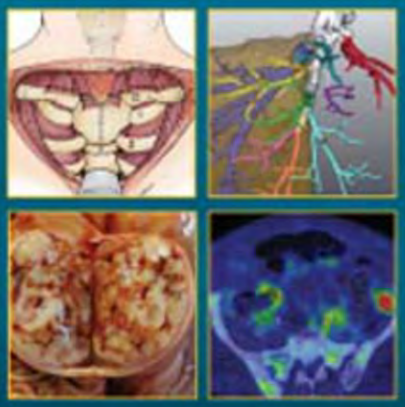
Expert CONSULT

Activate at expertconsult.com

Searchable Full Text Online

Shackelford's SURGERY of the ALIMENTARY TRACT

SEVENTH EDITION



VOLUME 1

CHARLES J. YEO

JEFFREY B. MATTHEWS
DAVID W. McFADDEN
JOHN H. PEMBERTON
JEFFREY H. PETERS

ELSEVIER
SAUNDERS

Searchable Full Text Online

Y of the ARY

VOLUME 2

CHARLES J. YEO

JEFFREY B. MATTHEWS
DAVID W. McFADDEN
JOHN H. PEMBERTON
JEFFREY H. PETERS

ELSEVIER
SAUNDERS

2-Volume Set

Shackelford's

SURGERY *of the* ALIMENTARY TRACT

SECTION EDITORS

VOLUME 1

Jeffrey H. Peters, MD

Seymour I. Schwartz Professor and Chairman
Department of Surgery
University of Rochester School of Medicine and Dentistry
Rochester, New York

Section I **Esophagus and Hernia**

David W. McFadden, MD

Professor and Chairman
Department of Surgery
University of Connecticut
Farmington, Connecticut

Section II **Stomach and Small Intestine**

VOLUME 2

Jeffrey B. Matthews, MD

Dallas B. Phemister Professor and Chairman
Department of Surgery
University of Chicago
Chicago, Illinois

Section III **Pancreas, Biliary Tract, Liver, and Spleen**

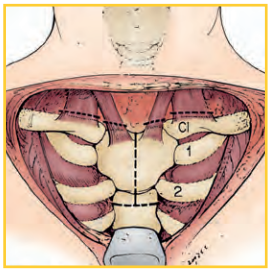
John H. Pemberton, MD

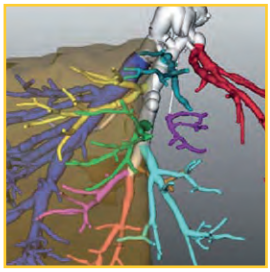
Professor of Surgery
Mayo Clinic College of Medicine
Consultant in Colon and Rectal Surgery
Mayo Clinic and Mayo Foundation
Rochester, Minnesota

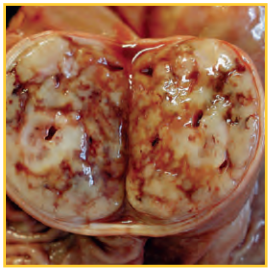
Section IV **Colon, Rectum, and Anus**

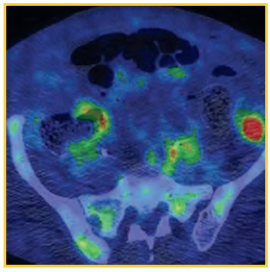
Shackelford's SURGERY *of the* ALIMENTARY TRACT

SEVENTH EDITION









VOLUME 1

Charles J. Yeo, MD

Samuel D. Gross Professor and Chairman

Department of Surgery

Thomas Jefferson University

Philadelphia, Pennsylvania

ELSEVIER
SAUNDERS

ELSEVIER
SAUNDERS

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

SHACKELFORD'S SURGERY OF THE ALIMENTARY TRACT ISBN: 978-1-4377-2206-2
Vol 1 PN: 9996084701
Vol 2 PN: 9996084760

Notices

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

With respect to any drug or pharmaceutical products identified, readers are advised to check the most current information provided (i) on procedures featured or (ii) by the manufacturer of each product to be administered, to verify the recommended dose or formula, the method and duration of administration, and contraindications. It is the responsibility of practitioners, relying on their own experience and knowledge of their patients, to make diagnoses, to determine dosages and the best treatment for each individual patient, and to take all appropriate safety precautions.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors assume any liability 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.

Library of Congress Cataloging-in-Publication Data

Shackelford's surgery of the alimentary tract / [edited by] Charles J. Yeo.—7th ed.
p. ; cm.
Surgery of the alimentary tract
Includes bibliographical references and index.
ISBN 978-1-4377-2206-2 (2 v. set : hardcover : alk. paper)
I. Yeo, Charles J. II. Title: Surgery of the alimentary tract.
[DNLM: 1. Digestive System Surgical Procedures—methods. 2. Digestive System Diseases—surgery. WI 900]
617.4′3—dc23

2012011563

Global Content Development Director: Judy Fletcher
Content Development Manager: Maureen Iannuzzi
Publishing Services Manager: Anne Altepeter
Associate Project Manager: Jessica L. Becher
Design Direction: Teresa McBryan

Printed in China

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

Contributors

Andrea M. Abbott, MD, MS
Surgical Resident, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Small Intestine

Herand Abcarian, MD
Professor of Surgery, University of Illinois; Chairman, Division of Colon and Rectal Surgery, John H. Stroger, Jr. Hospital of Cook County, Chicago, Illinois
Complete Rectal Prolapse

Wasef Abu-Jaish, MD
Assistant Professor, Department of Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Internal Hernias: Congenital and Acquired

David B. Adams, MD
Professor and Chief, Division of Gastrointestinal and Laparoscopic Surgery; Co-Director, Digestive Disease Center, Medical University of South Carolina, Charleston, South Carolina
Biliary Dyskinesia and Sphincter of Oddi Dysfunction

Julie E. Adams, MD
Associate Professor of Surgery, Vascular Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Aortoenteric Fistula and Visceral Artery Aneurysms

Andrew S. Akman, MD
Assistant Professor of Radiology, Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Steven R. Alberts, MD, MPH
Professor, Division of Medical Oncology, Mayo Clinic College of Medicine, Rochester, Minnesota
Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

Hisami Ando, MD
Professor, Chairman, and Chief of Pediatric Surgery, Department of Pediatric Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan
Cystic Disorders of the Bile Ducts

Leonard Armstrong, MD, MS
Surgical Resident, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Small Intestine

Vivian A. Asamoah, MD
Board Certified Gastroenterologist, Division of Medicine, Cypress Fairbanks Medical Center, Houston, Texas
Approach to the Patient With Abnormal Hepatic Laboratory Tests

Theodor Asgeirsson, MD
Assistant Director, Outcomes Research, Department of Colorectal Surgery, Spectrum Health, Grand Rapids, Michigan
Hemorrhoids

Stanley W. Ashley, MD
Chief Medical Officer, Brigham and Women's Hospital; Frank Sawyer Professor of Surgery, Harvard Medical School, Boston, Massachusetts
Operations for Peptic Ulcer

Dimitrios Avgerinos, MD
Clinical Fellow in Cardiothoracic Surgery, Department of Cardiothoracic Surgery, New York-Presbyterian Hospital, Weill Cornell Medical College, Memorial Sloan-Kettering Cancer Center, New York, New York
Abdominoperineal Resection of the Rectum for Cancer

H. Randolph Bailey, MD
Clinical Professor and Deputy Chief, Department of Surgery, Division of Colon and Rectal Surgery, Weill Cornell Medical College, Methodist Hospital, Houston, Texas
Pilonidal Disease

Humayun Bakhtawar, MBBS, MD
General Surgery Resident, Department of General Surgery, West Virginia University School of Medicine, Morgantown, West Virginia
Anatomy and Physiology of the Mesenteric Circulation

Santhoshi Bandla, PhD
Post-Doctoral Research Associate, Department of Surgery, University of Rochester Medical Center, James P. Wilmot Cancer Center, Rochester, New York
Genetics of Esophageal Cancer

John M. Barlow, MD
Assistant Professor, Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota
Imaging in Esophageal Disease

Todd H. Baron, Sr., MD
Professor, Department of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Rochester, Minnesota
Colonoscopy

Juan Camilo Barreto Andrade, MD
Surgical Oncology Fellow, Department of General Surgery, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Management of Secondary Hepatic Neoplasms

Lokesh Bathla, MD
Clinical Fellow, Abdominal Transplantation, Department of Surgery, University of Nebraska Medical Center, Omaha, Nebraska
Laparoscopic Inguinal Hernia Repair

Jennifer S. Beaty, MD
Assistant Professor of Surgery, University of Nebraska Medical Center, Creighton University School of Medicine, Omaha, Nebraska
Anal Sepsis and Fistula

David E. Beck, MD
Professor and Chairman, Department of Colon and Rectal Surgery, Ochsner Clinic, New Orleans, Louisiana; Ochsner Clinical School, The University of Queensland School of Medicine, Brisbane, Australia
Miscellaneous Disorders of the Rectum and Anus

David Beddy
Mayo Clinic College of Medicine, Rochester, Minnesota
Anatomy and Physiology of the Rectum and Anus Including Applied Anatomy

Alec C. Beekley, MD
Associate Professor, Department of Surgery, Thomas Jefferson University, Philadelphia, Pennsylvania
Operations for Morbid Obesity

Kevin E. Behrns, MD
Edward R. Woodward Professor and Chairman, Department of Surgery, University of Florida College of Medicine, Gainesville, Florida
Gastric Resection and Reconstruction

Kfir Ben-David, MD
Assistant Professor, Department of Surgery, University of Florida College of Medicine, Gainesville, Florida
Gastric Resection and Reconstruction

Jacques Bergman, MD, PhD
Professor of Gastrointestinal Endoscopy, Department of Gastroenterology and Hepatology, Academic Medical Center, Amsterdam, The Netherlands
Endoscopic Evaluation of the Esophagus

Marc Besselink, MD, PhD
Department of Surgery, University Medical Center Utrecht, Utrecht, The Netherlands
Acute Pancreatitis

Adil E. Bharucha, MBBS, MD
Professor, Department of Medicine, Mayo Clinic College of Medicine; Consultant, Department of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota
Physiology of the Colon and Its Measurement

Adrian Billeter, MD
Ferguson Fellow, Price Institute of Surgical Research, University of Louisville, Louisville, Kentucky
Traumatic Colorectal Injuries, Foreign Bodies, and Anal Wounds

Sylvester M. Black, MD, PhD
Clinical Fellow, Abdominal Transplantation and Hepato-Pancreato-Biliary Surgery, Department of Surgery, University of Toronto, Toronto, Ontario, Canada; Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Liver Abscess

Jeffrey A. Blatnik, MD
General Surgery Resident, Dudley P. Allen Research Scholar, Department of Surgery, University Hospitals Case Medical Center, Cleveland, Ohio
Ventral Herniation in Adults

