

# CONTENTS

## SECTION I SURGICAL BASIC PRINCIPLES, 1

- 1 The Rise of Modern Surgery: An Overview, 2**  
*Ira Rutkow*
- 2 Ethics and Professionalism in Surgery, 20**  
*Cheryl E. Vaiani and Howard Brody*
- 3 The Inflammatory Response, 25**  
*Puja M. Shah, Zachary C. Dietch, and Robert G. Sawyer*
- 4 Shock, Electrolytes, and Fluid, 44**  
*Peter Rhee and Bellal Joseph*
- 5 Metabolism in Surgical Patients, 98**  
*Joshua Carson, Ahmed Al-Mousawi, Noe A. Rodriguez, Celeste C. Finnerty, and David N. Herndon*
- 6 Wound Healing, 130**  
*Mimi Leong, Kevin D. Murphy, and Linda G. Phillips*
- 7 Regenerative Medicine, 163**  
*Michael S. Hu, Graham G. Walmsley, H. Peter Lorenz, and Michael T. Longaker*
- 8 Evidence-Based Surgery: Critically Assessing Surgical Literature, 173**  
*Vlad V. Simianu, Farhood Farjah, and David R. Flum*
- 9 Safety in the Surgical Environment, 187**  
*Warren S. Sandberg, Roger Dmochowski, and R. Daniel Beauchamp*

## SECTION II PERIOPERATIVE MANAGEMENT, 201

- 10 Principles of Preoperative and Operative Surgery, 202**  
*Leigh Neumayer and Nasrin Ghalyaie*
- 11 Surgical Infections and Antibiotic Use, 241**  
*Philip S. Barie*
- 12 Surgical Complications, 281**  
*Mahmoud N. Kulaylat and Merril T. Dayton*
- 13 Surgery in the Geriatric Patient, 327**  
*Heather Yeo, Jeffrey Indes, and Ronnie A. Rosenthal*
- 14 Anesthesiology Principles, Pain Management, and Conscious Sedation, 360**  
*Antonio Hernandez and Edward R. Sherwood*
- 15 Emerging Technology in Surgery: Informatics, Robotics, Electronics, 393**  
*Carmen L. Mueller and Gerald M. Fried*

## SECTION III TRAUMA AND CRITICAL CARE, 407

- 16 Management of Acute Trauma, 408**  
*R. Shayn Martin and J. Wayne Meredith*
- 17 The Difficult Abdominal Wall, 449**  
*Oliver L. Gunter and Richard Miller*
- 18 Emergency Care of Musculoskeletal Injuries, 462**  
*Daniel K. Witmer, Silas T. Marshall, and Bruce D. Browner*

- 19 Burns, 505**  
*Marc G. Jeschke and David N. Herndon*
- 20 Bites and Stings, 532**  
*Lillian F. Liao, Robert L. Norris, Paul S. Auerbach, Elaine E. Nelson, and Ronald M. Stewart*
- 21 Surgical Critical Care, 547**  
*Andrew H. Stephen, Charles A. Adams, Jr., and William G. Cioffi*
- 22 Bedside Surgical Procedures, 577**  
*Addison K. May, Bradley M. Dennis, Oliver L. Gunter, and Jose J. Diaz*
- 23 The Surgeon's Role in Mass Casualty Incidents, 586**  
*Michael Stein and Asher Hirshberg*

## SECTION IV TRANSPLANTATION AND IMMUNOLOGY, 597

- 24 Transplantation Immunobiology and Immunosuppression, 598**  
*Andrew B. Adams, Mandy Ford, and Christian P. Larsen*
- 25 Liver Transplantation, 637**  
*Nancy Ascher*
- 26 Kidney and Pancreas Transplantation, 649**  
*Yolanda Becker and Piotr Witkowski*
- 27 Small Bowel Transplantation, 666**  
*Aparna Rege and Debra L. Sudan*

## SECTION V SURGICAL ONCOLOGY, 676

- 28 Tumor Biology and Tumor Markers, 677**  
*Dominic E. Sanford, S. Peter Goedegebuure, and Timothy J. Eberlein*
- 29 Tumor Immunology and Immunotherapy, 705**  
*James S. Economou, James C. Yang, and James S. Tomlinson*
- 30 Melanoma and Cutaneous Malignant Neoplasms, 724**  
*Charles W. Kimbrough, Marshall M. Urist, and Kelly M. McMasters*
- 31 Soft Tissue Sarcoma, 754**  
*Carlo M. Contreras and Martin J. Heslin*
- 32 Bone Tumors, 773**  
*Herbert S. Schwartz, Ginger E. Holt, and Jennifer L. Halpern*

