f
 - complications, 985–988
 - corporoglanular (Al-Ghorab) shunt, 981, 985f
 - corporoglanular (Burnett) shunt, 982, 986f
 - corporoglanular (Ebbehoj) shunt, 981, 983f
 - corporoglanular (T-) shunt, 981, 984f
 - corporoglanular (Winter) shunt, 981, 983f
 - corporospongiosal (Quackels) shunt, 982, 987f
 - operations, 980–988
 - operative technique, 981–985
 - patient positioning, 981
 - penile prosthesis surgery, 984–985
 - planning, 980–981
 - postoperative care, 985–988
 - preoperative preparation, 980–981
 - surgical incision, 981
- penoscrotal decompression (Morey), 985
- reimplantation, 993–996
- urethra, reconstruction, 716–729
 - anatomic considerations, 716, 717f
 - distal penile circular fasciocutaneous flap (McAninch), 716, 718f
 - dorsally placed graft (Barbagli), 722–723, 723f
 - fossa navicularis, reconstruction, 711–715
 - graft techniques, 711–712

Penis (*Continued*)

- longitudinal ventral penile skin flap with lateral pedicle (Orandi), 716–721, 720f
- longitudinal ventral skin flap with ventral pedicle (Turner-Warwick), 721–722, 722f
- meatal stenosis, 712
- skin flap techniques, 712
- skin island technique, transverse ventral, 712
- staged technique, 712
- urethroplasty, dorsal onlay graft (Kulkarni), 723–725, 726f
- urethroplasty, two-stage (Johanson), 725, 725–727
- vascular considerations, 716, 717f
- ventrally placed dorsal buccal mucosa graft (Asopa), 723
- Penoscrotal decompression (Morey), 985
- Penoscrotal junction, establishing, 1010
- Penoscrotal urethrostomy, 850
- Percutaneous access, renal, 210–218
 - anatomical considerations, 210–211, 211f
 - complications, 217b–218b
 - cystoscopy and ureteral catheterization
 - imaging setup, fluoroscopic, 211
 - needle access and puncture site, 211–212
 - patient positioning, 211, 211f
 - placement of access wires, 213, 213f
 - tract dilation, 213–214, 215f
- multiple access, 216, 216f
- nondilated puncture, 217, 217f
- preoperative evaluation, 210
- special access situations, 214–217
 - calyceal diverticulum/obstructed calyx, 215–216, 216f
 - supracostal/upper pole access, 214–215, 215f
- Percutaneous epididymal sperm aspiration, sperm retrieval, 866
- Percutaneous nephrolithotomy (PCNL), 141–142, 190, 202, 219, 233
 - complications, 231, 232f
 - evaluation, preoperative, 219
 - exit strategy, 230–231, 231f
 - flexible nephroscopy, 229
 - indications, 219
 - intrarenal pressure considerations in, 207
 - lithotripsy technique, 229
 - nephroscope, 228
 - nephroscopy, 228
 - operating room setup and equipment, 219, 220f
 - patient positioning, 220–223, 221f
 - percutaneous puncture, 224–226, 225f
 - postoperation and follow-up, 227
 - postop, 231–232
 - prone *vs.* supine, 219
 - retrograde access, 223–224, 223f
 - stone extraction, 228–229, 228f
 - standard PCNL: lithotrites, 228–229
 - standard PCNL: manual, 228
 - tissue sealants, 6
 - troubleshooting, 229–230
 - tract dilation, 227–228
- Percutaneous nerve evaluation (PNE), 804, 807–809
 - postprocedure considerations, 809
 - removal, 809
 - room set-up, 808
 - technique, 808

- Percutaneous renal surgery, antibiotic prophylaxis, 5c
- Percutaneous tumor resection, 138–139
- Perineal approach, 657–658
- Perineal dissection, 646
- Perineal drain, 758
- Perineal flap, 650
- Perineal pain, 536
- Perineal skin, 46, 635
- Perineorrhaphy, 707, 708f
- Perineum, 618
- Perioperative preparation, 3–4
 - preparation of operative site, 3–4
 - marking, 3
 - shaving and epilation, 3–4
 - skin preparation, 4
 - surgeon hair and skin preparation, 4
- Periprosthetic biopsy block, 45
- Periprosthetic nerve block, 618
- Peritoneal flap, 442, 830, 930–931
 - operative technique, 650–654
 - canal construction (perineal), 652–653
 - canal construction (robotic), 653–654
 - canal dissection (perineal), 650–651
 - canal dissection (robotic), 651–652
 - risk in transvesical repair of vesicovaginal fistula, 446–449, 449f
 - vaginoplasty, 644
 - canal dissection, 650–654
- Peritoneal “wings” bladder, 346, 346f
- Peritoneum, 362, 595
- Periurethral space, 381–382
 - port placement for both male and female cystectomy, 382f
- Persistent vesicoureteral reflux, 288
- Peyronie disease, procedures, 972–979
 - collagenase injection, 972–973, 973f
 - postoperative care and considerations, 978–979
 - surgical approach, 972
 - surgical interventions, 973–978
 - 16-dot plication, 978
 - excision and grafting, 976–978, 977f
 - prosthesis implantation, 978
 - reinforcement of tunica albuginea, 974–975
 - tunica-sparing calcified plaque excision, 975–976
 - treatment algorithm, 972
- Pfannenstiel incision, 292
- Phalloplasty, 822–825, 837
 - complications, 847
 - Manny Pack postoperative wound care device, 849f
 - neophallus radial artery forearm flap, 848f
 - radial artery forearm flap phalloplasty without urethral lengthening, 848f
 - markings for, 839f
 - patient positioning and surgical incisions, 840–847
 - construction of phallus and neourethra, 844
 - dissection of anterolateral thigh (ALT) donor site, 842
 - dissection of forearm donor site, 842
 - dissection of recipient site, 842–844
 - dorsal clitoris nerve, 844f
 - forearm flap, 840–841
 - forearm free flap phalloplasty with urethral lengthening, 845f
 - harvest of FTSGs from inferior gluteal folds, 840
 - harvesting DIEV recipient vessels, 843f

- Phalloplasty (*Continued*)
 ilioinguinal nerve, 843f
 operative technique, 840
 proximal neourethra inset and excision, 845f
 radial forearm free flap phalloplasty with urethral lengthening, 846f
 phalloplasty+UL, 841f
 phallus inset, 846
 postoperative care and complications, 846–847
 preoperative preparation and planning, 837–840
 staging of phalloplasty surgeries, 837–840, 838t
 radial forearm free flap phalloplasty with urethral lengthening, 840f
 skin incision markings for, 839f
 without urethral lengthening, 846, 847f
- Phalloplasty with urethral lengthening (P+UL), 841, 847
- Phalloplasty without urethral lengthening (P-UL), 841, 847
- Phallus (P), 837
 construction of, 844
 inset, 846
 shaft, 841
- Pheochromocytoma, 269
- Phimosis, dorsal slit procedure, 941–942, 942f
- Photodynamic therapy (PDT), 618, 634
 vascular-activated, 634–636
- Picture-in-picture (PIP), 49
- Plain-film cystogram, 364
- Plaque incision, 976–978
- Plastibell technique, 938–939, 939f
- Pneumomediastinum/pneumopericardium, 55
- Pneumoperitoneum, 593, 928–930
- Pneumothorax, insufflation, 55
- PNL. *See* Percutaneous nephrolithotomy (PNL)
- Polydioxanone suture (PDS), 763, 951–952
- 2-0 Polydioxanone (PDS), 951–952
- 5-0 Polydioxanone suture (PDS), 756
- Polyethylene glycol, 345
- Polyglactin sutures, 712
- Polyglycolic acid (PGA), 455
- Pontine micturition complex (PMC), 804
- POP. *See* Pelvic organ prolapse (POP)
- Port placement, 1030–1031
 transvesical repair of vesicovaginal fistula, 446, 448f
- Positive predictive value (PPV), 566
- Positive surgical margins (PSMs), 592
- Positron emission tomography (PET), 566, 613–614
- Postanesthesia care unit (PACU), 852
- Posterior anastomosis, 594–595
- Posterior dissection, radical cystectomy in female patients, 353, 354f
- Posterior flap, 830
- Posterior peritoneal flaps, 653–654, 830
- Posterior peritoneum, 381
- Posterior plane, division, 347–348
- Posterior probes, 624
- Posterolateral pedicle, division, radical cystectomy in female patients, 353–354, 355f
- Postoperative analgesia, 7–8
- Postoperative bleeding, 8, 87
- Postoperative care, 1010
 of masculinizing surgery, 824–825
- Postoperative complications, 822
- Postoperative hematomas, 667
- Postoperative ileus, 385
- Postoperative infections, 1018
- Postoperative renal function, 134
- Postvasectomy pain, 890
- Post-void dribbling, 738–739
- Postvoid residual (PVR), 663, 814
- Potassium titanyl phosphate yttrium aluminum garnet (KTP:YAG), 469, 471
- PrecisionPoint, 537–538
- PrecisionPoint Transperineal Access System, 536
- Pregnancy, 804
- Preoperative angioembolization, 99
- Preoperative antibiotics, 784
- Preputioplasty, 1004
- Pressure-regulating balloon (PRB), artificial urinary sphincter, 792–793
- Presurgery decision-making, 837
- Pretreatment cystoscopy, 814
- Priapism
 cavernodorsal vein (Barry) shunt, 983–984, 988f
 cavernosaphenous (Grayhack) shunt, 983, 987f
 complications, 985–988
 corporoglanular (Al-Ghorab) shunt, 981, 983f
 corporoglanular (Burnett) shunt, 982
 corporoglanular (Ebbelohj) shunt, 981, 983f
 corporoglanular (T-) shunt, 981, 984f
 corporoglanular (Winter) shunt, 981, 983f
 corporospongiosal (Quackels) shunt, 982, 987f
 operations, 980–988
 operative technique, 981–985
 patient positioning, 981
 penile prosthesis surgery, 984–985
 penoscrotal decompression (Morey), 985
 planning, 980–981
 postoperative care, 985–988
 preoperative preparation, 980–981
 surgical incision, 981
- Pringle maneuver, 117–118
- Prograsp device, 930
- Prolapse repair, anterior pelvic organ, 692–699, 693f
 anterior colporrhaphy, 692, 694–695
 grafts, anterior compartment repairs using, 694
 paravaginal repair
 retropubic, 695–697, 698f–699f
 vaginal, 694–695, 696f–697f
- Prolapsed mucosa, 691
- Prone, 219
- Prophylactic antibiotics, 364, 532, 616, 654, 1030
- Prostate, 532
 anatomy and principles of excision, 518–525
 arterial blood supply, 519–520, 519f
 innervation, 521–522, 521f
 lymphatic drainage, 520–521, 520f
 pelvic fascia, 518
 surgical approaches, 518
 venous drainage, 520
 brachytherapy, 5t
 laparoscopic and robotic simple prostatectomy, 508–517
 bladder closure and drain placement, 516
 bladder neck incision and dissection of adenoma, 511
 complications, 517
 dissection of prostatic adenoma, 508–510
 hemostasis/bladder mucosa reconstruction and bladder closure, 510–511
 midline cystotomy, 508
 patient positioning, 508, 509f
- Prostate (*Continued*)
 postoperative care, 516–517
 preoperative preparation, 508
 removing adenoma and vesicourethral anastomosis, 512
 robotic approach, 508
 transperitoneal transvesical technique, 508–511
 pelvic lymph node dissection, 566–581
 anatomical templates, 567
 intraoperative complications, 575
 minimal number of lymph nodes, 567–568
 open standard, 569–571, 570f
 positioning, 556, 557f
 postoperative care, 565
 postoperative care, 574–575
 postoperative complications, 575–579
 preoperative considerations, 566–569
 robot-assisted standard, 571–573, 572f
 salvage, 573–574
 therapeutic benefit, 568
 prostate cancer cryosurgery, 610–615
 antibiotic prophylaxis, 5t
 equipment, 610–613
 freezing-thawing cycles, 615
 intraoperative patient preparation and positioning, 613–615, 613f
 mechanism of action, 610
 patient selection, 610
 postoperative care, 615
 preoperative preparation, 613
 radical perineal prostatectomy
 apical dissection, 560, 562f
 bladder neck dissection, 560–561, 562f–563f
 central tendon division, 556, 558f
 closure, 564, 565f
 incision, 556, 557f
 instruments and equipment, 556, 557f
 laparoscopic approach, 512–516
 nerve sparing, 558–560, 561f
 preoperative preparation and planning, 556
 prostate pedicles and seminal vesicles, 561–563, 563f
 puboprostatic ligament division, 560, 562f
 surgical approach, 556–564
 Thompson retractor and pearly gates of Young, 558, 560f
 vesicourethral anastomosis, 563, 564f
 rectal isolation and mobilization, 557, 559f
 retropubic prostatectomy, 490–498
 alternative capsular incision (vesicocapsular technique), 494–497
 incision, 490, 491f
 positioning and approach, 490
 postoperative management, 497–498
 preoperative management, 490
 transverse capsular incision (Miller technique), 490–491, 492f
 suprapubic prostatectomy, 499–507
 antibiotic prophylaxis, 500
 cystotomy and exposure, 500, 503f
 dissection and removal of adenoma, 502, 503f–504f
 hemostasis and repair, 502–505, 505f
 incision and exposure, 500, 501f–502f
 instruments, 500
 intraoperative hemostatic procedures, 505–507, 506f
 positioning, 500