Ronald Bleday, MD
Chief, Section of Colon and Rectal Surgery, Department of Surgery, Brigham and Women's Hospital; Associate Professor, Department of Surgery, Harvard Medical School, Boston, Massachusetts
Local Excision of Rectal Cancer

Brendan J. Boland, MD
Liver Transplant and Pancreaticobiliary Surgery, Cedars-Sinai Medical Center, Los Angeles, California
Perioperative Management and Nutrition in Patients With Liver and Biliary Tract Disease

Scott J. Boley, MD
Professor of Surgery and Pediatrics, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York
Colonic Bleeding and Ischemia

Luigi Bonavina, MD
Professor and Chairman, Department of Surgery, University of Milano Medical School, Milano, Italy
Surgical Management of Esophageal Diverticula

Eduardo A. Bonin, MD
Research Fellow, Developmental Endoscopy Unit, Mayo Clinic, Rochester, Minnesota; Professor, Minimally Invasive Surgery Graduate Program, Positivo University, Curitiba, Paraná, Brazil
Endoscopic Antireflux Repairs
Colonoscopy

Sarah Y. Boostrom, MD
Consultant, Colon and Rectal Surgery, Mayo Clinic, Rochester, Minnesota
Colonic Bleeding and Ischemia
Resection and Ablation of Metastatic Colorectal Cancer to the Liver

Thomas C. Bower, MD
Chair, Department of Vascular and Endovascular Surgery, Gonda Vascular Center, Mayo Clinic College of Medicine, Rochester, Minnesota
Colonic Bleeding and Ischemia

Jan Brabender, MD
Professor of Surgery, Chief, Department of General Surgery, St. Antonius Hospital, Cologne, North Rhine-Westphalia, Germany
Epidemiology, Risk Factors, and Clinical Manifestations of Esophageal Cancer

Malcolm V. Brock, MD
Associate Professor of Surgery and Oncology, Division of Thoracic Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Benign Tumors and Cysts of the Esophagus

Jill C. Buckley, MD
Trauma and Reconstructive Surgery, Department of Urology, Lahey Clinic Medical Center, Burlington, Massachusetts; Assistant Professor, Tufts University School of Medicine, Boston, Massachusetts
Rectovaginal and Rectourethral Fistulas

William J. Bulsiewicz, MD
Fellow, Gastrointestinal Outcomes Training Program, Division of Digestive Diseases, University of North Carolina Hospitals, Chapel Hill, North Carolina
Clinical Features and Endoscopic Therapy for Dysplastic Barrett Esophagus

Adele Burgess, MD
Colorectal Surgeon, Head, Colorectal Surgery, Department of Surgery, Austin Hospital, Heidelberg, Victoria, Australia
Pelvic Floor Dysfunction

Sathyaprasad C. Burjonrappa, MD
Assistant Professor of Surgery and Pediatrics, Westchester Medical Center, Valhalla, New York
Basic Features of Groin Hernia and Its Repair

Angel M. Caban, MD
Assistant Professor, Department of Surgery, University of Florida College of Medicine, Gainesville, Florida
Gastric Resection and Reconstruction

Jason A. Call, MD
Department of Radiation Oncology, Mayo Clinic College of Medicine, Rochester, Minnesota
Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

Mark P. Callery, MD
Associate Professor of Surgery, Harvard Medical School; Chief, Division of General Surgery, Beth Israel Deaconess Medical Center, Boston, Massachusetts
Prevention and Management of Complications of Pancreatic Surgery

John L. Cameron, MD
Alfred Blalock Distinguished Service Professor, Johns Hopkins University School of Medicine, Department of Surgery, Baltimore, Maryland
Pancreatic and Periampullary Cancer

Michael Camilleri, MD
Atherton and Winifred W. Bean Professor, Professor of Medicine and Physiology, Mayo Clinic College of Medicine; Consultant, Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota
Physiology of the Colon and Its Measurement

Peter W.G. Carne, MBBS
Senior Lecturer, Department of Surgery, Cabrini Monash University, Malvern, Victoria, Australia
Rare Colorectal Malignancies

Jennifer C. Carr, MD
Resident, Department of General Surgery, University of Iowa Hospitals and Clinics, Iowa City, Iowa
Small Bowel Diverticula

Emily Carter Paulson, MD
General Surgery, Division of Colorectal Surgery, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania
Evidence-Based Decision Making in Colon and Rectal Surgery

Riaz Cassim, MD
Associate Professor, Department of Surgery, West Virginia University School of Medicine, Morgantown, West Virginia; Chief of Surgery, Louis A. Johnson Veterans Affairs Medical Center, Clarksburg, West Virginia
Short Bowel Syndrome

Donald O. Castell, MD
Professor of Medicine, Medical University of South Carolina, Charleston, South Carolina
Physiology of the Esophagus and Its Sphincters
Multichannel Intraluminal Impedance

Peter Cataldo, MD
Professor of Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Ileostomy
Ostomy Management

Samuel Cemaj, MD
Assistant Professor, Creighton University School of Medicine, Omaha, Nebraska
Basic Features of Groin Hernia and Its Repair

Parakrama T. Chandrasoma, MD
Professor of Pathology, University of Southern California, Keck School of Medicine; Director, Anatomic and Surgical Pathology, University of Southern California Medical Center, Los Angeles, California
Pathology of Gastroesophageal Reflux Disease

George J. Chang, MD
Associate Professor, Department of Surgical Oncology, Associate Medical Director, Colorectal Center, Director, Clinical Operations, Minimally Invasive and New Technology in Oncologic Surgery Program, The University of Texas MD Anderson Cancer Center, Houston, Texas
Surgery in the Immunocompromised Patient

Vivek Chaudhry, MBBS
Head, Surgical Endoscopy, Clerkship Director, Department of Surgery, John H. Stroger, Jr. Hospital of Cook County; Clinical Assistant Professor of Colon and Rectal Surgery, University of Illinois, Chicago, Illinois
Complete Rectal Prolapse

Herbert Chen, MD
Layton F. Rikkers MD Chair in Surgical Leadership, Chairman and Professor, Division of General Surgery, Department of Surgery, University of Wisconsin, Madison, Wisconsin
Gastrointestinal Carcinoid Tumors

Clifford S. Cho, MD
Assistant Professor, Section of Surgical Oncology, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin
Biliary Tract Tumors

Eugene A. Choi, MD
Assistant Professor, Department of Surgery, Section of General Surgery, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Chronic Pancreatitis

Karen Chojnacki, MD
Associate Professor, Residency Program Director, Department of Surgery, Thomas Jefferson University, Philadelphia, Pennsylvania
Operative Management of Bile Duct Strictures

Michael A. Choti, MD
Jacob C. Handelsman Professor of Surgery, Vice-Chair, Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Management of Malignant Hepatic Neoplasms Other Than Hepatocellular Carcinoma

John D. Christein, MD
Associate Professor, Department of Surgery, University of Alabama at Birmingham, Birmingham, Alabama
Autologous Islet Cell Transplantation

Donald O. Christensen, DO
Chief, Anatomic Pathology, Medical Director, Transfusion Services, Department of Pathology, Carl R. Darnall Army Medical Center, Fort Hood, Texas
Anatomy and Physiology of the Spleen

Chike V. Chukwumah, MD
Fellow, Department of Endoscopic Surgery, University Hospitals Case Medical Center, Cleveland, Ohio
Diagnostic and Therapeutic Endoscopy of the Stomach and Small Bowel

Albert K. Chun, MD
Assistant Professor of Radiology, Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Robert R. Cima, MD, MA
Associate Professor, Department of Surgery, Division of Colon and Rectal Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Inflammatory Bowel Disease

Clancy J. Clark, MD
Hepatobiliary and Pancreatic Surgery Fellow, Department of Surgery, Division of Gastroenterology and General Surgery, Mayo Clinic, Rochester, Minnesota
Prevention and Management of Iatrogenic Bile Duct Injury

Pierre-Alain Clavien, MD, PhD
Professor and Chairman, Swiss Hepato-Pancreato-Biliary and Transplantation Center, Department of Surgery, University Hospital Zurich, Zurich, Switzerland
Benign Hepatic Neoplasms

Alfred M. Cohen, MD
Chief Medical Officer, Cancer Prevention Pharmaceuticals, Tucson, Arizona
Operations for Colorectal Cancer: Low Anterior Resection

Jeffrey Cohen, MD
Clinical Professor, Department of Surgery, University of Connecticut, Farmington, Connecticut; Lead Physician, Surgical Institute, Chief, Division of Colorectal Surgery, Hartford Hospital, Hartford, Connecticut
Diverticular Disease

Steven D. Colquhoun, MD
Associate Professor, Department of Surgery, University of California Los Angeles; Director, Liver Transplant Program, Cedars-Sinai Medical Center, Los Angeles, California
Perioperative Management and Nutrition in Patients With Liver and Biliary Tract Disease
Hepatic Transplantation

Willy Coosemans, MD, PhD
Clinical Head, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

Gene F. Coppa, MD
John D. Mountain MD Professor and Chairman of Surgery, Hofstra North Shore-Long Island Jewish School of Medicine, New York, New York
Anatomy and Physiology of the Liver
Anatomy and Physiology of the Spleen

Edward E. Cornwell, III, MD
LaSalle D. Leffall Jr., MD Professor and Chairman of Surgery, Howard University College of Medicine; Surgeon-in-Chief, Howard University Hospital, Washington, DC
Pancreatic Trauma

Daniel A. Cortez, MD
Surgical Pathology Fellow, Department of Pathology, University of Southern California Medical Center, Los Angeles, California
Pathology of Gastroesophageal Reflux Disease

Mario Costantini
Department of Surgical and Gastroenterological Sciences, University of Padua, Padua, Veneto, Italy
Laparoscopic Esophageal Myotomy: Techniques and Results

Daniel A. Craig, MD
Assistant Professor of Radiology, Mayo Clinic College of Medicine; Staff Radiologist, Mayo Clinic, Rochester, Minnesota
Imaging in Esophageal Disease

Peter F. Crookes, MD
Associate Professor of Surgery, University of Southern California, Keck School of Medicine, Los Angeles, California
Esophageal Caustic Injury

Joseph J. Cullen, MD
Professor, Department of Surgery, University of Iowa Hospitals and Clinics, Iowa City, Iowa
Small Bowel Diverticula

Alexandre d'Audiffret, MD
Associate Professor of Surgery, Section of Vascular and Endovascular Surgery, West Virginia University School of Medicine, Robert C. Byrd Health Science Center, Morgantown, West Virginia
Anatomy and Physiology of the Mesenteric Circulation

Herbert Decaluwé, MD
Joint Clinical Head, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

Georges Decker, MD
Staff Surgeon, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