## SECTION VI HEAD AND NECK, 788

- 33 Head and Neck, 789**  
*Robert R. Lorenz, Marion E. Couch, and Brian B. Burkey*

## SECTION VII BREAST, 819

- 34 Diseases of the Breast, 820**  
*Kelly K. Hunt and Elizabeth A. Mittendorf*
- 35 Breast Reconstruction, 865**  
*Karen L. Powers and Linda G. Phillips*



## CONTENTS

### SECTION VIII ENDOCRINE, 880

- 36 Thyroid, 881**  
*Philip W. Smith, Laura R. Hanks, Leslie J. Salomone, and John B. Hanks*
- 37 The Parathyroid Glands, 923**  
*Courtney E. Quinn and Robert Udelsman*
- 38 Endocrine Pancreas, 941**  
*Rebekah White and Taylor S. Riall*
- 39 The Adrenal Glands, 963**  
*Michael W. Yeh, Masha J. Livhits, and Quan-Yang Duh*
- 40 The Multiple Endocrine Neoplasia Syndromes, 996**  
*Terry C. Lairmore and Jeffrey F. Moley*

### SECTION IX ESOPHAGUS, 1013

- 41 Esophagus, 1014**  
*Jonathan D. Spicer, Rajeev Dhupar, Jae Y. Kim, Boris Sepesi, and Wayne Hofstetter*
- 42 Gastroesophageal Reflux Disease and Hiatal Hernia, 1043**  
*Robert B. Yates, Brant K. Oelschlager, and Carlos A. Pellegrini*

### SECTION X ABDOMEN, 1065

- 43 Abdominal Wall, Umbilicus, Peritoneum, Mesenteries, Omentum, and Retroperitoneum, 1066**  
*Richard H. Turnage, Jason Mizell, and Brian Badgwell*
- 44 Hernias, 1092**  
*Mark A. Malangoni and Michael J. Rosen*
- 45 Acute Abdomen, 1120**  
*Ronald Squires, Steven N. Carter, and Russell G. Postier*
- 46 Acute Gastrointestinal Hemorrhage, 1139**  
*Ali Tavakkoli and Stanley W. Ashley*
- 47 Morbid Obesity, 1160**  
*William O. Richards*
- 48 Stomach, 1188**  
*Ezra N. Teitelbaum, Eric S. Hungness, and David M. Mahvi*
- 49 Small Intestine, 1237**  
*Jennifer W. Harris and B. Mark Evers*
- 50 The Appendix, 1296**  
*Bryan Richmond*
- 51 Colon and Rectum, 1312**  
*Najjia N. Mahmoud, Joshua I.S. Bleier, Cary B. Aarons, E. Carter Paulson, Skandan Shanmugan, and Robert D. Fry*
- 52 Anus, 1394**  
*Amit Merchea and David W. Larson*
- 53 The Liver, 1418**  
*Vikas Dudeja and Yuman Fong*
- 54 Biliary System, 1482**  
*Patrick G. Jackson and Stephen R.T. Evans*

- 55 Exocrine Pancreas, 1520**  
*Vikas Dudeja, John D. Christein, Eric H. Jensen, and Selwyn M. Vickers*
- 56 The Spleen, 1556**  
*Benjamin K. Poulouse and Michael D. Holzman*

### SECTION XI CHEST, 1572

- 57 Lung, Chest Wall, Pleura, and Mediastinum, 1573**  
*Joe B. Putnam, Jr.*
- 58 Congenital Heart Disease, 1619**  
*Charles D. Fraser, Jr. and Lauren C. Kane*
- 59 Acquired Heart Disease: Coronary Insufficiency, 1658**  
*Shuab Omer, Lorraine D. Cornwell, and Faisal G. Bakaeen*
- 60 Acquired Heart Disease: Valvular, 1691**  
*Todd K. Rosengart and Jatin Anand*

### SECTION XII VASCULAR, 1721

- 61 The Aorta, 1722**  
*Margaret C. Tracci and Kenneth J. Cherry*
- 62 Peripheral Arterial Disease, 1754**  
*Charlie C. Cheng, Faisal Cheema, Grant Fankhauser, and Michael B. Silva, Jr.*
- 63 Vascular Trauma, 1808**  
*Michael J. Sise, Carlos V.R. Brown, and Howard C. Champion*
- 64 Venous Disease, 1827**  
*Julie A. Freischlag and Jennifer A. Heller*
- 65 The Lymphatics, 1848**  
*Iraklis I. Pipinos and B. Timothy Baxter*