- Prostate (*Continued*)
 postoperative care, 506
 preoperative considerations, 499–500
 procedure, 500
 transurethral resection, 461–468
 clinical efficacy, 461
 complications, 465–466
 indications, 461
 patient positioning, 462
 postoperative management, 464–465
 surgical procedure, 462–464
- Prostate biopsy, 526
 device, 526, 528f
 with MR fusion, 540–544
 indications, 540
 local anesthetic injection, 542
 mapping, 542–544, 543f
 patient preparation and positioning, 541–542, 542f
 platforms, 540–541, 542f
 prostate contouring, 540, 541f
 three-dimensional reconstruction of prostate, 540
 ultrasonic evaluation of prostate, 542
 ultrasonic image capture and prostate segmentation, 542, 542f–543f
- transperineal, 532–539
 complications, 535–536
 future developments, 537
 operative technique, 532–535
 patient positioning, 532
 postoperative care, 535–536
 tips and tricks, 538
- transrectal ultrasound-directed, 526–531
 complications, 530
 equipment, 526
 indications, 526
 postprocedural management, 530
 preprocedural management, 526
 special consideration during apical biopsy, 529–530
 surgical procedure, 527–529
- Prostate cancer (PCa), 45, 535, 545, 566, 616
- Prostate cancer, focal therapies in treatment of
 localized (*Continued*)
 focal therapy techniques, 618–626
 anesthesia, 620
 contraindications, 620
 cryotherapy, 620–621
 indications, 620
 mechanism of action, 621
 positioning and common steps, 620
 preoperative preparation, 620
 high-intensity focused ultrasound (HIFU), 625
 irreversible electroporation (IRE), 628–633
 mechanism of action, 626
 mechanical effect, 626
 thermal effect, 626
 operative technique, 622–624
 freeze–thaw cycles, 624
 probe placement, 623
 thermosensors, 623–624
 postoperative care, 624
 pretreatment planning, 621
 console, 621–622
 cryoprobes, 622
 radiofrequency ablation (RFA), 633–634
 sonablate, 626–627
 vascular-activated photodynamic therapy, 634–636
- Prostate nerve block, 46
 transrectal ultrasound-directed prostate biopsy, 527–528, 529f
- Prostate of local anesthetic, ultrasonic evaluation of, 46
- Prostate-specific antigen (PSA), 566, 597, 613–614
- Prostate-specific membrane antigen (PSMA), 566, 613–614
- Prostate-specific membrane antigen positron emission tomography (PSMA PET), 598
- Prostatic adenoma, dissection of, 508–510
- Prostatic fossa, 471
- Prostatic nerves, 45
- Prostatic urethra, 512
- Prostatic urethral lift (PUL), 477–480
 equipment and procedure, 478–480
 follow-up, 480
- Proton-resonance frequency thermometry, 636
- Proximal diverting stoma, performance, 43
- Proximal ileal division, 414–415
- Proximal interaortocaval lymph nodes, 934
- Proximal paracaval tissues, 932–933
- Proximal urethrostomy, 1004
- Psoas hitch, 289–291
 complications, 291
- Psychologic evaluation, 821
- Pubic bone, 751
- Pubic tubercle (PT), 842
- Puboprostic ligament, division, 560, 562f
- Pubovaginal sling, autologous
 alternative tension options, 768–769
 complications, 769–770
 operative technique, 763–769
 closure, 767–768
 cystoscopy, 766f
 graft harvesting, 763–764
 passage of introducers, 765–766
 placement of sling, 766–767
 vaginal dissection, 764–765
 patient evaluation and selection, 762
 patient positioning, 762–763
 postoperative care, 769–770
 postoperative care and complications, 769–770
 sling tensioning, 767–768
- Pudendal nerve block, 44
 anatomic relationship, 44
 complications, 44
 indications, 44
 procedure, 44, 45f
 transperineal approach, 44
- Pulmonary embolism, vena caval thrombectomy, 99
- Pulmonary embolus (PE), 954
- Pulmonary function, 381
- Purse-string partition closure, suprapubic
 prostatectomy, 505, 506f
- Pyelolithotomy, open stone surgery
 operative technique, 190–191, 190f–191f
 postoperative care and complications, 192–193
 preoperative preparation, 193
- Pyeloplasty
 dismembered (Anderson-Hynes), 147–149, 147f
 laparoscopic and robotic, 174–180.e1
 preoperative evaluation and preparation, 174
 pelvic flap, 149, 151f
 surgical approach, 174
 open, 145–154
 closure, 146
 complications, 152–154
 dismembered pyeloplasty (Anderson-Hynes), 147–149, 147f–148f
 drains, 151, 153f
 Foley Y-V plasty, 149, 150f
 intubated ureterotomy (Davis), 149–151, 152f
 nephropexy, 151–152, 154f
 operative technique, 146–152, 146f–147f
 patient positioning, 145, 146f–147f
 pelvic flap pyeloplasty, 149, 151f
 postoperative care, 152–154
 preoperative planning and preparation, 145
 surgical incision, 145, 146f–147f
- Q**
 Quality of Life (QoL), 598
- R**
 Rachel Bluebond-Langner (RBL), 644
 Radial artery forearm flap markings, 841
 Radial forearm flap (RFF), 822–824
 Radial forearm free-flap (RFFF), 837
 Radiation therapy (RT), 616
 Radical cystectomy (RC), 381
 in female patients, 352–357
 dissection and urethrectomy, 354, 356f
 operative technique, 352–357, 352f
 orthotopic urinary diversion, 355, 357f
 patient positioning, 352, 352f
 planning, 352
 postoperative care, 357
 preoperative preparation, 352
 surgical incision, 352
 vaginal-sparing approach, 354, 354f
 in male patients, 345–351
 complications, 351
 incision, 346
 instruments and sutures, 345–346
 nerve-sparing modifications, 349
 operative technique, 346–351
 orthotopic urinary diversion, 349
 planning, 345–346
 position, 346
 postoperative care, 351