Thomas C.B. Dehn, MD
Consultant, Upper Gastrointestinal Surgeon, Department of Surgery, Royal Berkshire Hospital, Reading, Berkshire, United Kingdom
Palliative Treatment of Cancer of the Esophagus

Paul De Leyn, MD, PhD
Chairman, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

Steven R. DeMeester, MD
Associate Professor of Cardiothoracic Surgery, University of Southern California, Keck School of Medicine, Los Angeles, California
Pathophysiology of the Columnar-Lined Esophagus

Tom R. DeMeester, MD
Professor and Chairman Emeritus, Department of Surgery, University of Southern California, Keck School of Medicine, Los Angeles, California
Perspectives on Esophageal Surgery
The Gastroesophageal Barrier

Aram N. Demirjian, MD
Assistant Professor, Division of Hepatobiliary and Pancreas Surgery, University of California, Irvine, Irvine, California
Diagnostic Operations of the Liver and Techniques of Hepatic Resection

Anthony L. DeRoss, MD
Assistant Professor of Surgery and Pediatrics, Department of Surgery, Division of Pediatric Surgery, Rainbow Babies and Children's Hospital, Cleveland, Ohio
Surgical Diseases of the Stomach and Duodenum in Infants and Children

Eduardo de Santibañes, MD, PhD, MAAC
Professor and Chairman, General Surgical Service and Liver Transplant Unit, Italian Hospital of Buenos Aires, Buenos Aires, Argentina
Anatomy and Physiology of the Liver

John H. Donohue, MD
Professor, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Splenectomy for Conditions Other Than Trauma

Eric J. Dozois, MD
Professor of Surgery, Division of Colon and Rectal Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Retrorectal Tumors

Brian J. Dunkin, MD
Professor of Clinical Surgery, Weill Cornell Medical College; Head, Section of Endoscopic Surgery, Methodist Hospital; Medical Director, Methodist Institute for Technology, Innovation, and Education, Houston, Texas
Intubation of the Stomach and Small Intestine

Stephen P. Dunn, MD
Chief, Pediatric Surgery and Solid Organ Transplantation, Alfred I. duPont Hospital for Children; Professor of Surgery, Jefferson Medical College, Wilmington, Delaware
Biliary Atresia, Biliary Hypoplasia, and Choledochal Cyst

Christy M. Dunst, MD
Director, Research and Education, Division of Gastrointestinal and Minimally Invasive Surgery, The Oregon Clinic, Portland, Oregon
Partial Fundoplications

Andre Duranceau, MD
Professor of Surgery, Division of Thoracic Surgery, University of Montreal Hospital Center, Montreal, Quebec, Canada
Disorders of the Pharyngoesophageal Junction

Noreen Durrani, MD
Assistant Professor, Department of Surgery, Division of Acute Care Surgery, University of Florida College of Medicine, Jacksonville, Florida
Gastric, Duodenal, and Small Intestinal Fistulas

Philipp Dutkowski, MD
Professor of Surgery, Swiss Hepato-Pancreato-Biliary and Transplantation Center, Department of Surgery, University Hospital Zurich, Zurich, Switzerland
Benign Hepatic Neoplasms

Barish H. Edil, MD
Assistant Professor of Surgery and Oncology, Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Pancreatic and Periampullary Cancer

Jonathan E. Efron, MD
Associate Professor, Mark M. Ravitch Endowed Professorship in Surgery, Chief, Ravitch Division, Johns Hopkins University School of Medicine, Baltimore, Marlyand
Neoplasms of the Anus

Yousef El-Gohary, MD
Pediatric Surgical Research Fellow, Department of Pediatric Surgery, Children's Hospital of Pittsburgh, Pittsburgh, Pennsylvania
Anatomy, Physiology, and Embryology of the Pancreas

E. Christopher Ellison, MD
Robert M. Zollinger Professor and Chair, Department of Surgery, Ohio State University, Columbus, Ohio
Zollinger–Ellison Syndrome

Scott A. Engum, MD
Professor of Surgery, Section of Pediatric Surgery, Indiana University School of Medicine, Riley Hospital for Children, Indianapolis, Indiana
Anorectal Anomalies

Warren E. Enker, MD
Director, Department of Surgery, Gastrointestinal Institute, Beth Israel Deaconess Medical Center; Associate Director, Beth Israel Cancer Centers, New York, New York
Abdominoperineal Resection of the Rectum for Cancer

David A. Etzioni, MD, MSHS
Associate Professor, Department of Surgery, Mayo Clinic College of Medicine, Phoenix, Arizona
Laparoscopic Colorectal Surgery

Douglas B. Evans, MD
Professor and Chairman, Department of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin
Unusual Pancreatic Tumors

Victor W. Fazio, AO, MBBS
Rupert Turnbull Professor of Surgery, Department of Colorectal Surgery, Chairman Emeritus, Digestive Disease Institute, Cleveland Clinic Lerner College of Medicine, Case Western Reserve University, Cleveland, Ohio
Reoperative Pelvic Surgery

Edward L. Felix, MD
Director, Center for Hernia Repair, Fresno, California
Femoral Hernia

Aaron S. Fink, MD
Chief Surgical Consultant, Veterans Affairs Southeast Network 7; Attending Surgeon, Veterans Affairs Medical Center, Decatur, Georgia; Professor of Surgery, Emory University School of Medicine, Atlanta, Georgia
Anatomy and Physiology of the Duodenum

James Fisher, MD
General Surgery Residency, Mayo Clinic, Rochester, Minnesota
Fulminant Hepatic Failure and Liver Support Systems

Robert J. Fitzgibbons, Jr., MD
Harry E. Stuckenhoff Professor and Associate Chairman, Creighton University School of Medicine; Chief, Division of General Surgery, Department of Surgery, Creighton University Medical Center, Omaha, Nebraska
Basic Features of Groin Hernia and Its Repair
Laparoscopic Inguinal Hernia Repair

Evan L. Fogel, MD
Professor of Clinical Medicine, Division of Gastroenterology and Hepatology, Indiana University School of Medicine, Indianapolis, Indiana
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Yuman Fong, MD
Murray F. Brennan Chair in Surgery, Memorial Sloan-Kettering Cancer Center; Professor, Department of Surgery, Weill Cornell Medical College, New York, New York
Biliary Tract Tumors

Debra H. Ford, MD
Associate Professor and Vice-Chairman, Department of Surgery, Head, Section of Colon and Rectal Surgery, Howard University College of Medicine, Washington, DC
Pilonidal Disease

Patrick Forgione, MD
Associate Professor of Surgery, Director, Bariatric and Metabolic Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Internal Hernias: Congenital and Acquired

John B. Fortune, MD
Professor and Vice-Chair, Department of Surgery, Medical Director, Trauma Services, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Injuries to the Stomach, Duodenum, and Small Bowel

Danielle M. Fritze, MD
Resident, Department of Surgery, University of Michigan, Ann Arbor, Michigan
Hepatic Cyst Disease

Karl-Hermann Fuchs, MD
Professor of Surgery, Department of General, Gastrointestinal, and Thoracic Surgery, Agaplesion Markus Krankenhaus, Frankfurt am Main, Germany
Tests of Gastric Function and Their Use in the Evaluation of Esophageal Disease

Brian Funaki, MD
Professor of Radiology, Chief, Vascular and Interventional Radiology, University of Chicago Medical Center; Editor-in-Chief, Seminars in Interventional Radiology, Chicago, Illinois
Imaging and Radiologic Intervention in the Pancreas

Thomas R. Gadacz, MD
Professor Emeritus, Past Chairman, Department of Surgery, Georgia Health Sciences University, St. Petersburg, Florida
Anatomy, Embryology, Anomalies, and Physiology

Susan Galandiuk, MD
Professor of Surgery, Director, Division of Colon and Rectal Surgery and Price Institute of Surgical Research, University of Louisville, Louisville, Kentucky; Honorary Professor of Translational Surgical Research, Blizard Institute of Cell and Molecular Science, Barts and the London School of Medicine and Dentistry, The Queen Mary University of London, London, United Kingdom
Traumatic Colorectal Injuries, Foreign Bodies, and Anal Wounds

David Geller, MD
Richard L. Simmons Professor of Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania
Minimally Invasive Techniques of Hepatic Resection

George K. Gittes, MD
Professor of Surgery, Division of Pediatric Surgery, University of Pittsburgh School of Medicine; Surgeon-in-Chief, Children's Hospital of Pittsburgh, Pittsburgh, Pennsylvania
Anatomy, Physiology, and Embryology of the Pancreas

Christopher A. Gitzelmann, MD
Associate Professor of Surgery, Division of Pediatric Surgery, Golisano Children's Hospital, University of Rochester Medical Center, Rochester, New York
Congenital Disorders of the Esophagus

Tony E. Godfrey, PhD
Associate Professor of Surgery and Biomedical Genetics, University of Rochester Medical Center, James P. Wilmot Cancer Center, Rochester, New York
Genetics of Esophageal Cancer

Matthew I. Goldblatt, MD
Associate Professor of General Surgery, Department of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin
Appendix

Hein G. Gooszen, MD, PhD
Professor of Surgery, Department OR, MITeC, Evidence Based Surgery, Radboud University Nijmegen Medical Center, Nijmegen, The Netherlands
Acute Pancreatitis

Gregory J. Gores, MD
Reuben R. Eisenberg Professor of Medicine, Department of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota
Primary Sclerosing Cholangitis

Yogesh Govil, MD
Attending Physician, Division of Gastroenterology and Nutrition, Department of Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, Philadelphia, Pennsylvania
Medical Therapy for Gastroesophageal Reflux Disease

Kimberly Grant, MD
Research Fellow, Department of Surgery, Division of Thoracic and Foregut Surgery, University of Southern California, Keck School of Medicine, Los Angeles, California
Surgical Treatment of Cancer of the Esophagus and Esophagogastric Junction

Sarah E. Greer, MD, MPH
Instructor, Department of Surgery, Dartmouth Medical School, Hanover, New Hampshire; Resident, Department of Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire
Foreign Bodies and Bezoars of the Stomach and Small Intestine

Jay L. Grosfeld, MD
Lafayette Page Professor Emeritus of Pediatric Surgery, Section of Pediatric Surgery, Indiana University School of Medicine, Riley Hospital for Children, Indianapolis, Indiana
Anorectal Anomalies

José G. Guillem, MD, MPH
Attending Surgeon, Department of Surgery, Memorial Sloan-Kettering Cancer Center; Professor of Surgery, Weill Cornell Medical College, New York, New York
Colorectal Polyps and Polyposis Syndromes

Jeffrey A. Hagen, MD
Associate Professor of Surgery, Chief, Division of Thoracic Surgery, Director, General Surgery Residency, University of Southern California, Keck School of Medicine, Los Angeles, California
Surgical Treatment of Cancer of the Esophagus and Esophagogastric Junction