### SECTION XIII SPECIALTIES IN GENERAL SURGERY, 1857

- 66 Pediatric Surgery, 1858**  
*Dai H. Chung*
- 67 Neurosurgery, 1900**  
*Juan Ortega-Barnett, Aaron Mohanty, Sohun K. Desai, and Joel T. Patterson*
- 68 Plastic Surgery, 1938**  
*Mary H. McGrath and Jason H. Pomerantz*
- 69 Hand Surgery, 1975**  
*David Netscher, Kevin D. Murphy, Nicholas A. Fiore II*
- 70 Gynecologic Surgery, 2027**  
*Howard W. Jones III*
- 71 Surgery in the Pregnant Patient, 2053**  
*Dean J. Mikami, Jon C. Henry, and E. Christopher Ellison*
- 72 Urologic Surgery, 2068**  
*Thomas Gillispie Smith III and Michael Coburn*

**Index, 2107**



# VIDEO CONTENTS

## SECTION I SURGICAL BASIC PRINCIPLES

### 5 Metabolism in Surgical Patients

#### Video 5-1 Indirect Calorimetry

Noe A. Rodriguez, MD

#### Video 5-2 Body Composition and DEXA

Noe A. Rodriguez, MD

#### Video 5-3 Treadmill

Noe A. Rodriguez, MD

## SECTION II PERIOPERATIVE MANAGEMENT

### 15 Emerging Technology in Surgery: Informatics, Robotics, Electronics

#### Video 15-1 Robot-Assisted Resection

Guillermo Gomez, MD

## SECTION III TRAUMA AND CRITICAL CARE

### 17 The Difficult Abdominal Wall

#### Video 17-1 Novel Management of an Enteroatmospheric Fistula Using a "Floating Stoma"

Oliver L. Gunter

## SECTION IV TRANSPLANTATION AND IMMUNOLOGY

### 24 Transplantation Immunobiology and Immunosuppression

#### Video 24-1 Results of the World's First Successful Hand Transplant

Darla K. Granger, MD, Suzanne T. Ildstad, MD

## SECTION VIII ENDOCRINE

### 40 The Multiple Endocrine Neoplasia Syndromes

#### Video 40-1 Parathyroid Autotransplantation

Jeffrey F. Moley, MD

#### Video 40-2 Laparoscopic Adrenalectomy for Pheochromocytoma in Patients with MEN 2A

Jeffrey F. Moley, MD

## SECTION X ABDOMEN

### 47 Morbid Obesity

#### Video 47-1 Laparoscopic Roux-en-Y Gastric Bypass Surgical Technique

William O. Richards, MD

#### Video 47-2 Laparoscopic Adjustable Gastric Band Surgical Technique

William O. Richards, MD

### 50 The Appendix

#### Video 50-1 Laparoscopic Appendectomy

Jonathan Carter, MD

#### Video 50-2 Laparoscopic Appendectomy in Pregnant Patient

Lawrence W. Way, MD

#### Video 50-3 SILS Appendectomy Across a Spectrum of Disease Severity

Kazunori Sato, MD; Beemen N. Khalil, MD, Ranna Tabrizi, MD, Jonathan Carter, MD

### 55 Exocrine Pancreas

#### Video 55-1 Laparoscopic Spleen-Preserving Distal Pancreatectomy

Eric H. Jensen, MD

#### Video 55-2 Laparoscopic Vessel-Preserving, Spleen-Preserving Distal Pancreatectomy

Eric H. Jensen, MD

#### Video 55-3 Laparoscopic Cyst Gastrostomy

Eric H. Jensen, MD

## SECTION XI CHEST

### 57 Lung, Chest Wall, Pleura, and Mediastinum

#### Video 57-1 Pleural Effusion

Christopher J. Dente, MD, Grace S. Rozycki, MD, RDMS, FACS

#### Video 57-2 Pleural Sliding

Christopher J. Dente, MD, Grace S. Rozycki, MD, RDMS, FACS

#### Video 57-3 Pneumothorax

Grace S. Rozycki, MD, RDMS, FACS

## SECTION XII VASCULAR

### 61 Aorta

#### Video 61-1 Total Aortic Replacement

Hazim J. Safi, MD, Anthony L. Estrera, MD, Eyal E. Porat, MD, Aliz Azizzadeh, MD, Riad Meada, MD

### 64 Venous Disease

#### Video 64-1 TRIVEX 1

Jennifer Heller, MD

#### Video 64-2 TRIVEX 2

Jennifer Heller, MD

## SECTION XIII SPECIALTIES IN GENERAL SURGERY

### 70 Gynecologic Surgery

#### Video 70-1 Total Laparoscopic Hysterectomy with Right Salpingo-Oophorectomy

Amanda Yunker, DO, MSCR, Howard W. Jones III, MD

#### Video 70-2 Laparoscopic Right Salpingo-Oophorectomy

Amanda Yunker, DO, MSCR, Howard W. Jones III, MD