- Radical cystectomy (RC) (*Continued*)
 preoperative preparation, 345–346
 sterile preparation, 346
 urethrectomy, 349
- Radical Inguinal Lymph Node Dissection (rILND), 1019
- Radical nephrectomy, 114
- Radical nephroureterectomy (RNU), 89–90
- Radical perineal prostatectomy, 556–565
 bladder neck dissection, 560–561, 562f–563f
 central tendon division, 556, 558f
 closure, 560, 565f
 incision, 556, 557f
 instruments and equipment of, 556, 557f
 nerve sparing, 558–560, 561f
 positioning, 556, 557f
 postoperative care, 565
 preoperative preparation and planning, 556
 prostate pedicles and seminal vesicles, 561–563, 563f
 puboprostatic ligament division, 560, 562f
 rectal isolation and mobilization, 557, 559f
 rectourethralis division, 557–558, 560f
 surgical approach, 556–564
 Thompson retractor and pearly gates of Young, 558, 560f
- Radical prostatectomy (RP), 566, 592, 616, 791
- Radical retropubic prostatectomy, 545–555
 instruments, 545
 intraoperative problems, 553–554
 operative technique, 545–553
 alternative urethral suture method, 552
 apical prostatic dissection, 548
 bladder neck anastomosis, 551–552, 554f
 bladder neck dissection, 550–551, 552f–553f
 bladder neck reconstruction, 551, 553f
 bunching of dorsal venous complex, 546, 549f
 dissection of seminal vesicles and vas deferens, 550, 552f
 division of anterior urethra, 548
 division of dorsal venous complex, 546–548
 division of posterior urethra and rectourethralis muscle, 549
 drain placement and wound closure, 552–553
 endopelvic fascia, 546, 547f
 exposure, 545
 incision, 545, 546f
 incision of puboprostatic ligaments, 546, 548f
 ligation of lateral prostatic pedicles, 550, 552f
 pelvic node dissection, 546
 placement of urethral sutures, 548, 550f
 preservation and dissection of neurovascular bundles, 549–550, 550f
 retractor placement, 545–546
 perioperative and postoperative care, 553
 position, 545, 546f
 postoperative problems, 554–555
- Radical urachectomy
 minimally invasive approach, 364
 open approach, 362–364
 bladder closed in two layers, 364f
 isolating and dividing obliterated umbilical artery, 363f
 lower midline incision incorporating umbilicus, 362f
 opened bladder after resection of urachal tumor, 364f
 Penrose placed around urachus, 362f
 tumor visible in posterior bladder, 363f
- Radical urachectomy (*Continued*)
 umbilicus, urachus, tumor, and bladder dome removed en bloc, 363f
 umbilicus excised en bloc with urachus, 363f
 operative technique, 362–364
 patient positioning and surgical incision, 362
 postoperative care and complications, 364
 preoperative preparation and planning, 362
- Radio frequency ablation (RFA), 618, 633–634
 complications, 634
 engage rRFA system, 633
 biplanar ultrasound, 633
 bipolar probe, 633
 guide holder, 633
 stepper, 633
 equipment, 633
 mechanism of action, 633
 operative technique, 633–634
 postoperative care, 634
 probe insertion, 634
 treatment planning, 634
- Radiofrequency ablation, 633
- Radio-guided surgery (RGS), 569
- Random flaps, 23–24
- Ravitch, Mark, 39
- Reconstructive surgery. *See* Fossa navicularis, reconstruction; Kidneys reconstruction, open surgery; Ureteral reconstruction and excision; Urethra, reconstruction; Vaginal reconstruction
- Reconstructive techniques, 18–38
- Rectal cooling system, 627
- Rectal defects, 756–757
- Rectal mucosa, 529
- Recto-neovaginal fistula, 858
- Rectocele repair, 706–710
 colporrhaphy, posterior, 706–708, 707f
 patient positioning and surgical incision, 706–708
 postoperative care and complications, 708
 preoperative preparation and planning, 706
 site-specific, 708, 708–710
- Rectourethral fistulas (RUFs), 755
 operative technique, 755–758
 closure of urethral and rectal defects, 756–757
 identification of fistula tract, 755–756
 patient positioning, 755
 wound closure, 758
 postoperative management and complications, 758
 preoperative preparation and planning, 755
- Rectourethralis, division, 560f
- Rectum, transurethral resection of prostate (TURP), 466
- Rectourethralis muscle, 646
- Rectus abdominis, 26
- Rectus abdominis myocutaneous flap, 1020f, 1022–1023
- Rectus sheath hematoma, laparoscopy, 57
- Recurrence-free survival (RFS), 88
- Recurrent vesicoureteral reflux, 288
- Redo orchiopexy, 905–906
- Reflectivity index measurement, 627
- Regional anesthesia, 5
- Remotely operated suction and irrigation system (ROSI), 601
- Renal calculi, management, 327–328
 operative technique, 327–328, 328f
 postoperative care, 328
 preoperative planning and considerations, 327
- Renal collecting system, 132
- Renal endoscopy, anatomy of
 anatomic relationships of intrarenal vessels (arteries and veins) with collecting system, 200–203
 common anatomical abnormalities, 203–206
 horseshoe kidney (HSK), 203–205
 pelvic ectopic kidney (PEK), 205–206
 functional anatomy, 206–207
 intrarenal pressure (IRP), 206–207
 considerations in percutaneous nephrolithotomy (PCNL), 207
 considerations in retrograde intrarenal surgery (RIRS), 207
 pelvicalyceal system, 199
- Renal function, ileal orthotopic bladder substitution, 405
- Renal pelvis, 141–144
- Renal surgery, endoscopic
 cryosurgery, 243–249
 cryoprobe placement into skin, 246–247
 cryoprobes, 246, 246f
 freezing, 247
 indications, 243
 instruments, 243
 isotherms, 243, 244f
 mobilization, 243, 244f
 needle biopsy, 247
 percutaneous renal cryoablation, 247–249
 port placement, 243, 244f
 thermocouples, 246, 248f
- percutaneous access
 calyceal diverticulum/obstructed calyx, 215–216, 216f
 complications, 214
 cystoscopy and ureteral catheterization, 211
 multiple access, 216, 216f
 nondilated puncture, 217, 217f
 preoperative evaluation, 210
 standard lower pole access, 211–214
 supracostal/upper pole access, 214–215, 215f
- percutaneous nephrolithotomy (PNL), 219
 complications, 231, 232f
 evaluation, preoperative, 219
 exit strategy, 230–231, 231f
 flexible nephroscopy, 229
 lithotripsy technique, 229, 229f
 nephroscope, 228
 nephroscopy, 228
 operating room setup and equipment, 219, 220f
 patient positioning, 220–221, 221f
 percutaneous puncture, 224–226, 225f
 retrograde access, 220f, 223–224
 stone extraction, 228–229, 228f
 troubleshooting, 229–230
- Renal surgery, open
 anastrophic nephrolithotomy, 190
 closure, 191–192, 193f
 operative technique, 190–191, 190f–191f
 patient positioning and surgical incision, 190, 190f
 postoperative care and complications, 192–193
 preoperative planning and preparation, 190
- radical nephrectomy, 66–82
 abdominal and chest wall, 66, 67f
 anatomic basis for incisions, 66
 anterior approaches, 66–77, 68f
 chevron incision, 72f, 74–76, 75f

- Renal surgery, open (*Continued*)
 choice of surgical approach, 66–81, 69t
 eleventh rib transcostal incision, 78–79, 79f
 extraperitoneal approach, 69–71, 71f
 flank approaches, 77–81, 77f
 indications for, 72t
 injury to duodenum, 81
 injury to gut vasculature, 81
 injury to liver and spleen, 81
 injury to pancreas, 81–82
 intraoperative complications of, 81–82
 midline transperitoneal incision (laparotomy), 66–69, 68f
 modified thoracoabdominal, extraperitoneal
 Hockey-Stick incision, 76–77, 76f
 postoperative complications of, 81–82
 pulmonary complications, 82
 retroperitoneal space, 66, 68f
 subcostal incision, 69–74
 thoracoabdominal incision, 76f, 80–81, 80f
 three-dimensional relationships, 66
 transperitoneal approach, 72–74, 73f
 twelfth rib supracostal incision, 77–78, 78f
- drains, 161
 failed transplantation, nephrectomy, 173
 instruments, 161
 position, 161–162, 161f
 postoperative problems, 172–173
- Renal transplant recipient, 161–173
 robotic-assisted renal transplantation, 172
 stents, 161
 sutures, 161
 technique, adult, 161–167, 162f
 end-to-end anastomosis to internal iliac artery, 163–165, 165f
 end-to-side anastomosis to external iliac vein, 163, 164f
 end-to-side arterial anastomosis, 163f, 165
 multiple renal arteries, 165–166, 167f
 short right renal vein, 166
 small children's kidneys into adults, 166–167, 168f
 technique, children, 167–168
 position and incision, 167, 169f
 technique, ureteral implantation, 168–172
 extravesical technique, 168–170, 170f
 transvesical technique, 170–171, 171f
 technique, ureteral implantation
 double ureter, 171
 wound closure, 171–172
 tubes, 161
 tubes and drains, 172
 operative and postoperative support, 172
- Renal trauma, 155–160
 drains and ureteral stents, 159
 exposure, 155–156, 156f
 identification and isolation, 157f
 landmarks and renal hilum isolation, 155–156
 postoperative care, 160
 reconstructive principles, 157–159, 158f
 repair:upper/lower pole injury, 158–159, 159f
 retroperitoneal hematoma, entering, 157, 158f
 surgical approach, 155, 155f
 vascular injuries, 159, 159f
- Renal tumors, 114
 Renal ultrasound probe, 234–235
 Restraining wrap (papoose board), 4
 Retractors, laparoscopy, 50
 Retrocaval lymph nodes, 931
- Retrograde bougie, 850
 Retrograde intrarenal surgery (RIRS), 199
 intrarenal pressure considerations in, 207
 Retrograde pyelogram, 224
 Retrograde urethrogram (RUG), 730
 Retroperitoneal adrenalectomy, 273
 Retroperitoneal approach, 179
 Retroperitoneal laparoscopic approach, 94
 Retroperitoneal lymph node dissection (RPLND), 926
 Retropubic paravaginal repair, 695–697, 698f–699f
 Retropubic prostatectomy, 490–498
 alternative capsular incision (vesicocapsular technique), 494–497
 incision, 490, 491f
 positioning and approach, 490
 postoperative management, 497–498
 preoperative management, 490
 radical, 545–555
 alternative urethral suture method, 552
 apical prostatic dissection, 548
 bladder neck anastomosis, 551–552, 554f
 bladder neck dissection, 550–551, 552f
 bladder neck reconstruction, 551, 553f
 bunching of dorsal venous complex, 546, 549f–550f
 dissection of seminal vesicles and vas deferens, 550, 552f
 division of anterior urethra, 548
 division of dorsal venous complex, 546–548
 division of posterior urethra and rectourethralis muscle, 549
 drain placement and wound closure, 552–553
 endopelvic fascia, 546, 547f
 exposure, 545
 incision, 545, 546f
 incision of puboprostatic ligaments, 546, 548f
 instruments, 545
 intraoperative problems, 553–554
 ligation of lateral prostatic pedicles, 550, 552f
 operative technique, 545–553
 pelvic node dissection, 546
 perioperative and postoperative care, 553
 placement of urethral sutures, 548, 550f
 position, 545, 546f
 postoperative problems, 554–555
 preservation and dissection of neurovascular bundles, 549–550, 550f
 retractor placement, 545–546
 transverse capsular incision (Miller technique), 490–491, 492f
- Retropubic space, 698
 Retzius, retropubic space of, 383
 “Retzius”-sparing (RS), 597, 601
 radical prostatectomy, 592
- Revascularization. *See* Arterial revascularization, penile
- Rezüm system, 481
 Rhabdomyolysis, laparoscopy, 57
 Right colon, Indiana pouch
 closure, 388f
 mobilization, 387, 387f
 opening, 387, 388f
- Right modified template, retroperitoneal lymph node dissection, 922, 922f
- Right renal vein, 116
 Right-sided nephrectomy, 129
 Right-sided tumors, steps for, 114–118
 Rigid cystoscope, 484
 Robot, evolution, 58
- Robot-assisted endoscopic inguinal lymphadenectomy (RAIL), 1030
 Robot-assisted laparoscopic adrenalectomy, 272
 Robot-assisted laparoscopic nephroureterectomy (RANU), 93, 94f
 Robot-assisted laparoscopic radical prostatectomy, 592
 Robot-assisted radical cystectomy (RARC), 381
 anterior rectal space, 382–383
 anterior vaginal space, 383–384
 apical dissection, 383
 instruments, 381
 lateral pelvic space, 382
 patient positioning, 381
 pelvic lymph node dissection, 384
 periureteral space, 381–382
 port placement for both male and female cystectomy, 382f
 postoperative management, 385
 preoperative preparation, 381
 retropubic space of retzius, 383
 surgical technique, 381
- Robot-assisted radical cystectomy (RARC). *See* Robot-assisted radical cystectomy
- Robot-assisted radical prostatectomy (RARP), 597
 Robot-guided transperineal biopsy, 536
 Robotic adrenalectomy, laparoscopic adrenal excision, 272
 Robotic-assisted ILND, 1025
 Robotic-assisted renal transplantation, renal transplant recipient, 172
 Robotic-assisted surgery, 114, 858
 Robotic-assisted techniques, 926
 Robotic-assisted urachectomy, 364
 Robotic approach
 prostatectomy, 508
 extraperitoneal space, development, 511, 511f
 patient positioning, 508, 509f
 prostatic capsule incision and dissection of adenoma, 514–515, 514f
 removing adenoma and trigonization of fossa, 515–516, 517f
 trocar placement, 514, 514f
 transvesical repair of vesicovaginal fistula, 445–449
- Robotic arms, 133
 Robotic assistance, 131
 Robotic canal dissection, 651–652
 Robotic caval thrombectomies, outcomes following, 119–120
 Robotic Clip applier, 574f
 Robotic continent cutaneous diversion, 421–427
 bowel division and restoration of continuity, 422–423, 425f
 detubularization of colonic segment and creation of posterior plate, 423–424, 427f
 laparoscopic exit and drains, 427
 positioning and port placement, 421–422, 424f
 tailoring of efferent limb and creation of stoma, 426, 430f
 ureteral anastomosis and closure of pouch, 424–426, 428f
- Robotic-controlled clip applier, 930
 Robotic ileal conduit urinary diversion, 413–417, 414f
 defining conduit, proximal ileal division, and discard segment, 414–415, 415f
 distal ileal division, 413–414, 414f
 fashioning stoma and exiting abdomen, 417
 restoration of bowel continuity, 415–416, 416f
 ureteroenteric anastomoses, 416, 416f