Jason F. Hall, MD
Surgeon, Department of Colon and Rectal Surgery, Lahey Clinic Medical Center, Burlington, Massachusetts; Assistant Professor, Department of Surgery, Tufts University School of Medicine, Boston, Massachusetts
Colonic Intussusception and Volvulus

Christopher L. Hallemeier, MD
Department of Radiation Oncology, Mayo Clinic College of Medicine, Rochester, Minnesota
Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

Peter T. Hallowell, MD
Assistant Professor, Department of Surgery, University of Virginia Health System, Charlottesville, Virginia
Reoperative Surgery of the Stomach and Duodenum

Amy P. Harper, ACNP-BC
Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Ioannis S. Hatzaras, MD, MPH
Chief Resident, General Surgery, Department of Surgery, Ohio State University, Columbus, Ohio
Zollinger–Ellison Syndrome

Elliott R. Haut, MD
Associate Professor of Surgery, Anesthesiology and Critical Care Medicine, and Emergency Medicine, Division of Acute Care Surgery, Department of Surgery, Johns Hopkins University School of Medicine; Director, Trauma and Acute Care Surgery Fellowship, Johns Hopkins Hospital, Baltimore, Maryland
Pancreatic Trauma

William S. Havron, III, MD
Assistant Professor, Department of Surgery, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
Vagotomy and Drainage

Richard F. Heitmiller, III, MD
Chief of Surgery, Union Memorial Hospital, Baltimore, Maryland
Benign Tumors and Cysts of the Esophagus

J. Michael Henderson, MB, ChB
Chief Quality Officer, Professor, Department of Surgery, Cleveland Clinic, Cleveland, Ohio
Multidisciplinary Approach to the Management of Portal Hypertension

H. Franklin Herlong, MD
Associate Professor of Medicine, Division of Gastroenterology, Johns Hopkins University School of Medicine, Baltimore, Maryland
Approach to the Patient With Abnormal Hepatic Laboratory Tests

O. Joe Hines, MD
Professor and Chief, Division of General Surgery, Director, Surgery Residency Program, Department of Surgery, University of California Los Angeles, David Geffen School of Medicine, Los Angeles, California
Anatomy and Physiology of the Stomach

Fuyuki Hirashima, MD
General Surgery Resident, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Aortoenteric Fistula and Visceral Artery Aneurysms

Wayne L. Hofstetter, MD
Associate Professor, Director, Esophageal Surgery, Department of Thoracic and Cardiovascular Surgery, The University of Texas MD Anderson Cancer Center, Houston, Texas
Multimodality Treatment for Potentially Resectable Esophageal Cancer

Arnulf H. Hölscher, MD
Professor of Surgery, Chairman, Department of General, Visceral, and Cancer Surgery, University of Cologne, Cologne, Germany
Epidemiology, Risk Factors, and Clinical Manifestations of Esophageal Cancer

Roel Hompes, MD
Senior Clinical and Research Fellow, Department of Colon and Rectal Surgery, Churchill Hospital, Oxford, United Kingdom
Transanal Endoscopic Microsurgery

Toshitaka Hoppo, MD, PhD
Research Assistant Professor, Department of Cardiothoracic Surgery, Division of Thoracic and Foregut Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
Endoscopic Antireflux Repairs

Philip J. Huber, Jr., MD
Colon Rectal Surgeon, Medical City Dallas Hospital, Dallas, Texas
Fissure-in-Ano

Tracy Hull, MD
Professor of Surgery, Holder, Shafran Family Charitable Trust Endowed Chair, Department of Colon and Rectal Surgery, Digestive Disease Institute, Cleveland Clinic, Cleveland, Ohio
Pelvic Floor Dysfunction

Eric S. Hungness, MD
Assistant Professor, Department of Surgery, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Management of Common Bile Duct Stones

John G. Hunter, MD
Mackenzie Professor and Chair, Department of Surgery, Oregon Health & Science University; Editor-in-Chief, World Journal of Surgery, Portland, Oregon
Laparoscopic and Open Nissen Fundoplication

James E. Huprich, MD
Associate Professor of Radiology, Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota
Imaging in Esophageal Disease

Hero K. Hussain, MD
Associate Professor, Chief, Body Magnetic Resonance Imaging, Director, Clinical Magnetic Resonance Imaging Services, University of Michigan Health System, Ann Arbor, Michigan
Hepatic Cyst Disease

Neil Hyman, MD
Samuel B. and Michelle D. Labow Green and Gold Professor of Surgery, Co-Director, Digestive Disease Center, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Ostomy Management

Jennifer L. Irani, MD
Division of Colon and Rectal Surgery, Department of Surgery, Brigham and Women's Hospital; Instructor of Surgery, Harvard Medical School, Boston, Massachusetts
Local Excision of Rectal Cancer

Emily T. Jackson, ACNP-BC
Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Danny O. Jacobs, MD, MPH
David C. Sabiston Jr. Professor and Chair, Duke University School of Medicine; Department of Surgery, Duke University Hospital, Durham, North Carolina
Volvulus of the Stomach and Small Bowel

Eric H. Jensen, MD
Assistant Professor, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Small Intestine

Catherine Jephcott, BM, BCh, MRCP, MA
Department of Oncology, Peterborough City Hospital, Bretton Gate, Peterborough, United Kingdom
Palliative Treatment of Cancer of the Esophagus

Blair A. Jobe, MD
Sampson Family Endowed Professor of Thoracic Oncology, Department of Cardiothoracic Surgery, Division of Thoracic and Foregut Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
Endoscopic Antireflux Repairs

Michael Johnston, MD
Director, Colorectal Clinic, Department of Colorectal Surgery, St. Vincent's Hospital, University of Melbourne, Melbourne, Victoria, Australia
Rare Colorectal Malignancies

Jeffrey Jorden, MD
Assistant Professor of Surgery, Division of Colon and Rectal Surgery, University of Louisville, Louisville, Kentucky
Traumatic Colorectal Injuries, Foreign Bodies, and Anal Wounds

Paul Joyner, MD
Integrated General Surgery Residency Program, University of Connecticut, Farmington, Connecticut
Diverticular Disease

Lucas A. Julien, MD
Colorectal Fellow, Department of Surgery, Creighton University School of Medicine, Omaha, Nebraska
Anal Sepsis and Fistula

Peter J. Kahrilas, MD
Gilbert H. Marquardt Professor, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Techniques of High-Resolution Esophageal Manometry, Classification and Treatment of Spastic Esophageal Motility Disorders

Ronald Kaleya, MD
Professor of Clinical Surgery, Department of Surgery, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York
Colonic Bleeding and Ischemia

Elika Kashef, MBBS, MRCS
Attending Physician, Department of Radiology, Imperial College Healthcare NHS Trust, London, United Kingdom
Hepatocellular Carcinoma

Philip Katz, MD
Chairman, Division of Gastroenterology, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York; Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, Pennsylvania
Medical Therapy for Gastroesophageal Reflux Disease

Tara Kent, MD
Department of Surgery, Beth Israel Deaconess Medical Center; Instructor of Surgery, Harvard Medical School, Boston, Massachusetts
Prevention and Management of Complications of Pancreatic Surgery

Nadia J. Khati, MD
Assistant Professor, Department of Radiology, The George Washington University School of Medicine and Health Sciences, Washington, DC
Imaging and Intervention in the Biliary System

Jonathan C. King, MD
Resident, Department of Surgery, University of California Los Angeles, Los Angeles, California
Anatomy and Physiology of the Stomach

Nicole A. Kissane, MD
Assistant in Surgery, Division of General and Gastrointestinal Surgery, Massachusetts General Hospital, Boston, Massachusetts
Paraesophageal and Other Complex Diaphragmatic Hernias

Andrew S. Klein, MD
Director, Comprehensive Transplant Center, Professor and Vice-Chair, Department of Surgery, Esther and Mark Shulman Chair, Transplant Medicine and Surgery, Cedars-Sinai Medical Center, Los Angeles, California
Hepatic Transplantation

Dean E. Klinger, MD
Associate Professor, Department of Surgery, Medical College of Wisconsin; Staff Surgeon, Department of Surgery, Zablocki Veterans Affairs Medical Center, Milwaukee, Wisconsin
Small Bowel Obstruction

Jennifer Knight, MD
Assistant Professor of Trauma and Surgical Critical Care, Department of Surgery, West Virginia University School of Medicine, Morgantown, West Virginia
Mesenteric Arterial Trauma

Issam Koleilat, MD
General Surgery Resident, Department of Surgery, Albany Medical Center, Albany, New York
Gastrointestinal Lymphomas

Robert Kozol, MD
Professor, Department of Surgery, University of Miami; Program Director, Department of Surgery, University of Miami Regional Campus, Atlantis, Florida
Miscellaneous Benign Lesions and Conditions of the Stomach, Duodenum, and Small Intestine

Seth B. Krantz, MD
Research Fellow, Department of Surgery, Robert H. Lurie Comprehensive Cancer Center, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Ablative Therapies for Hepatic Neoplasms

Daniela Ladner, MD, MPH
Assistant Professor of Surgery, Division of Transplant Surgery, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Neuroendocrine Tumors of the Pancreas

Alexander Langerman, MD
Assistant Professor of Surgery, Section of Otolaryngology, Head, and Neck Surgery, University of Chicago Medical Center, Chicago, Illinois
Epidemiology, Pathophysiology, and Clinical Features of Achalasia

David W. Larson, MD
Associate Professor, Department of Surgery, Mayo Clinic College of Medicine; Consultant, Mayo Clinic, Rochester, Minnesota
Surgery for Inflammatory Bowel Disease: Crohn Disease

Simon Law, MBBChir
Professor and Chief, Division of Esophageal and Upper Gastrointestinal Surgery, Department of Surgery, University of Hong Kong, Pokfulam, Hong Kong
Esophageal Cancer: Current Staging Classifications and Techniques

Leo P. Lawler, MD
Mater Misericordiae University Hospital, Dublin, Ireland
Minimally Invasive Surgical and Image-Guided Interventional Approaches to the Spleen

Konstantinos N. Lazaridis, MD
Associate Professor of Medicine, Division of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Rochester, Minnesota
Primary Sclerosing Cholangitis

Yi-Horng Lee, MD
Assistant Professor, Department of Surgery, Golisano Children's Hospital, University of Rochester Medical Center, Rochester, New York
Congenital Disorders of the Esophagus

Yoori Lee, MD
Division of Colorectal Surgery, Department of Biostatistics and Computational Biology, University of Rochester Medical Center, Rochester, New York
Lumbar and Pelvic Hernias

Jérémie H. Lefèvre, MD
Associate Professor, Department of General and Digestive Surgery, Hospital Saint-Antoine, Pierre and Marie Curie University, Paris, France
Coloanal Anastomosis and Intersphincteric Resection