- Robotic inguinal lymphadenectomy
oncological outcomes, 1034
perioperative outcomes and complications,
1033–1034
postoperative care, 1033
robotic-assisted inguinal lymph node dissection
(RAIL), 1030–1033
deep dissection, 1033
docking and instrumentation, 1031
operative technique, 1030–1031
perioperative preparation, 1030
port placement, 1030–1031
procedure description, 1031–1033
superficial dissection, 1032–1033
- Robotic orthotopic ileal neobladder, 417–421, 417f
bowel detubularization and creation of posterior
plate, 419–420, 419f
bowel division and discard segment, 418–419
measurement of bowel segments, 417–418, 417f
testing pouch and laparoscopic exit, 421
ureteral-afferent limb anastomoses, 421, 423f
urethra-to-pouch anastomosis and cross-folding
of pouch, 420–421, 421f, 423f
- Robotic partial cystectomy, techniques of, 341–342
- Robotic platform and instrumentation, 114
- Robotic prostatectomy, salvage, 591
adrenal gland exposure, 262
closure, 258
incisions and port placement, 261–262, 261f
positioning of, 255f, 261
- Robotic pyeloplasty, laparoscopic, 174–180.e1
preoperative evaluation and preparation, 174
surgical approach, 174
robotic retroperitoneal approach, adrenal gland,
260–263
surgical steps:left, 256–257, 256f
surgical steps:right, 257–258, 257f
- Robotic retroperitoneal lymph node dissection
bilateral dissection, 934
closing and undocking, 934
evolution of, 926
indications for, 926–927
instrumentation, 930
left template dissection, 934
lymph node dissection templates, 931
lymph node removal technique, 931–933
patient positioning and port placement, 928–930
patient preparation, 927–928
postoperative care, 935
retroperitoneal exposure, 930–931
right template dissection, 933–934
spermatic cord dissection, 934
- Robotic simple prostatectomy, 517
- Robotic surgery, 58–65
additional accoutrements, 64
auxiliary multiinput display, 64, 64f
da Vinci dual console, 64, 64f
additional accoutrements
trainings, 64
da Vinci surgical system, 58–59
operating room setup, 60, 60f
port placement, 60–61
robotic instrumentation, 61–62
essentials, 58–64
future directions, 64–65
da Vinci Xi, 58
team, 62–64
patient cart, 61. *See also* Endoscopic surgery;
Laparoscopic surgery
- Robotic surgical platforms to LESS (R-LESS), 274
Robotic technique, 36, 131
Robotic technology, 582, 926
Robotic urinary diversion, 407–431
operative technique, 408–427
extended lymphadenectomy, 411–413, 412f
radical cystectomy, 408–411
retrovesical dissection in male patients, 408
robotic continent cutaneous diversion: Indiana
pouch, 421–427
robotic ileal conduit urinary diversion,
413–417, 414f
robotic orthotopic ileal neobladder, 417–421,
417f
patient positioning and port placement,
407–408, 408f
postoperative care, 427–429
preoperative preparation, 407
- Robotics in SP RARP, 609
- Room set-up, 808
- Ropivacaine, 44
- RUG. *See* High-quality retrograde urethrography
(RUG)
- S**
- Sacral neuromodulation (SNM), 804
complications, 812
device explant, 812
device malfunction, 812
infection, 812
pain, 812
revision, 812
considerations for method of implantation,
804–805
contraindications, 804
fluoroscopic anatomy, 805
full implant placement, 809–810
IPG placement, 809–810
lead placement, 809
indications, 804
percutaneous nerve evaluation, 807–809
S3 spinal foramen needle placement, 806–807
staged implant, 810–812
stage, 810–812
- Sacrospinous suspension, 702–703
- Saphenous vein, 1026–1029
- Saphenous vein graft harvest, 1031
- Scant-to-no spotting, 787
- Schistosoma mansoni*, 890
- Scissors, laparoscopy, 50
- Scrotal orchiopexy, 896–897
dissection, 896–897, 896f
mobilization of cord, 897, 897f
relocation of testis, 897
troubleshooting, 897
- Scrotal skin tube, 653
- Scrotum, 862
- Scrotum, split-thickness skin grafting of, 992
- Segmental arteries, 203
- Segmental nephrectomy, large polar tumors, 84–85,
85f–86f
- Selective arterial clamp, 134
- Self-absorbable suture (SAS), 392–393
- Seminal vesicles, 593, 642f
- Semirigid penile prosthesis
implantation of Coloplast genesis, Boston scientific
Tactra, and RigiCon Rigi10, 966–967
complications, 968
- Semirigid penile prosthesis (*Continued*)
penoscrotal and infrapubic approach, 967
postoperative care, 967–968
subcoronal approach, 966–967
surgical troubleshooting, 967
ventral approach, 967
ventral penile approach, 966–967
surgical approaches for, 966–970
- Sentinel lymph node (SLN), 568–569
- Sequential compression stockings (SCDs), 345
- Sexual function, 821
- Sexual Health Inventory for Men (SHIM), 598
- Sexual side effects, 739
- Shaving and epilation, 3–4
- Sheath approximation technique (Gil Vernet),
ureteroneocystostomy, 282
- Side-to-side anastomosis, 40, 40f–41f
- Sigmoid colon, 433, 656–657
- Silicone-coated stents, 658–659
- Simple orchiectomy, 875, 875f
approach for simple, epididymis-sparing and
subcapsular orchiectomy, 875f
epididymis-sparing orchiectomy, 875
isolation of vas deferens, ligation of vas deferens,
876f
scrotal closure, 876f
transverse scrotal incision or vertical midline
incision, 875f
- Simple prostatectomy, 508
- Single incision midurethral sling (SIS), 784
operative technique, 784–787
mesh sling with anchors, 785f
midurethral slings, 785f
snug, albeit tension-free positioning, 787f
trocar/SIS sling placement, 786f
vaginal dissection, 786f
patient positioning and surgical set-up, 784
postoperative care and complications, 787–788
postoperative pain, 787
postoperative voiding dysfunction, 787–788
sling exposure/extrusion, 787
preoperative preparation and planning, 784
Single-dose adjuvant intravesical therapy, 338
- Single-photon emission computed tomography
(SPECT), 567
- Single-port (SP) robotic system, 274, 597, 651
- Single-Port Advanced Research Consortium
(SPARC), 608–609
- Single-port laparoscopic and robotic
nephroureterectomy, 93
- Single-port robotic applications, 274
partial adrenalectomy, 274
- Single-port robotic approach, 449
- Single-port robotic prostatectomy
future directions, 609
robotics and technology in SP RARP, 609
single-port transvesical robot-assisted partial
prostatectomy, 609
patient position and preparation, 600
patient selection, 597–598
extraperitoneal (EP) approach, 597
single-port robot-assisted radical
prostatectomy, 598f
special situations, 598
transperineal (TP) approach, 597–598
transvesical (TV) approach, 597
perioperative parameters, 608–609
port placement and robot docking, 600–602
access ports and floating technique, 601

- Single-port robotic prostatectomy (*Continued*)
 extraperitoneal (EP) approach, 600–601
 incision and access to area of interest, 600–601
 multichannel cannula and robotic instruments, 601–602
 transperineal (TP) approach, 601
 transvesical (TV) approach, 600
 postoperative management, 609
 preoperative workup, 598
 history and labs, 598
 imaging, 598
 single-port robotic system and room setup, 598–600
 surgical technique, 602–608
 extraperitoneal (EP) approach, 606–607
 robot undocking and closure, 608
 transperineal (TP) approach, 607–608
 transvesical (TV) approach, 602–605
- Single-port robotic pyeloplasty, 179
- Single-port robotic system and room setup, 598–600
 draped patient cart, 600f
 hostile abdomen and frozen pelvis, 599f
 single-port room setup, 599f
 transvesical access, 600f
- Single-port transvesical robot-assisted partial prostatectomy, 609
- Skin
 anatomy of, 18
 avoid marks in, 18
 blood supply, 18, 19f
 clips, 13
 dermal grafts, 20
 dissection, 1009
 edges, 888–889
 slight eversion of, 18
 grafting, 858, 861
 incision, 508, 973
 STAC 3, 1008
 STAG 1, 1003
 STAG 2, 1005–1008
 preparation, 4
 sutures, 10–12
 techniques, 12–13
 tape, 18
 tube, 653–654
- Skin flap techniques, reconstruction of fossa navicularis, 712
 Blandy-Tresidder, 712, 713f
 Brannen, 712, 714f
 Cohney, 712, 713f
 De Sy, 712, 714f
- Skin island technique, transverse ventral, in reconstruction of fossa navicularis, 712
 Jordan, 712, 714f
- Sleeve (double incision) technique, 936–937
- Small bowel obstruction, laparoscopy, 56
- Small bowel, 54
- Small cortical tumors, enucleation, 83, 84f
- Smoking cessation, 957
- SP RAR, robotics and technology in, 609
- “Space of Retzius”, 592
- Spatulated nipple technique, ureteroneocystostomy, 282, 283f
- Spermatic cord, 644–646, 922, 934
- Spermatic cord block, 44–46, 46f
 anatomic relationship, 44–45
 anatomic relationship, 45
 complications, 45
- Spermatic cord block (*Continued*)
 indications, 44
 perineal pudendal nerve anatomy, 45f
 periprostatic biopsy block, 45
 procedure, 45
 procedure, 46
 transperineal pudendal nerve block injection, 45f
- Spermatocele, 888, 888f
- Spermatocectomy, 888–889
- Sperm retrieval, 866–868
 microscopic epididymal sperm aspiration, 866–867, 867f
 microsurgical testicular sperm extraction, 867–868, 867f
 percutaneous epididymal sperm aspiration, 866
 spermatic cord block, 866
 testicular biopsy, 866
- Sphincteric deficiency (ISD), 791
- Spleen, injury, 54
- Split-thickness skin grafting of scrotum, 992
- Split-thickness skin grafts (STSG), 18–19, 949, 953, 990
 harvesting, 20–21, 21f
- Sponge stick, vaginal vault, placement, 355f
- Spongiosum, 1003
- Square knot, 10, 11f
- Staged technique, reconstruction of fossa navicularis, 712, 715f
- Standards of Care (SOC), 820
- Stapled anastomoses, common techniques of, 40–43
 minimally invasive side-to-side stapled anastomosis, 41
 open side-to-side anastomosis, 40
- Staplers, laparoscopy, 50
- Stapling devices, 39
 circular, 39–40
 curved cutting, 39
 linear, 39
 linear stapling and cutting devices, 39
 new technology, 40
- Steichen, Felicien, 39
- Stem cells, 18
- Stenosis, 858
- Stepper, 532, 533f
- Sterilization. *See* Vasectomy
- S3 spinal foramen needle placement, 806–807
 using anatomic landmarks for lead placement, 806
 using fluoroscopy for lead placement, 806–807
 needle placement technique, 807
- Stoma site marking, 345
- Stomal maturation, appendicovesicostomy, 394–395
- Stomal stenosis, 397
 on Indiana pouch, 391
- Stone extraction of miniperc, 235
- Stone removal, 309–310, 309f–310f
- Stone retrieval devices, ureteroscopic instrumentation, 319
- STraighten and Close (STAC), 1003
 STAC vs. STAG, 1011
- STraighten and Graft two-stage (STAG), 1003
 STAC 2, 1005
 harvesting graft, 1007–1008
 skin incision, 1005–1008
 STAC 3, 1008–1011
 bandages and postoperative care, 1010
 establishing penoscrotal junction, 1010
 glansplasty, 1010
 skin dissection and artificial erection, 1009
 skin incision, 1008
- STraighten and Graft two-stage (STAG) (*Continued*)
 STAC vs. STAG, 1011
 tubularization of neourethra, 1009
 tunica vaginalis barrier layer, 1009–1010
 STAG 1, 1003–1005
 artificial erection, 1003–1004
 final appearance, 1004–1005
 penile skin lengthening, 1004
 preputioplasty, 1004
 proximal urethrostomy, 1004
 skin incision, 1003
 three transverse corporotomies, 1004
 urethral plate transection, 1004
- Stress urinary incontinence (SUI), 660, 791
- Strictureplasty, 733
- Subcutaneous heparin, 755
- Subcutaneous tissue, 362
 sutures, 10
- Subcutaneous tunnel, 757
- Subcuticular closure, 12, 13f
- Subdermal plexus, 846–847
- Suction drains, 829
- Suction irrigation, laparoscopy, 50–51
- Suction miniperc
 dilation and sheath, 235
 14-Fr fascial dilator, 237f
 guidewire passed in pelvic/lyceal system (PCS), 237f
- energy sources, 235, 240f
 miniperc with EMS trilogy, 241f
 miniperc with laser, 240f
 miniperc with olympushockpulse, 241f
- exit strategy, 235
 endoscopic view of complete stone clearance, 241f
 fluoroscopic image showing DJ stent, 242f
 tubeless miniperc, 241f
- indications, 233
- nephroscopy and stone extraction, 235
 complete superperc sheath ecosystem, 239f
 fluoroscopic picture of miniperc sheath with nephroscope, 240f
 miniperc sheath with suction armamentarium, 238f
 miniperc sheath with suction detachable Shah Superperc sheath, 239f
- operating room setup and equipment, 233
- patient position, 233
- postoperative follow-up, 235
- preoperative evaluation, 233
- retrograde access, 234, 234f
- review of literature, 235–237
 ultrasound-guided renal access, 234–235
- Superficial inguinal lymph node dissection, 1019–1021
- Superior mesenteric artery (SMA), 129
- Supine, 219
 lithotomy, 654
 positioning, 221–223
- Suprapubic midurethral sling, 771–775
 complications, 773–775
 operative technique, 771–773
 closure, 772–773
 dissection, 771, 772f
 sling passage, 772, 774f
 suprapubic needle pass, 771–772, 773f
 TVT vaginal pass, 772, 774f
- patient positioning, 771
 postoperative care, 773–775
 preoperative preparation and planning, 771
 surgical incision, 771, 771f

- Suprapubic prostatectomy, 499–507
 antibiotic prophylaxis, 500
 instruments, 500
 intraoperative hemostatic procedures, 505–507, 506f
 postoperative care, 506
 preoperative considerations, 499–500
 procedure, 500
 cystotomy and exposure, 500, 503f
 dissection and removal of adenoma, 502, 503f
 hemostasis and repair, 502–505, 505f
 incision and exposure, 500, 501f
 positioning, 500, 500f
 Suprapubic tube (SPT), 663, 762
 Surgeon console, 58–59, 58f
 Surgeon hair, 4
 Surgeon's knot, 10, 11f
 Surgery plan to meet patient goals, customization of, 821–822
 Surgical incision, partial penectomy, 1012, 1012f
 Surgical site infection (SSI), 4
 Surveillance, Epidemiology and End Results (SEER), 1034
 Suture materials, rate of absorption, 10
 Suture techniques, 10–17
 bowel, 14–17
 fascia, 11
 knot-tying techniques, 10
 laparoscopic, 15–17
 skin, 12
 tissue sealants, 6
 Suture(s), 10–12
 Connell, 14, 16f
 everting interrupted, 13, 14f
 far-and-near, 13, 14f
 for fascia, 14
 figure-eight bowel, 15, 17f
 Halsted mattress, 13, 14f
 interrupted, 13, 14f
 intestine, 12
 knots
 double-throw, 10, 11f
 square, 10, 11f
 surgeon's, 10, 11f
 laparoscopy, 50
 Lembert, 15, 16f
 lock-stitch, 15, 17f
 near-and-far, 13, 15f
 purse-string, 15, 17f
 selection, 10–12
 size and type, 12, 12t
 skin, 12
 Smead-Jones fascial closure technique, 13, 15f
 subcutaneous tissue, 12
 subcuticular closure, 12, 13f
 types, 11t
 urinary tract, 12
 vascular, 12
 vertical mattress (Gambie stitch), 14, 15f
 SWL. *See* Shock-wave lithotripsy (SWL)
 Synthetic absorbable sutures (SAS), 29–30
 Systematic transperineal biopsies, 532
- Temporarily implanted nitinol device (ITIND), 482–485
 postprocedure and follow-up, 484–485
 procedure, 484
 special equipment, 483–484
 Tension-free vaginal tape, 771–775
 complications, 773–775
 operative technique, 771–773
 closure, 772–773
 dissection, 772–773, 772f
 sling passage, 772, 774f
 suprapubic needle pass, 771–772, 773f
 TVT vaginal pass, 772, 774f
 patient positioning, 771
 postoperative care, 773–775
 preoperative preparation and planning, 771
 surgical incision, 771, 771f
 Testicular fasciotomy, 910
 Testicular rupture, 996–997
 Testicular Workup for Ischemia and Suspected Torsion (TWIST), 909
 Testis
 biopsy, 862–865
 biopsy gun fired in longitudinal orientation, 865f
 sperm retrieval, 866
 biopsy gun needle carefully placed through incision through tunica albuginea, 865f
 eyelid retractor used for exposure of tunica, 863f
 full closure of tunica albuginea incision with permanent suture, 864f
 indications and guidelines, 862
 local anesthetic weal administered to skin at lower pole of testis, 864f
 Metzenbaum scissors, 863f
 mosquito clamps attached to corners of tunica vaginalis to assist with retraction, 863f
 Permanent suture, 864f
 postoperative concerns, 865
 relevant anatomy, 862
 scrotal layers to access testis with use of Bovie electrocautery, 863f
 spermatic cord block performed percutaneously with local anesthetic, 864f
 tunica albuginea exposes seminiferous tubules, 863f
 tunica vaginalis and dartos fascia, 864f
 testicular torsion, reduction, 909–912
 fertility potential, 912
 history and physical exam, 909
 incision, 909, 909f
 initial evaluation and management, 909
 intraoperative surgical techniques, 909–910
 manual detorsion, 909
 nontunical orchiopexy, 910
 orchiopexy steps, 910, 910f
 patient positioning, 909
 postoperative care and complications, 912
 recurrent torsion, 912
 testicular atrophy, 912
 testicular decompression, 910
 testicular viability, 910
 ultrasound, 909
 Testis, malignancy
 orchiectomy, radical, 916–918
 curvilinear incision, 916, 916f
 dissection at level of pubic tubercle, 916, 917f
- Testis, malignancy (*Continued*)
 retraction of ilioinguinal nerve, 916f
 surgical procedure, 916–918, 917f
 traction of spermatic cord, 917f
 testis-sparing surgery, benign and malignant tumors, 913, 913f–914f
 Testis-sparing surgery for benign and malignant tumors, 913
 Therapeutic anticoagulation, 526
 Thermal injuries, 54
 Thermal injuries, electrocautery, 54
 Thermocouple needles, 623–624
 Thermocouples, 633
 Thermosensors, 623–624
 Thompson retractor and pearly gates of Young, 558, 560f
 Three-dimension (3D)
 alignment, 628
 reconstruction, 199
 Three-dimensional template-guided mapping (3D-TPM) biopsy, 616
 Three-piece inflatable penile prosthesis, 955, 955f
 3D modeling technology, 131
 Thromboembolic deterrent (TED), 1030
 Thrombus formation, 368–369
 Thulium fiber, 469, 471
 Thulium fiber laser (TFL), 230, 327, 469
 Thulium fiber laser enucleation of the prostate (TFLEP), 471
 Thulium yttrium aluminum garnet (thulium:YAG), 469, 471
 Tissue death, 636
 Tissue engineering, 644
 Tissue interposition, 664
 Tissue sealers, laparoscopy, 50
 Titanium laparoscopic clipper appliers, 930
 Top-down approach, 766–767
 Total parenteral nutrition (TPN), 935
 Total pelvic exenteration
 female patients, 372f
 male patients, 370–374
 bladder, retraction, 373f
 colon, division, 372f
 colon mesentery, division, 370, 373f
 middle rectal artery, identification, 374, 375f
 perineal dissection, 374, 376f
 plane, development, 375f
 specimen, removal, 369, 376f
 suture, placement, 374f
 ureter, ligation and division, 373f
 Total penectomy, 1016–1018
 intraoperative pitfalls, 1018
 physical examination revealing penile mass, 1016f
 postoperative complications, 1018
 steps, 1016–1017
 division of corporal bodies, 1017f
 elliptical incision, 1016f
 isolation of urethra from corporal bodies, 1017f
 technique, 1016–1017
 Toxin, distant spread of, 818–819
 Tract dilation, 227–228
 Transabdominal robot-assisted laparoscopic approach, laparoscopic adrenal excision, 272
 Transgender and gender-diverse (TGD), 820
 Transgender female patients, complication of vaginoplasty in, 856–861
 Transgender women, 827