Glen A. Lehman, MD
Professor of Medicine and Radiology, Division of Digestive and Liver Disorders, Indiana University Medical Center, Indianapolis, Indiana
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Toni Lerut, MD, PhD
Professor of Surgery, University of Leuven Medical School, Chairman Emeritus, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

David M. Levi, MD
Professor of Clinical Surgery, Miami Transplant Institute, DeWitt Daughtry Family Department of Surgery, University of Miami, Miller School of Medicine, Miami, Florida
Vascular Diseases of the Liver

Anne Lidor, MD, MPH
Assistant Professor, Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Management of Splenic Trauma in Adults

Dorothea Liebermann-Meffert, MD
Professor of Surgery, Department of General Surgery, Rechts der Isar Hospital, Technical University of Munich, Munich, Germany
Human Foregut Anatomy, Adjacent Structures, and Their Relation to Surgical Approaches
Clinically Related Prenatal Foregut Development and Abnormalities in the Human

Joseph Lillegard, MD, PhD
Instructor of Surgery, Department of Gastrointestinal and General Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Fulminant Hepatic Failure and Liver Support Systems

Keith D. Lillemoe, MD
W. Gerald Austen Professor, Harvard Medical School; Surgeon-in-Chief, Massachusetts General Hospital, Boston, Massachusetts
Pseudocysts and Other Complications of Pancreatitis

Virginia R. Litle, MD
Associate Professor, Department of Surgery, University of Rochester Medical Center, Rochester, New York
Genetics of Esophageal Cancer

Donald C. Liu, MD, PhD
Mary Campau Ryerson Professor and Surgeon-in-Chief, University of Chicago, Comer Children's Hospital; Vice-Chairman, Department of Surgery, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Management of Splenic Trauma in Children

Edward V. Loftus, Jr., MD
Professor of Medicine, Director, Inflammatory Bowel Disease Interest Group, Division of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Rochester, Minnesota
Inflammatory Bowel Disease

Miguel Lopez-Viego, MD
General and Vascular Surgery, University of Miami, Miller School of Medicine, Miami, Florida
Miscellaneous Benign Lesions and Conditions of the Stomach, Duodenum, and Small Intestine

Reginald V.N. Lord, MD
Department of Surgery, St. Vincent's Hospital, University of New South Wales, Sydney, Australia
History and Definition of Barrett Esophagus

Val J. Lowe, MD
Department of Radiology, Mayo Clinic, Rochester, Minnesota
Imaging in Esophageal Disease

Georg Lurje, MD
Chief Resident, Swiss Hepato-Pancreato-Biliary and Transplantation Center, Department of Surgery, University Hospital Zurich, Zurich, Switzerland
Benign Hepatic Neoplasms

Calvin Lyons, Jr., MD
Research Fellow, Methodist Institute for Technology, Innovation, and Education, Methodist Hospital, Houston, Texas
Intubation of the Stomach and Small Intestine

Robert L. MacCarty, MD
Professor Emeritus, Department of Diagnostic Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota
Imaging in Esophageal Disease

Robert D. Madoff, MD
Stanley M. Goldberg, MD, Chair in Colon and Rectal Surgery, Chief, Division of Colon and Rectal Surgery, Professor, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Diagnosis and Management of Fecal Incontinence

Anurag Maheshwari, MD
Institute for Digestive Health and Liver Disease, Mercy Medical Center, Baltimore, Maryland
Drug-Induced Liver Disease

Najjia N. Mahmoud, MD
Associate Professor, Department of Surgery, University of Pennsylvania, Philadelphia, Pennsylvania
Evidence-Based Decision Making in Colon and Rectal Surgery

David M. Mahvi, MD
James R. Hines Professor, Chief, Gastrointestinal and Surgical Oncology, Department of Surgery, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Ablative Therapies for Hepatic Neoplasms

Massimo Malagó, MD
Professor, Department of Surgery and Interventional Sciences, University College London; Consultant Surgeon, Royal Free Hospital, London, United Kingdom
Anatomy and Physiology of the Liver

Patrick Mannal, MD
General Surgery Resident, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Adenocarcinoma of the Stomach, Duodenum, and Small Intestine

Michael R. Marohn, DO
Associate Professor, Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Minimally Invasive Surgical and Image-Guided Interventional Approaches to the Spleen

David J. Maron, MD
Staff Surgeon, Department of Colorectal Surgery, Cleveland Clinic Florida, Weston, Florida
Surgical Treatment of Constipation

Joseph E. Martz, MD
Director, Colon and Rectal Surgery, Department of Surgery, Beth Israel Deaconess Medical Center, New York, New York
Abdominoperineal Resection of the Rectum for Cancer

Kellie L. Mathis, MD
General Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Recurrent and Metatstatic Colorectal Cancer

Douglas Mathisen, MD
Hermes C. Grillo Professor of Surgery, Chief, Division of Thoracic Surgery, Massachusetts General Hospital, Boston, Massachusetts
Techniques of Esophageal Reconstruction

Jeffrey B. Matthews, MD
Dallas B. Phemister Professor and Chairman, Department of Surgery, University of Chicago, Chicago, Illinois
Chronic Pancreatitis

Laurence E. McCahill, MD
Director, Department of Surgical Oncology, Richard J. Lacks Cancer Center, Saint Mary's Health Care; Professor of Surgery, Michigan State University, College of Human Medicine, Grand Rapids, Michigan
Gastrointestinal Stromal Tumors

David A. McClusky, III, MD
Assistant Professor, Associate Chief-of-Surgery, Section Chief, General Surgery, Atlanta Veterans Affairs Medical Center; Department of Surgery, Emory University School of Medicine, Atlanta, Georgia
Anatomy and Physiology of the Duodenum

David W. McFadden, MD
Professor and Chairman, Department of Surgery, University of Connecticut, Farmington, Connecticut
Adenocarcinoma of the Stomach, Duodenum, and Small Intestine

Lee McHenry, Jr., MD
Professor of Medicine, Department of Medicine, Division of Gastroenterology and Hepatology, Gastrointestinal Cancer Program, Melvin and Bren Simon Cancer Center, Indiana University School of Medicine; Medical Director, Indiana University Health Springmill Medicine Clinics, Indianapolis, Indiana
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Paul J. McMurrick, MBBS
Associate Professor of Surgery, Frolich-West Chair of Surgery, Head, Cabrini Monash University, Malvern, Victoria, Australia
Rare Colorectal Malignancies

Anthony S. Mee, MD
Consultant Gastroenterologist, Royal Berkshire Hospital, Reading, Berkshire, United Kingdom
Palliative Treatment of Cancer of the Esophagus

John E. Meilahn, MD
Director, Bariatric Surgery, Associate Professor, Department of Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania
Motility Disorders of the Stomach and Small Intestine

Fabrizio Michelassi, MD
Lewis Atterbury Stimson Professor, Chairman, Department of Surgery, Weill Cornell Medical College; Surgeon-in-Chief, New York-Presbyterian Hospital, New York, New York
Crohn Disease: General Considerations, Medical Management, and Surgical Treatment of Small Intestinal Disease

Robert C. Miller, MD
Professor, Department of Radiation Oncology, Mayo Clinic College of Medicine, Rochester, Minnesota
Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

Thomas A. Miller, MD
Ammons Distinguished Professor of Surgery, Department of Surgery, Virginia Commonwealth University School of Medicine; Chief of General Surgery, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, Virginia
Postgastrectomy Syndromes

J. Michael Millis, MD
Professor of Surgery, Director, University of Chicago Transplant Center; Chief, Section of Transplantation, Liver Transplantation, and Hepatobiliary Surgery, University of Chicago, Chicago, Illinois
Pancreas and Islet Allotransplantation

Ryosuke Misawa, MD, PhD
Associate Research Scientist, Department of Surgery, University of Chicago, Chicago, Illinois
Pancreas and Islet Allotransplantation

Sumeet Mittal, MBBS
Associate Professor, Department of Surgery, Creighton University School of Medicine; Director, Esophageal Center, Creighton University Medical Center, Omaha, Nebraska
Reflux Strictures and Short Esophagus

Ernesto P. Molmenti, MD, PhD
Vice-Chairman, Department of Surgery, Director, Transplant Program, North Shore University Hospital, Manhasset, New York; Professor of Surgery and Medicine, Hofstra North Shore-Long Island Jewish School of Medicine, New York, New York
Anatomy and Physiology of the Liver
Anatomy and Physiology of the Spleen

John R.T. Monson, MD
Professor of Surgery and Oncology, Chief, Division of Colorectal Surgery, Vice-Chairman, Department of Surgery, University of Rochester Medical Center, Rochester, New York
Lumbar and Pelvic Hernias

Jesse Moore, MD
Fellow, Department of Colon and Rectal Surgery, Mayo Clinic, Rochester, Minnesota
Ileostomy

Katherine A. Morgan, MD
Associate Professor, Section of Gastrointestinal and Laparoscopic Surgery, Medical University of South Carolina, Charleston, South Carolina
Biliary Dyskinesia and Sphincter of Oddi Dysfunction

Christopher R. Morse, MD
Instructor of Surgery, Division of Thoracic Surgery, Massachusetts General Hospital, Boston, Massachusetts
Techniques of Esophageal Reconstruction

Neil J. Mortensen, MB, ChB, MA, MD
Professor of Colorectal Surgery, Department of Colorectal Surgery, Oxford University Hospitals, Churchill Hospital, Oxford, United Kingdom
Anatomy and Embryology of the Colon
Transanal Endoscopic Microsurgery

Melinda M. Mortenson, MD
Surgical Oncology, Department of Surgery, Kaiser Permanente Medical Group, Sacramento, California
Unusual Pancreatic Tumors

Ruth Moxon, MSc
Upper Gastrointestinal Clinical Nurse Specialist, Royal Berkshire Hospital, Reading, Berkshire, United Kingdom
Palliative Treatment of Cancer of the Esophagus

Michael W. Mulholland, MD, PhD
Professor of Surgery, Department of Surgery, University of Michigan, Ann Arbor, Michigan
Hepatic Cyst Disease

Ido Nachmany, MD
Hepato-Pancreato-Biliary and Transplantation Clinical Fellow, Starzl Transplantation Institute, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
Minimally Invasive Techniques of Hepatic Resection

Philippe Nafteux, MD
Clinical Head, Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

David M. Nagorney, MD
Professor of Surgery, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Splenectomy for Conditions Other Than Trauma
Resection and Ablation of Metastatic Colorectal Cancer to the Liver

Govind Nandakumar, MD
Assistant Professor, Department of Surgery, Weill Cornell Medical College, New York, New York
Crohn Disease: General Considerations, Medical Management, and Surgical Treatment of Small Intestinal Disease