T

“Teacup” modification, 436, 437f
 Technology in SP RARP, 609
 Templates, 537

- Transmesocolic pyeloplasty, 178
surgical technique
single-port robotic pyeloplasty and
retroperitoneal approach, 179
- Transobturator midurethral sling, 776–783
anesthesia, 776
initial dissection, 776
Kelly clamp, 778f
obturator membrane, 777f
perioperative considerations, 776
periurethral dissection, 780f
plastic sheaths, 783f
position, 776
sharp incision, 777f
sling, 778f
transobturator inside-out MUS, 779–783
transobturator outside-in MUS, 776–779
trocar, 777f
tubing from passer, 782f
vaginal incision, 779f
winged guide or introducer, 781f
- Transperineal (TP)
approach, 44, 526, 597, 608
biopsy, 532–535
grid, 618
patient selection, 597–598
port placement and robot docking, 601
prostate biopsy, 532
benefits and disadvantages of transperineal
prostate biopsy over transrectal approach,
537–538
complications, 535–536
equipment, 532
evolving techniques, 536–537
future developments, 537
Ginsburg template, 535
local anesthesia, 536–537
modified Barzell template, 535
operative technique, 532–535
postoperative care, 535–536
preoperative preparation and patient
positioning, 532
tips and tricks, 538
use of multiparametric magnetic resonance
imaging (mpMRI) targeting, 535
surgical technique, 607–608
dissection, 607–608
lymphadenectomy, 608
vesicourethral anastomosis and specimen
extraction, 608
template mapping biopsy, 616
- Transperitoneal dismembered pyeloplasty, 174–175
anterior suspension suture, 584–585
Hood technique, 590
positioning and access, 174–175, 175f
surgical steps, 175–177, 176f
- Transperitoneal robotic-assisted laparoscopic
prostatectomy, 582–591
postoperative care, 591
patient positioning, 582
port placement, 582–583, 582f
seminal vesicle dissection, 586–587
surgical technique, 582–591
extended pelvic lymphadenectomy, 591
vesicourethral anastomosis, 590–591, 590f
- Transperitoneal transvesical technique, 508–511
- Transrectal biopsy, 45, 526, 537–538
- Transrectal prostate biopsy, antibiotic prophylaxis, 5f
- Transrectal route, 532
- Transrectal ultrasonography, 633
- Transrectal ultrasonography probe, 527f
- Transrectal ultrasound (TRUS), 598, 623
directed prostate biopsy, 526–531
anticoagulation, 526
complications, 530
contrast-enhanced ultrasound, 530
equipment, 526
indications, 526
magnetic resonance imaging (MRI)-ultrasound
fusion biopsy, 529–530
postprocedural management, 530
preprocedural management, 526
special consideration during apical biopsy,
529–530, 531f
surgical procedure, 527–529
- Transureteroureterostomy, 295–297, 297f
graft and flap ureteroplasty, 297, 298f
- Transurethral incisions, 711
- Transurethral microwave thermotherapy (TUMT), 477
- Transurethral needle ablation (TUNA), 477
- Transurethral prostatectomy, 1
- Transurethral resection, 337–339, 338f
bladder tumors, 337–339
enhanced cystoscopy, 338
postoperative considerations, 338–339
postoperative problems, 337
preoperative considerations, 337
prostate, 461
clinical efficacy, 461
complications, 465–466
indications, 461
management, 465–466
patient positioning, 462
postoperative management, 464–465
surgical procedure, 462–464
- Transurethral resection of bladder tumor (TURBT),
340
- Transurethral resection of prostate (TURP), 461,
469, 477, 711
- Transvaginal apical suspensions, closure, vaginal
epithelium, 701–703
- Transvaginal ultrasound, 690–691
- Transverse capsular incision (Millin technique),
retropubic prostatectomy, 490–491, 492f
closure of capsule, 491
enucleation of adenoma, 490–491, 492f
trigonization of bladder, 491, 493f
- Transverse corporotomies, 1004
- Transversus abdominal plane (TAP), 5
- Transvesical (TV) approach, 446, 597
patient selection, 597
port placement and robot docking, 600
surgical technique, 602–605
dissection, 602
lymphadenectomy, 602
specimen extraction and robot undocking, 605
vesicourethral anastomosis, 602–605
vesicovaginal fistula
bladder closure, 446–449, 449f
extravesical approach, 446
- Trial of void (TOV), 787
- Triangulation technique, 212, 212f–213f
- Tiradiate incisions, 942f
- Trocars
blunt-tip, 49
laparoscopy, 49
secondary, insertion, 51–52
reusable, 49
- Tumor, 341
thrombus level, 99t, 100, 100f
- Tunica albuginea, reinforcement, Peyroniedisease,
974–975, 974f–975f
- Tunica albuginea plication, penile curvature,
pediatric patients, 946–947, 947f
- Tunica-sparing calcified plaque excision, Peyronie
disease, 975–976, 976f
- Tunica vaginalis, 888
barrier layer, 1009–1010
- Tunica vaginalis flap (TVF), 910
- Tunnel, 663
- Turner-Warwick curved Needleholder, 742, 742f
- Turner-Warwick ring retractor, 743, 745f
patient positioning, 743
surgical approach, 743
- U**
- Ultrasonic lithotrites, 228–229
- Ultrasonographic imaging, 628
- Ultrasound (US), 909
guidance, 227
guided access, 227
images, 627
probe, 532, 618, 630
waves, 626
- Ultrasound-guided renal access, 234–235, 235f
pelviculceal system (PCS)
fluoroscopic puncture of, 236f
puncture needle with clear urine efflux
suggesting successful puncture of, 236f
ultrasound probe with puncture attachment, 236f
- Undescended testis, 892–908. *See also* Orchiopexy
- Unexpanded, split-thickness skin grafts, 990, 991f
- Unilateral inguinal lymph node dissection, 1024
- Unilateral ureteroneocystostomy, 278–281, 282f
- Upper tract imaging, 142–144
- Upper tract tumors
antegrade administration, 142
calculating dosage, 141–142
retrograde pyelogram measuring renal pelvis
volumes, 142f
prior to treatment with topical mitomycin gel,
141f
postprocedural care, 142–144
antegrade nephrostogram via PCN confirming
placement of PCN, 143f
mitomycin gel via administration syringe, 143f
upper tract following treatment with topical
mitomycin gel, 144f
preoperative planning and evaluation, 141
retrograde administration, 142
- Upper tract urothelial carcinoma (UTUC), 137,
141–142
percutaneous resection, 137
complications, 139–140
for diagnostic ureteroscopy, 137
nephrostomy tract access, 138, 138f
operative technique, 137–140
patient positioning, 137
for percutaneous access, 137
percutaneous tumor resection, 138–139
planning, 137
postoperative care, 139–140
preoperative preparation, 137
surgical incision, 137
tumor resection, 138–139, 139f
ureteroscopic biopsy and ablation, 137–138

- Upper tract volumes, 142
 Urachal carcinoma, 362
 Ureter, 381
 Ureteral access sheath (UAS), 207
 ureteroscopic instrumentation, 317
 Ureteral advancement (Glenn-Anderson) technique, ureteroneocystostomy, 278
 Ureteral calculi, ureteroscopic management, 323–326
 below iliac vessels, 323–324, 324f
 above iliac vessels, 324–325
 Ureteral catheter, 142
 Ureteral dilators, ureteroscopic instrumentation, 316–317
 Ureteral hydrodistention grades, with endoscopic findings, 313f
 Ureteral implantation, renal transplant, 161–173
 double ureter, 171
 extravesical technique, 168–170, 170f
 transvesical technique, 170–171, 171f
 tubes and drain, 161
 Ureteral injury
 laparoscopy, 56
 pelvic lymph node dissection, 566
 radical retroperic prostatectomy, 545–555
 Ureteral occluding devices, ureteroscopic instrumentation and, 319, 320f
 Ureteral reconstruction and excision
 ileal ureteral replacement, 303–306
 bilateral ureteral replacement, 305–306
 harvesting ileum segment, 304f
 incision and identification of defect, 303
 intact, isoperistaltic ileal segment, 303–304
 postoperative management, 306
 Yang-Monti tube, 304–305, 305f
 stricture repair and ureterolysis, 295–302
 laparoscopic ureterolysis, 301f
 omental wrap, 301f, 302
 transureteroureterostomy, 295–297, 297f
 ureterolysis, 297–300, 299f–301f
 ureteroplasty, graft and flap, 297, 298f
 ureteroureterostomy, 295, 296f
 ureteroneocystostomy, 276–291
 approach to bladder, 276, 277f
 choosing transvesical techniques, 276–283, 277f–278f
 detrusorrhaphy (Hodgson-Firlit-Zaontz), 285, 287f
 external tunnel technique (Barry), 283–285, 285f–286f
 extravesical tunnel, open technique, 283, 285f–286f
 intra-extravesical technique (Paquin), 285
 intraextravesical (Politano-Leadbetter) technique, 276–278, 279f–280f
 postoperative problems, 287–288
 psoas hitch, 289–291, 289f–290f
 reoperation procedures, 288–289
 sheath approximation technique (Gil Vernet), 282
 spatulated nipple technique, 282, 283f
 ureteral advancement (Glenn-Anderson) technique, 278
 ureteral mobilization, 277f–278f, 282
 Ureteral stenting, 151
 Ureteral stones
 lower, ureteroscopy, 323–324, 324f
 upper, ureteroscopy, 324–325
 Ureteral tacking suture, 347
 Ureteral tumors, 137–138
 Ureteral U patch, construction and anastomosis, 437f
 Ureteral-afferent limb anastomoses, 421, 423f
 Ureterectomy, distal, 94
 endoscopic approaches, 96–97
 extravesical transection without bladder cuff, 94
 extravesical with bladder cuff, 94
 laparoscopic approaches, 94–96
 transurethral resection of ureteral orifice, 96, 97f
 transvesical bladder cuff technique, 96
 ureteral intussusception, 96, 97f
 Ureteroceles, endoscopic incision, 335–336
 patient positioning and surgical incision: dorsal lithotomy, 335–336, 336f
 preoperative preparation and planning, 335
 Ureterocystoplasty, 436–438
 “teacup” modification, 436, 437f–438f
 advantages, 436
 ipsilateral kidney, preservation, 437f
 technique, 436–438
 therapeutic indications, 436
 ureteral U patch, construction and anastomosis, 437f
 Ureteroenteric anastomoses, 416, 416f
 Indiana pouch, 421–427, 424f
 Ureteroileal anastomosis, ileal orthotopic bladder substitution, 401–403, 402f
 Ureterolithotomy, 307–311
 cystourethroscopy, 308
 distal ureter, 309
 indications, 307
 laparoscopic, 307–310
 open, 307, 307f–308f
 postoperative problems and follow-up, 310
 preoperative planning, 307
 proximal ureter, 308, 309f
 stone removal, 309–310, 309f–310f
 Ureterolysis, 297–300, 299f–300f
 stricture repair
 laparoscopic ureterolysis, 301f
 omental wrap, 301f, 302
 transureteroureterostomy, 295–297, 297f
 ureterolysis, 297–300, 299f–300f
 ureteroplasty, graft and flap, 297, 298f
 ureteroureterostomy, 295, 296f
 Ureteroneocystostomy, 276
 bilateral, 281–282, 283f
 external tunnel technique (Barry), 283–285, 285f–286f
 extravesical techniques, 283–285
 detrusorrhaphy (Hodgson-Firlit-Zaontz), 285, 287f
 extravesical tunnel, open technique, 283
 intra-extravesical technique (Paquin), 285
 postoperative problems, 287–288
 contralateral vesicoureteral reflux, 288
 obstruction, 287–288
 persistent/recurrent vesicoureteral reflux, 288
 psoas hitch, 289–291, 289f
 transvesical techniques, 276–283
 choice, 282–283, 284f
 spatulated nipple technique, 282, 283f
 ureteral advancement technique, 281f
 ureteral mobilization, 276, 277f–278f
 Ureteropelvic junction (UPJ) obstruction, 329
 Ureteroplasty, graft and flap, 297, 298f
 Ureteroscopic approach, 137
 Ureteroscopic biopsy and ablation, 137–138
 Ureteroscopic management
 renal calculi, 327
 operative technique, 327–328, 328f
 postoperative care, 328
 preoperative planning and considerations, 327
 Ureteroscopy
 antibiotic prophylaxis, 5t
 instrumentation, 316
 basket and stone retrieval devices, 319
 catheters, 316
 cystoscopes, 316
 flexible ureteroscopes, 318
 guidewires, 316
 intracorporeal lithotriptors, 318–319
 operative technique: instruments required, 316
 patient positioning and equipment
 positioning, 315–319
 postoperative drainage, 320–321
 preoperative preparation and planning, 315
 semirigid ureteroscopes, 317–318
 ureteral access sheaths, 317
 ureteral dilators, 316–317
 ureteral occluding devices, 319, 320f
 ureteroscopes, 317–318, 317f
 required instrumentation, 316t
 ureteral calculi
 lower ureteral stones, 323–324, 324f
 upper ureteral stones, 324–325
 Ureteroureterostomy, 295, 296f
 Ureters
 dissection, 346–347
 division, 350f
 exposure, 346
 identification, 346–347
 identification, radical cystectomy in female patients, 353, 353f
 iliac artery, relationship, 347f
 mobilization and division, 408
 superior vesical artery, relationship, 347f
 catheter, open pyeloplasty, 152
 coaptation, 790f
 dissection, radical cystectomy, 354, 356f
 alternative therapy, 673
 complications, 675
 diagnosis, 672
 indications for surgery, 672–675
 marsupialization (Spence-Duckett), 673, 673f
 operative technique, 673–675, 674f–675f
 physical examination, 672
 postoperative care, 675
 preoperative preparation and planning, 673
 radiologic and cystoscopic evaluation, 672, 672f
 signs and symptoms, 672
 erosion, artificial urinary sphincter, 797
 female vesical neck closure, 454
 necrosis, total penectomy, 1018
 sharp transection, 350f
 transection, 410, 411f
 Urethra, 455f, 623, 672, 754, 828, 830–831
 atrophy, artificial urinary sphincter, 794
 Urethra, reconstruction
 direct vision internal urethrotomy, 759
 cold-knife techniques, 759
 holmium laser technology, 759
 modalities, 759
 postoperative care, 761
 preoperative evaluation, 759
 urethral stricture disease, 759