Bala Natarajan, MBBS
Surgery Resident, Creighton University Medical Center, Omaha, Nebraska
Basic Features of Groin Hernia and Its Repair

Heidi Nelson, MD
Fred C. Andersen Professor of Surgery, Chair, Division of Surgery Research, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Recurrent and Metastatic Colorectal Cancer

Jeffrey M. Nicastro, MD
Assistant Professor of Surgery, Vice-Chairman, Department of Surgery, Chief, Division of Acute Care Surgery, Hofstra North Shore-Long Island Jewish School of Medicine, New York, New York
Anatomy and Physiology of the Liver
Anatomy and Physiology of the Spleen

Ankesh Nigam, MD
Associate Professor of Surgery, Director, Surgical Oncology Program, Department of Surgery, Albany Medical College, Albany, New York
Gastrointestinal Lymphomas

Nicholas N. Nissen, MD
Comprehensive Transplant Center, Center for Liver Diseases and Transplantation, Cedars-Sinai Medical Center, Los Angeles, California
Hepatic Transplantation

Jeffrey A. Norton, MD
Professor of Surgery and Chief of General Surgery, Stanford University School of Medicine, Stanford, California
Neuroendocrine Tumors of the Pancreas

Michael Nussbaum, MD
Professor and Chair, Department of Surgery, University of Florida College of Medicine; Surgeon-in-Chief, Shands Jacksonville Medical Center, Jacksonville, Florida
Gastric, Duodenal, and Small Intestinal Fistulas

Scott Nyberg, MD, PhD
Professor of Surgery, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Fulminant Hepatic Failure and Liver Support Systems

Stefan Öberg, MD, PhD
Department of Surgery, Lund University Hospital, Lund, Sweden
Esophageal pH Monitoring

Daniel S. Oh, MD
Assistant Professor of Surgery, University of Southern California, Keck School of Medicine, Los Angeles, California
Pathophysiology of the Columnar-Lined Esophagus

Jill K. Onesti, MD
Clinical Instructor, Department of Surgery, Michigan State University, College of Human Medicine, Grand Rapids, Michigan
Gastrointestinal Stromal Tumors

Robert W. O'Rourke, MD
Associate Professor of Surgery, Co-Director, Bariatric Surgery Program, Department of Surgery, Oregon Health & Science University, Portland, Oregon
Laparoscopic and Open Nissen Fundoplication

Aytekin Oto, MD
Professor of Radiology and Surgery, Chief, Abdominal Imaging and Body Magnetic Resonance Imaging, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Imaging and Radiologic Intervention in the Pancreas

Mary F. Otterson, MD
Professor, Department of Surgery, Associate Professor, Department of Physiology, Medical College of Wisconsin; Staff Surgeon, Department of Surgery, Zablocki Veterans Affairs Medical Center, Milwaukee, Wisconsin
Small Bowel Obstruction

James R. Ouellette, DO
Associate Professor, Department of Surgery, Chief, Division of Surgical Oncology, Director, Hepatobiliary and Pancreatic Surgery Program, Wright State University Boonshoft School of Medicine, Dayton, Ohio
Perioperative Management and Nutrition in Patients With Liver and Biliary Tract Disease

Charles N. Paidas, MD
Professor of Surgery and Pediatrics, Chief, Pediatric Surgery, Associate Dean for Graduate Medical Education, Executive Associate Dean for Clinical and Extramural Affairs, University of South Florida, Health Morsani College of Medicine, Tampa, Florida
Pancreatic Problems in Infants and Children

John E. Pandolfino, MD
Associate Professor of Medicine, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Techniques of High-Resolution Esophageal Manometry, Classification and Treatment of Spastic Esophageal Motility Disorders

Harry T. Papaconstantinou, MD
Vice-Chairman, Department of Surgery, Chief, Section of Colorectal Surgery, Scott & White Healthcare; Associate Professor of Surgery, Texas A&M Health Science Center, College of Medicine, Temple, Texas
Fissure-in-Ano

Theodore N. Pappas, MD
Professor of Surgery, Department of Surgery, Vice-Dean for Medical Affairs, Duke University School of Medicine, Durham, North Carolina
Operative Management of Cholecystitis and Cholelithiasis

Yann Parc, MD, PhD
Professor, Department of General and Digestive Surgery, Hospital Saint-Antoine, Pierre and Marie Curie University, Paris, France
Coloanal Anastomosis and Intersphincteric Resection

Susan C. Parker, MD
Retired, Division of Colon and Rectal Surgery, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Diagnosis and Management of Fecal Incontinence

Marco G. Patti, MD
Professor of Surgery, Director, Center for Esophageal Diseases, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Epidemiology, Pathophysiology, and Clinical Features of Achalasia

Walter Pegoli, Jr., MD, MHS
Surgeon-in-Chief, Department of Surgery, Golisano Children's Hospital, University of Rochester Medical Center, Rochester, New York
Congenital Disorders of the Esophagus
Hernias and Congenital Groin Problems in Infants and Children

John H. Pemberton, MD
Professor of Surgery, Mayo Clinic College of Medicine; Consultant in Colon and Rectal Surgery, Mayo Clinic and Mayo Foundation, Rochester, Minnesota
Anatomy and Physiology of the Rectum and Anus Including Applied Anatomy
Surgery for Inflammatory Bowel Disease: Chronic Ulcerative Colitis

Jeffrey H. Peters, MD
Seymour I. Schwartz Professor and Chairman, Department of Surgery, University of Rochester School of Medicine and Dentistry, Rochester, New York
Assessment of Symptoms and Approach to the Patient With Esophageal Disease
The Gastroesophageal Barrier
Treatment of Barrett Esophagus
Genetics of Esophageal Cancer
Perforation of the Esophagus

Thai H. Pham, MD
Assistant Professor, Department of Surgery, North Texas Veterans Affairs Medical Center, University of Texas Southwestern Medical Center, Dallas, Texas
Laparoscopic and Open Nissen Fundoplication

Lakshmikumar Pillai, MD
Associate Professor and Chief, Division of Vascular and Endovascular Surgery, Department of Surgery, West Virginia University Medical Center, Morgantown, West Virginia
Anatomy and Physiology of the Mesenteric Circulation

Carlos E. Pineda, MD
Resident, Department of Surgery, Stanford University School of Medicine, Stanford, California
Surgery in the Immunocompromised Patient

Henry A. Pitt, MD
Professor and Vice-Chairman, Department of Surgery, Indiana University School of Medicine, Indianapolis, Indiana
Anatomy, Embryology, Anomalies, and Physiology

Jeffrey L. Ponsky, MD
Oliver H. Payne Professor and Chairman, Department of Surgery, Case Western Reserve University School of Medicine; Surgeon-in-Chief, University Hospitals Case Medical Center, Cleveland, Ohio
Diagnostic and Therapeutic Endoscopy of the Stomach and Small Bowel
Management of Splenic Abscess

Mitchell C. Posner, MD
Thomas D. Jones Professor and Vice-Chairman, Department of Surgery, Chief, Section of General Surgery and Surgical Oncology, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Management of Secondary Hepatic Neoplasms
Adenocarcinoma of the Colon and Rectum

Russel G. Postier, MD
John A. Schilling Professor and Chairman, Department of Surgery, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
Vagotomy and Drainage

Sangeetha Prabhakaran, MD
Surgical Resident, Department of Surgery, University of North Dakota, Grand Forks, North Dakota
Liver Abscess

Vivek N. Prachand, MD
Associate Professor, Department of Surgery, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Endoscopic and Minimally Invasive Therapy for Complications of Acute and Chronic Pancreatitis

Florencia G. Que, MD
Associate Professor, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Resection and Ablation of Metastatic Colorectal Cancer to the Liver

Arnold Radtke, MD, PhD
Associate Professor, Department of General and Thoracic Surgery, University of Schleswig-Holstein, Lubeck, Germany
Anatomy and Physiology of the Liver

Rudra Rai, MD
Assistant Professor of Medicine, Johns Hopkins University School of Medicine; Medical Director, Gastro Center of Maryland, Baltimore, Maryland
Drug-Induced Liver Disease

Jan Rakinic, MD
Associate Professor, Department of Surgery, Chief, Section of Colorectal Surgery, Program Director, Colorectal Surgery Training Program, Southern Illinois University School of Medicine, Springfield, Illinois
Antibiotics, Approaches, Strategy, and Anastomoses

David W. Rattner, MD
Professor of Surgery, Harvard Medical School; Chief, Division of General and Gastrointestinal Surgery, Massachusetts General Hospital, Boston, Massachusetts
Paraesophageal and Other Complex Diaphragmatic Hernias

Daniel P. Raymond, MD
Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio
Perforation of the Esophagus

Thomas W. Rice, MD
Professor of Surgery, Cleveland Clinic Lerner College of Medicine; Daniel and Karen Lee Chair of Thoracic Surgery, Head, Section of General Thoracic Surgery, Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio
Endoscopic Esophageal Ultrasonography

J. David Richardson, MD
Professor and Vice-Chair of Surgery, University of Louisville, Louisville, Kentucky
Management of Hepatobiliary Trauma

Martin Riegler, MD
Associate Professor of Surgery, Manometry Lab; University Clinic of Surgery, Medical University Vienna, Vienna General Hospital, Vienna, Austria
Epidemiology and Natural History of Gastroesophageal Reflux Disease

John Paul Roberts, MD
Chief, Division of Transplant, Department of Surgery, University of California, San Francisco, San Francisco, California
Hepatocellular Carcinoma

Patricia L. Roberts, MD
Chair, Department of Colon and Rectal Surgery, Lahey Clinic Medical Center, Burlington, Massachusetts; Professor of Surgery, Tufts University School of Medicine, Boston, Massachusetts
Rectovaginal and Rectourethral Fistulas

David A. Rodeberg, MD
Assistant Professor of Surgery, University of Pittsburgh School of Medicine; Assistant Director, Trauma and Injury Prevention, Children's Hospital of Pittsburgh, Pittsburgh, Pennsylvania
Pancreatic Problems in Infants and Children

Kevin K. Roggin, MD
Associate Professor of Surgery and Cancer Research, Director of General Surgery Residency Program, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Management of Secondary Hepatic Neoplasms

Rolando Rolandelli, MD
Professor of Surgery, University of Medicine and Dentistry of New Jersey, Chairman, Department of Surgery, Morristown Medical Center, Morristown, New Jersey
Suturing, Stapling, and Tissue Adhesives

Sabine Roman, MD, PhD
Associate Professor, Digestive Physiology, Université Claude Bernard Lyon 1, Lyon, France
Techniques of High-Resolution Esophageal Manometry, Classification and Treatment of Spastic Esophageal Motility Disorders

Ernest L. Rosato, MD
Professor of Surgery, Chief, Division of General Surgery, Department of Surgery, Thomas Jefferson University, Philadelphia, Pennsylvania
Pseudocysts and Other Complications of Pancreatitis