- Urethra, reconstruction (*Continued*)
 female, 682
 distal, 683
 dorsal onlay, using free graft, 686
 mid-and proximal, 686
 proximally based ventral flap, 683–684
 tubularized vaginal flap, 686–687, 688f
 U-shaped vaginal flap, 686, 687f
 urethrectomy, distal, with advancement
 meatoplasty, 683, 683f
 operative technique, 732–736
 postoperative care, 737–738
 primary anastomosis, excision, 731f
 strictures of bulbar, 730
 complications, 738
 evaluation, preoperative, 730–731
 surgical planning, 730–731, 730f
 strictures of penile, 716–721
 anatomic considerations, 716–721, 717f
 distal penile circular fasciocutaneous flap
 (McAninch), 716, 717f–718f
 dorsally placed graft (Barbagli), 722–723,
 723f–724f
 longitudinal ventral penile skin flap with
 lateral pedicle (Orandi), 716–721, 721f
 longitudinal ventral skin flap with ventral
 pedicle (Turner-Warwick), 721–722, 722f
 urethroplasty, dorsal onlay graft (Kulkarni),
 723–725, 726f
 urethroplasty, two-stage (Johanson), 725–727,
 727f–728f
 vascular considerations, 716, 717f
 ventrally placed dorsal buccal mucosa graft
 (Asopa), 723, 724f–725f
 Urethra-to-pouch anastomosis, 420–421, 421f–422f
 Urethral caruncle, 690
 Urethral catheter, 628
 Urethral catheterization, 850
 Urethral defects, 756–757
 Urethral dilation, 682–683
 Urethral dilators, 742
 Urethral diverticula (UD), 672
 Urethral Foley catheter, 633–634, 637
 Urethral injury, 988
 Urethral lengthening, phalloplasty without, 846
 Urethral mobilization, 732–733
 Urethral necrosis, 1018
 Urethral plate creation, 852–854
 Urethral plate transection, 1004
 Urethral plate tubularization, 854
 Urethral prolapse-caruncle, 691f
 circumferential incision of prolapsed urethral
 tissue, 691f
 complete excision of prolapsed urethral tissue, 691f
 operative technique, 691
 patient position and surgical incision, 691
 postoperative care and complications, 691
 preoperative preparation and planning, 690–691
 suture of cut edges of excised urethral tissue, 691f
 Urethral rest, 755
 Urethral segment (U segment), 841
 Urethral sling, male, 799
 combination procedures, 802
 patient positioning, 799–800
 patient selection and preoperative preparation, 799
 postoperative care and complications, 802
 quadratic, 802
 surgical instruments, 799
 surgical steps, 800–802, 800f
 Urethral spongiosum, 858
 Urethral stricture disease (USD), 730
 Urethral strictures, diagnosis of, 682
 Urethral transection, 383
 Urethrectomy
 distal, 360–361, 361f
 advancement meatoplasty, 358f, 361
 female, 359–361
 complications, 359
 distal urethral tumors, treatment, 360–361
 incision, 361f
 male, 358–359
 corpus spongiosum, 358–359, 359f
 distal urethra, excision, 359, 360f
 indications, 358
 initial incision, 358f
 patient positioning, 358f
 penis, invagination, 359, 360f
 Penrose drain, 358–359, 359f
 proximal dissection, 359, 360f
 Urethrolisis, use of flap after, 665–667
 Urethroplasty, 648
 dorsal onlay, using free graft, 686
 proximally based ventral flap, 683–684. *See also*
 Anastomotic urethroplasty
 tubularized vaginal flap, 686–687
 U-shaped vaginal flap, 686
 Urethroscope, 791
 Urethrovaginal fistula, 660
 Martius flap, 662–663, 662f
 repair, 660
 complications, 663
 diagnostic work-up, 660
 labial fat pad interposition technique,
 662–663
 Martius flap, 662–663
 operative technique, 660–662, 660f
 patient positioning, 660–662, 660f
 postoperative care, 663
 preoperative preparation and planning,
 660–663
 Urethrovaginal anastomosis, 594–595
 Urge urinary incontinence (UUI), 762
 Urgency incontinence, treatment, 797
 Urinalysis (UA), 814
 Urinary leak and fistula, open partial nephrectomy,
 86–87
 Urinary reservoir, 791
 Urinary retention (UR), 338, 787–788, 818
 Urinary sphincter, artificial (AUS), 791
 closure, 796, 796f
 complications, 797
 connections, 795–796, 796f
 cuff placement, 793–794, 794f
 device preparation, 792–793
 incision, 793, 793f
 indications, 791
 patient positioning and preparation, 792
 postoperative considerations, 796–797
 preoperative evaluation, 791
 pressure-regulating balloon placement, 794–795,
 795f
 scrotal pump, 795, 796f
 Urinary tract infection (UTI), 478, 499, 814, 818
 Urine cytology, 137–138
 Urodynamics, antibiotic prophylaxis, 5t
 Urofowmetry (Qmax), 499
 UroLift, 478
 Urologic botulinum toxin, 814
 Urologic operative procedures
 anesthesia, 4–5
 evaluation, 1
 fluid and electrolyte replacement, 1
 general, 1
 local, 4–5
 bowel preparation, 2–3
 evaluation of risks, 1
 blood loss and transfusion, 6–7
 catheters and urinary drainage tubes, 7
 drains, 7
 nutrition, assessment, 2
 operative management, 5–9
 bleeding, 2
 fluid requirements, 7
 infection, 3–4
 pain management, 7–8
 wound management, 8
 operative site, preparation, 3–4
 contamination, 6
 marking, 3
 shaving and epilation, 3–4
 skin preparation, 4
 perioperative antibiotics, 4
 preoperative checklist, 3
 preoperative evaluation, 1–3
 protection during surgery, 4
 strategy and tactics, 1
 venous thromboembolism (VTE) prophylaxis,
 2, 3t
 Urologic postoperative management
 fluid requirements, 7
 infection, 8
 pain management, 7–8
 wound management, 8
 Urologic surgeons, 66
 Urologists, 526
 Urology, 44
 Urothelial carcinoma, upper tract
 percutaneous resection, 137
 US Food and Drug Administration (FDA), 762, 814
 Uterosacral suspension, 702, 703f
- V**
 Vacuum erection device (VED), 956–957
 Vacuum-assisted access sheath (VAAS), 228
 Vagina, 829–830
 Vaginal approach, female vesical neck closure,
 456–457, 459f
 Vaginal canal, 644, 648–650
 Vaginal canal dissection, 646
 Vaginal cavity remnant, repairs to, 854–856
 Vaginal paravaginal repair, 694–695, 696f–697f
 Vaginal stenosis, 858–861
 Vaginal surgery, antibiotic prophylaxis, 5t
 Vaginal wall defects, use of flap for, 664–665
 Vaginal wall flaps, 448f
 Vaginal-sparing approach, radical cystectomy, in
 female patients, 354, 354f
 Vaginoplasty, 822
 complication of vaginoplasty in transgender
 female patients, 856–861
 evaluation and planning, 858
 excess corpus spongiosum revision, 858–859
 meatal stenosis/excess urethral length revision,
 858
 patient positioning and preparation, 858
 vaginal stenosis, 859–861

Vaginoplasty (*Continued*)

- gender-affirming vaginoplasty, 644–650
- intestinal, 654–659
 - complications, 658–659
 - operative technique, 644–650
 - patient positioning, 644, 646f
 - postoperative care, 650
 - preoperative preparation/planning, 644
- intestinal vaginoplasty, 654–659
- peritoneal flap vaginoplasty canal dissection, 650–654
- Varicocele ligation, 869
 - inguinal approach, 869–870, 872f
 - laparoscopic approach, 872–873, 874f
 - postoperative care and complications, 873–874
 - preoperative planning, 869, 870t
 - retroperitoneal approach, 870–872, 873f
 - subinguinal approach, 869, 870f–871f
- Vas deferens (VD), 602, 878, 878f
- Vascular injury, 53–54
- Vascular pedicle, 383, 602
- Vascular pedicles, lateral dissection of bladder and control, 408–410, 410f
- Vascular-activated photodynamic therapy (PDT), 634–636
 - complications, 636
 - equipment, 635
 - biplanar ultrasound, 635
 - cryotherapy grid, 635
 - light source, 635
 - photosensitizing agent, 635
 - stepper, 635
 - mechanism of action, 634–635
 - postoperative care, 636
 - procedural technique, 635–636
- Vasculature, 888
- Vasectomy, 878, 878f–879f
 - conventional, 879f
- Vasectomy reversal, 881
- Vasopididymostomy, 881
 - end-to-end, 884, 886f
 - end-to-side, 884, 885f
 - indications and preoperative counseling, 881
 - intraoperative decision-making, 882–883
 - intussusception, 884–886, 887f
 - procedural concepts, 881
- Vasovasostomy, 883
 - incisions and preparation of vas deferens, 881–882, 882f
 - indications and preoperative counseling, 881
 - instruments, 881
 - intraoperative decision-making, 882–883
 - modified one-layer closure, 883, 883f
 - patient positioning, 881
 - postoperative care, 886
 - procedural concepts, 881
 - two-layer anastomosis, 883–884, 885f
- Vena cava
 - control of, 114–118
 - replacement, 111–112, 112f
 - thrombectomy, 99
 - bypass techniques, 103–104
 - cardiopulmonary bypass with and without deep hypothermic arrest, 109–111, 111f
 - combined intraabdominal and intrathoracic approach, 106–108, 108f–109f

Vena cava (*Continued*)

- inferior vena cava filtration, 112–113, 112f
- intraabdominal approach, 103–106, 105f
- level I, 101–103, 102f
- level II, 103, 103f–104f
- patch cavoplasty, 111, 111f
- perioperative complications, 113
- permanent interruption for bland thrombus, 112–113, 112f
- preoperative considerations, 99–101
- preoperative consultations, 99–100
- veno-venous bypass, 108–109
- Vena cavectomy, 119
- Venae comitans (VCs), 842
- Veno-venous bypass, 108–109
 - open, 109, 110f
 - percutaneous, 109, 110f
- Venous drainage, prostate, 520
- Venous thromboembolism (VTE), 345, 791, 820
- Ventral curvature (VC), 1003
- Ventral nontransecting approach, 735–736
- Ventral sutures, 754
- Ventral urethrotomy, 850–852
- Veress needle, 255–256, 381
- Vertical mattress suture, 13, 13f
- Verumontanum, 462
- Vesical neck closure, female, 454
 - abdominal approach, 455–456, 455f–456f
 - complications, 459–460
 - indications, 454
 - preoperative evaluation, 454–455
 - vaginal approach, 456–457, 459f
- Vesicocapsular technique (alternative capsular incision), for retropubic prostatectomy, 494–497, 497f
- closure of bladder and capsule, 497, 497f–498f
- enucleation of adenoma, 490–491, 493f
- Vesicocutaneous fistulas, renal transplantation, 172
- Vesicoureteral reflux (VUR), 312, 817
 - contralateral, 314
 - endoscopic management, 312
 - causes of failure and reasons for success after, 312t
 - complications of endoscopic injection, 314
 - double hydrodistention implantation technique, 313f
 - equipment, 312
 - positioning, 312
 - preparation, 312
 - new onset of contralateral, 314
- Vesicourethral anastomosis, 512
- Vesicovaginal fistula
 - transperitoneal repair, 445–449
 - bladder, closing, 447f
 - completion, 453f
 - complications, 443–444
 - cuff scar, approach, 440–442
 - fistula, locate, 450, 451f
 - flaps, use, 442–443
 - gracilismyocutaneous flap, 443
 - incision of peritoneum, 452f
 - incisions, 452f
 - Latzko procedure, 442
 - lithotomy position, 450, 450f
 - obstetric fistula, 442
 - operative technique, 440–442

Vesicovaginal fistula (*Continued*)

- patient positioning, 439–440
- peritoneal flap, 450, 451f
- peritoneum, 452, 452f
- transvaginal repair, 439–444
 - postoperative care, 443–444
 - preoperative preparation and planning, 445
 - surgical incision, 439–440
 - traditional approach, 440
- transvaginal repair
 - complications, 443–444
 - instruments, 439
 - minimally invasive options, 446–449
 - open approach, 445–446
 - operative techniques, 445–449
 - patient positioning, 445
 - postoperative care, 449
 - preoperative preparation and planning, 445
 - timing, 445
- Vessel Sealer, 926, 930
- Via an endo-guided approach, 226–227
- Videourodynamics (VUDS), 682
- Virtual needles, brachytherapy, 640, 640f
- Visibility, surgical techniques, 6
- Vision cart, 58, 59f
- Visualase thermal therapy system, 637
- Voided cytology, 137
- Voided urine cytology, 137
- Voiding, 821
- Voiding cystourethrography (VCUG), 672, 682, 730
- fistula repair, 672
- V-Probe Variable Ice Cryoprobe System, 610, 611f
- Vulvoplasty, 822
 - gender-affirming vaginoplasty, 644–650
 - intestinal vaginoplasty, 654–659
 - peritoneal flap vaginoplasty canal dissection, 650–654

W

- Warm ischemia time (WIT), 131
- Water cooling, 637
- Water vapor thermal therapy (WVTT), 477, 480–482
 - postprocedure and follow-up, 481–482
 - procedure, 481
 - special equipment, 481
- Webbed penis. *See* Hidden penis
- Wickham, JEA, 58
- World Professional Association for Transgender Health (WPATH), 644, 820, 827
- Wound closure, 171–172, 758
- Wound infections, 667
 - total penectomy, 1018

X

- X-ray kidney-ureter-bladder (KUB), 235
- Xeroform gauze, 953
- Xiaflex injection, 972–973

Y

- 1-year biochemical disease-free survival (1y-bDFS), 592
- Young, Hugh Hampton, 1, 595
- Y-V preputioplasty, phimosis, 943f