Michael J. Rosen, MD
Associate Professor of Surgery, Department of Surgery, University Hospitals Case Medical Center, Cleveland, Ohio
Ventral Herniation in Adults

Andrew Ross, MD
Director, Therapeutic Endoscopy Center of Excellence, Digestive Disease Institute, Virginia Mason Medical Center, Seattle, Washington
Endoscopic and Minimally Invasive Therapy for Complications of Acute and Chronic Pancreatitis

Amy P. Rushing, MD
Assistant Professor, Department of Surgery, Division of Acute Care Surgery, Trauma, and Surgical Critical Care, Johns Hopkins Hospital, Baltimore, Maryland
Pancreatic Trauma
Management of Splenic Trauma in Adults

Adheesh Sabnis, MD
Co-Director, Minimally Invasive and Laparoscopic Surgery, Good Samaritan Hospital, Baltimore, Maryland
Management of Splenic Abscess

Theodore J. Saclarides, MD
Professor of Surgery, Department of General Surgery, Head, Section of Colon and Rectal Surgery, Rush University Medical Center, Chicago, Illinois
Radiation Injuries to the Rectum

Peter M. Sagar, MD, MB, ChB
Consultant Surgeon, John Goligher Department of Colorectal Surgery, General Infirmary at Leeds, West Yorkshire, United Kingdom
Surgery for Inflammatory Bowel Disease: Chronic Ulcerative Colitis

George H. Sakorafas, MD
Associate Professor of Surgery, Fourth Department of Surgery, Athens University Medical School, Athens, Greece
Primary Pancreatic Cystic Neoplasms

Leonard B. Saltz, MD
Acting Chief, Gastrointestinal Oncology Service; Head, Colorectal Oncology Section, Memorial Sloan-Kettering Cancer Center, New York, New York
Adenocarcinoma of the Colon and Rectum

Shawn N. Sarin, MD
Assistant Professor of Radiology, Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Michael G. Sarr, MD
James C. Masson Professor of Surgery, Department of Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota
Primary Pancreatic Cystic Neoplasms

Kennith Sartorelli, MD
Professor, Department of Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Surgical Conditions of the Small Intestine in Infants and Children

Jeannie F. Savas, MD
Associate Professor, Department of Surgery, Virginia Commonwealth University School of Medicine; Interim Chief of Surgery, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, Virginia
Postgastrectomy Syndromes

Bruce Schirmer, MD
Stephen H. Watts Professor of Surgery, Department of Surgery, University of Virginia Health System, Charlottesville, Virginia
Reoperative Surgery of the Stomach and Duodenum

Christine Schmid-Tannwald, MD
Department of Radiology, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Imaging and Radiologic Intervention in the Pancreas

John G. Schneider, MD
Chief Resident, Department of Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Surgical Conditions of the Small Intestine in Infants and Children
Mesenteric Ischemia

Paul M. Schneider, MD
Professor, Department of Surgery, University Hospital Zurich, Zurich, Switzerland
Epidemiology, Risk Factors, and Clinical Manifestations of Esophageal Cancer

Thomas Schnelldorfer, MD
Assistant Professor of Clinical Surgery, Department of Surgery, University of Pennsylvania, Philadelphia, Pennsylvania
Primary Pancreatic Cystic Neoplasms

David J. Schoetz, Jr., MD
Professor of Surgery, Chief Academic Officer, Academic Dean, Designated Institutional Official, Graduate Medical Education, Chairman Emeritus, Department of Colon and Rectal Surgery, Tufts University School of Medicine, Lahey Clinic Medical Center, Burlington, Massachusetts
Colonic Intussusception and Volvulus

Sebastian Schoppmann, MD
Department of Surgery, University of Vienna, Vienna, Austria
Epidemiology and Natural History of Gastroesophageal Reflux Disease

Wolfgang Schröder, MD
Department of General, Visceral, and Cancer Surgery, University of Cologne, Cologne, Germany
Epidemiology, Risk Factors, and Clinical Manifestations of Esophageal Cancer

Richard D. Schulick, MD
Professor of Surgery and Oncology, John L. Cameron Professor of Alimentary Tract Surgery, Chief, Division of Surgical Oncology, Johns Hopkins University School of Medicine, Baltimore, Maryland
Pancreatic and Periampullary Cancer
Diagnostic Operations of the Liver and Techniques of Hepatic Resection

Anthony Senagore, MD
Chief, Professor and Clinical Scholar, Division of Colorectal Surgery, Charles W. and Carolyn Costello Chair, Colorectal Diseases, University of Southern California, Keck School of Medicine, Los Angeles, California
Hemorrhoids

Boris Sepesi, MD
Cardiothoracic Surgery Fellow, Department of Thoracic and Cardiovascular Surgery, The University of Texas MD Anderson Cancer Center, Houston, Texas
Perforation of the Esophagus

Nicholas J. Shaheen, MD, MPH
Professor of Medicine and Epidemiology, Director, Center for Esophageal Diseases and Swallowing, University of North Carolina School of Medicine, Chapel Hill, North Carolina
Clinical Features and Endoscopic Therapy for Dysplastic Barrett Esophagus

Stuart Sherman, MD
Professor, Departments of Medicine and Radiology, Gastrointestinal Cancer Program, Melvin and Bren Simon Cancer Center, Indiana University School of Medicine, Indianapolis, Indiana
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Irene Silberstein, MD
Department of Surgery, Atlantic Health System Hospitals, Morristown, New Jersey
Suturing, Stapling, and Tissue Adhesives

Clifford L. Simmang, MD
Texas Colon and Rectal Surgeons, Dallas, Texas
Fissure-in-Ano

George Singer, MD
Department of General Surgery, Rush University Medical Center, Chicago, Illinois
Radiation Injuries to the Rectum

Douglas P. Slakey, MD
Professor and Chair, Department of Surgery, Tulane University, New Orleans, Louisiana
Cysts and Tumors of the Spleen

Jason Smith, MD, PhD
Assistant Professor, Department of Surgery, Department of Physiology and Biophysics, University of Louisville, Louisville, Kentucky
Management of Hepatobiliary Trauma
Traumatic Colorectal Injuries, Foreign Bodies, and Anal Wounds

Jessica K. Smith, MD
Assistant Professor, Department of Surgery, Gastrointestinal, Minimally Invasive, and Bariatric Surgery, University of Iowa Hospitals and Clinics, Iowa City, Iowa
Small Bowel Diverticula

Christopher W. Snyder, MD, MSPH
General Surgery Residency Program, University of Alabama at Birmingham, Birmingham, Alabama
Autologous Islet Cell Transplantation

Christopher J. Sonnenday, MD, MHS
Assistant Professor of Surgery, Assistant Professor of Health Management and Policy, Hepatobiliary, Pancreatic, and Transplant Surgery, University of Michigan, Ann Arbor, Michigan
Pseudocysts and Other Complications of Pancreatitis

Nathaniel J. Soper, MD
Loyal and Edith Davis Professor and Chair, Department of Surgery, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Management of Common Bile Duct Stones

George C. Sotiropoulos, MD, PhD
Professor of Surgery and Transplantation, Department of General, Visceral, and Transplantation Surgery, University of Duisburg-Essen Medical School, University Hospital Essen, Essen, Germany
Anatomy and Physiology of the Liver

Stuart Jon Spechler, MD
Professor of Medicine, University of Texas Southwestern Medical Center; Chief, Division of Gastroenterology, Veterans Affairs North Texas Healthcare System, Dallas, Texas
Endoscopic Evaluation of the Esophagus

Andrew Stanley, MD
Chief, Division of Vascular Surgery, Department of Surgery, University of Vermont College of Medicine, Fletcher Allen Health Care, Burlington, Vermont
Mesenteric Ischemia

Mindy B. Statter, MD
Associate Professor of Clinical Surgery, Division of Pediatric Surgery, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York
Management of Splenic Trauma in Children

Kimberley E. Steele, MD
Assistant Professor of Surgery, Director, Surgical Simulation and Education, Johns Hopkins Bayview Medical Center; Director, Adolescent Bariatric Surgery, Johns Hopkins Center for Bariatric Surgery, Baltimore, Maryland
Minimally Invasive Surgical and Image-Guided Interventional Approaches to the Spleen

Emily Steinhagen, MD
Clinical Research Fellow, Department of Surgery, Colorectal Service, Memorial Sloan-Kettering Cancer Center, New York, New York
Colorectal Polyps and Polyposis Syndromes

Luca Stocchi, MD
Staff Surgeon, Department of Colorectal Surgery, Digestive Disease Institute, Cleveland Clinic, Ohio
Anatomy and Embryology of the Colon
Anatomy and Physiology of the Rectum and Anus Including Applied Anatomy

Gary Sudakoff, MD
Department of Radiology, Medical College of Wisconsin, Zablocki Veterans Affairs Medical Center, Milwaukee, Wisconsin
Small Bowel Obstruction

Abhishek Sundaram, MD
Resident, Department of Surgery, Creighton University School of Medicine, Omaha, Nebraska
Reflux Strictures and Short Esophagus

Magesh Sundaram, MD
Chief, Division of Surgical Oncology, Associate Professor, Department of Surgery, West Virginia University School of Medicine, Morgantown, West Virginia
Radiation Enteritis

Lee L. Swanström, MD
Professor of Surgery, University of Strasbourg, Strasbourg, France; Clinical Professor of Surgery, Oregon Health & Science University, Portland, Oregon
Partial Fundoplications

Daniel E. Swartz, MD
Director, Central California Institute of Minimally Invasive Surgery, Fresno, California
Femoral Hernia

Tadahiro Takada, MD
Professor Emeritus, Department of Surgery, Teikyo University School of Medicine, Tokyo, Japan
Cystic Disorders of the Bile Ducts

Eric P. Tamm, MD
Department of Radiology, The University of Texas MD Anderson Cancer Center, Houston, Texas
Unusual Pancreatic Tumors

Ali Tavakkolizadeh, MD
Assistant Professor of Surgery, Harvard Medical School; Department of Minimally Invasive and Gastrointestinal Surgery, Brigham and Women's Hospital, Boston, Massachusetts
Operations for Peptic Ulcer

Gordon L. Telford, MD
Professor of Surgery, Medical College of Wisconsin; Chairman, Division of Surgery, Zablocki Veterans Affairs Medical Center, Milwaukee, Wisconsin
Appendix

Julie K. Marosky Thacker, MD
Assistant Professor, Department of Surgery, Duke University School of Medicine, Durham, North Carolina
Volvulus of the Stomach and Small Bowel
Diagnosis of Colon, Rectal, and Anal Disease

Dimitra G. Theodoropoulos, MD
Attending Surgeon, Department of Surgery, North Shore University Hospital, Manhasset, New York
Ultrasonographic Diagnosis of Anorectal Disease

Michael S. Thomas, MD, PhD
Surgical Resident, Department of Surgery, Tulane University, New Orleans, Louisiana
Cysts and Tumors of the Spleen

Alan G. Thorson, MD
Clinical Professor of Surgery, University of Nebraska Medical Center, Creighton University School of Medicine, Omaha, Nebraska
Anal Sepsis and Fistula

Kristy Thurston, MD
Resident, Department of General Surgery, University of Connecticut, Farmington, Connecticut
Diverticular Disease

David S. Tichansky, MD
Associate Professor, Department of Surgery, Thomas Jefferson University, Philadelphia, Pennsylvania
Operations for Morbid Obesity

Yutaka Tomizawa, MD
Barrett's Esophagus Unit, Division of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Rochester, Minnesota
Endoscopic Management of Early Esophageal Cancer

L. William Traverso, MD
Clinical Professor of Surgery, University of Washington, Seattle, Washington; Director, Center for Pancreatic Disease, St. Luke's Hospital System, Boise, Idaho
Prevention and Management of Iatrogenic Bile Duct Injury

Thadeus Trus, MD
Associate Professor, Department of Surgery, Minimally Invasive Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire
Foreign Bodies and Bezoars of the Stomach and Small Intestine

Susan Tsai, MD, MHS
Assistant Professor, Division of Surgical Oncology, Department of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin
Unusual Pancreatic Tumors

Vassiliki Liana Tsikitis, MD
Assistant Professor, Department of Surgery, Division of General and Gastrointestinal Surgery, Oregon Health & Science University, Portland, Oregon
Operations for Colorectal Cancer: Low Anterior Resection

Steven Tsoraides, MD
General Surgery, Peoria Surgery Group, Illinois Medical Center, Peoria, Illinois
Antibiotics, Approaches, Strategy, and Anastomoses

Radu Tutuian, MD, PhD
Clinical Lead, Outpatient Services and Gastrointestinal Function Laboratory, Division of Gastroenterology, University Clinic for Visceral Surgery and Medicine, Bern University Hospital, Bern, Switzerland
Physiology of the Esophagus and Its Sphincters
Multichannel Intraluminal Impedance

Andreas G. Tzakis, MD, PhD
Professor of Surgery, Founding Director, Miami Transplant Institute, DeWitt Daughtry Family Department of Surgery, University of Miami, Miller School of Medicine, Miami, Florida
Vascular Diseases of the Liver

Daniel Vallböhmer, MD
Associate Professor, Department of General, Visceral, and Pediatric Surgery, University of Dusseldorf, Dusseldorf, Germany
Epidemiology, Risk Factors, and Clinical Manifestations of Esophageal Cancer

Dirk Van Raemdonck, MD, PhD
Department of Thoracic Surgery, University Hospital Leuven, Gasthuisberg, Belgium
Pathophysiology and Treatment of Zenker Diverticulum

Hjalmar van Santvoort, MD, PhD
Clinical Research Fellow, Resident, General Surgery, Department of Surgery, University Medical Center Utrecht, Utrecht, The Netherlands
Acute Pancreatitis

Anthony C. Venbrux, MD
Professor of Radiology and Surgery, Director, Cardiovascular and Interventional Radiology, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Selwyn M. Vickers, MD
Jay Phillips Professor and Chair, Department of Surgery, University of Minnesota, Minneapolis, Minnesota
Liver Abscess

Hugo V. Villar, MD
Professor Emeritus, Department of Surgery, University of Arizona, Tucson, Arizona
Anatomy and Physiology of the Spleen

Leonardo Villegas, MD
Hepatobiliary and Surgical Oncology, Duke University Medical Center, Durham, North Carolina
Operative Management of Cholecystitis and Cholelithiasis

James R. Wallace, MD, PhD
Professor, Department of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin
Appendix

William D. Wallace, MD
Colorectal Fellow, Department of Surgery, Cabrini Monash University, Melbourne, Victoria, Australia
Rare Colorectal Malignancies

Huamin Wang, MD, PhD
Associate Professor of Pathology, Department of Pathology, The University of Texas MD Anderson Cancer Center, Houston, Texas
Unusual Pancreatic Tumors

Kenneth K. Wang, MD
Professor of Medicine, Director, Advanced Endoscopy Group, Division of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Rochester, Minnesota
Endoscopic Management of Early Esophageal Cancer

James L. Watkins, MD
Associate Professor of Clinical Medicine, Division of Gastroenterology and Hepatology, Indiana University School of Medicine, Indianapolis, Indiana
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Thomas J. Watson, MD
Associate Professor of Surgery, Chief, Thoracic Surgery, Division of Thoracic and Foregut Surgery, University of Rochester Medical Center, Rochester, New York
Esophageal Replacement for End-Stage Benign Esophageal Disease

Irving Waxman, MD
Professor of Medicine and Surgery, Center of Endoscopy Research and Therapeutics, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Endoscopic and Minimally Invasive Therapy for Complications of Acute and Chronic Pancreatitis

Martin R. Weiser, MD
Associate Member, Memorial Sloan-Kettering Cancer Center; Associate Professor, Department of Surgery, Weill Cornell Medical College, New York, New York
Adenocarcinoma of the Colon and Rectum

John Welch, MD
Senior Attending Surgeon, Department of Surgery, Hartford Hospital, Hartford, Connecticut; Clinical Professor, Department of Surgery, University of Connecticut, Farmington, Connecticut; Adjunct Professor, Department of Surgery, Dartmouth Medical School, Hanover, New Hampshire
Diverticular Disease

Mark L. Welton, MD, MHCM
Professor and Chief, Colon and Rectal Surgery, Department of Surgery, Stanford University School of Medicine; Vice-Chief of Staff, Stanford Hospital and Clinics, Stanford, California
Surgery in the Immunocompromised Patient

Steven D. Wexner, MD
Chief Academic Officer and Chief-of-Staff Emeritus, Cleveland Clinic Florida, Weston, Florida; Professor and Chair, Department of Colorectal Surgery, Associate Dean for Academic Affairs, Florida Atlantic University College of Medicine; Affiliate Dean for Clinical Education, Florida International University College of Medicine, Miami, Florida
Surgical Treatment of Constipation

Rebekah R. White, MD
Assistant Professor, Department of Surgery, Duke University School of Medicine, Durham, North Carolina
Volvulus of the Stomach and Small Bowel

Elizabeth C. Wick, MD
Assistant Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland
Neoplasms of the Anus

Alison Wilson, MD
Associate Professor, Chief, Trauma and Acute Care Surgery, West Virginia University School of Medicine, Morgantown, West Virginia
Mesenteric Arterial Trauma

Emily Winslow, MD
Assistant Professor, Section of Surgical Oncology, Department of Surgery, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin
Gastrointestinal Carcinoid Tumors

Piotr Witkowski, MD, PhD
Assistant Professor, Department of Surgery, University of Chicago, Pritzker School of Medicine, Chicago, Illinois
Pancreas and Islet Allotransplantation

Bruce G. Wolff, MD
Professor of Surgery, Mayo Clinic College of Medicine; Chair, Division of Colon and Rectal Surgery, Mayo Clinic, Rochester, Minnesota
Surgery for Inflammatory Bowel Disease: Crohn Disease

Christopher L. Wolfgang, MD, PhD
Associate Professor of Surgery, Pathology, and Oncology, Director, Pancreatic Surgery Section, Co-Director, Pancreatic Cancer Multidisciplinary Clinic, Cameron Division of Surgical Oncology, Johns Hopkins Hospital, Baltimore, Maryland
Pancreatic and Periampullary Cancer

[†]W. Douglas Wong, MD
Professor of Surgery, Weill Medical College; Chief, Colorectal Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, New York
Ultrasonographic Diagnosis of Anorectal Disease

Jonathan Worsey, MBBS
San Diego Colon and Rectal Surgeons; Staff Surgeon, Scripps Memorial Hospital, La Jolla, California
Reoperative Pelvic Surgery

Cameron D. Wright, MD
Visiting Surgeon, Division of Thoracic Surgery, Massachusetts General Hospital; Professor of Surgery, Harvard Medical School, Boston, Massachusetts
Complications of Esophagectomy

Bhupender Yadav, MD
Department of Diagnostic Imaging and Radiology, Children's National Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Charles J. Yeo, MD
Samuel D. Gross Professor and Chairman, Department of Surgery, Thomas Jefferson University, Philadelphia, Pennsylvania
Pseudocysts and Other Complications of Pancreatitis
Operative Management of Bile Duct Strictures

Trevor M. Yeung, MBBChir, MRCS, DPhil
Academic Clinical Lecturer, Department of Colorectal Surgery, Churchill Hospital, Oxford, United Kingdom
Anatomy and Embryology of the Colon

Max Yezhelyev, MD
Surgical Service, Atlanta Veterans Affairs Medical Center; Department of Surgery, Emory University School of Medicine, Atlanta, Georgia
Anatomy and Physiology of the Duodenum

Kyo-Sang Yoo, MD, PhD
Department of Gastroenterology and Hepatology, Hallym University Sacred Heart Hospital, Hallym University College of Medicine, Anyang, South Korea
Endoscopic Retrograde Cholangiopancreatography in the Evaluation and Management of Hepatobiliary and Pancreatic Disease

Yi-Qian Nancy You, MD, MHSc
Assistant Professor, Department of Surgical Oncology, Division of Surgery, The University of Texas MD Anderson Cancer Center, Houston, Texas
Splenectomy for Conditions Other Than Trauma

Tonia M. Young-Fadok, MD
Professor, Department of Surgery, Mayo Clinic College of Medicine; Chair, Division of Colon and Rectal Surgery, Mayo Clinic, Phoenix, Arizona
Laparoscopic Colorectal Surgery

Johannes Zacherl, MD
Department of Surgery, Medical University of Vienna, Vienna, Austria
Epidemiology and Natural History of Gastroesophageal Reflux Disease

Giovanni Zaninotto, MD
Professor, Department of Surgical, Oncological, and Gastroenterological Sciences, University of Padova Padova, Italy; Chairman, General Surgery, Public Hospital, Venice, Italy
Laparoscopic Esophageal Myotomy: Techniques and Results

Merissa N. Zeman, MD
Department of Radiology, Interventional Radiology Division, The George Washington University Medical Center, Washington, DC
Imaging and Intervention in the Biliary System

Pamela Zimmerman, MD
Assistant Professor of Surgery, Division of Vascular and Endovascular Surgery, West Virginia University School of Medicine, Robert C. Byrd Health Science Center, Morgantown, West Virginia
Anatomy and Physiology of the Mesenteric Circulation

Gregory Zuccaro, Jr., MD
Department of Gastroenterology and Hepatology, Cleveland Clinic, Cleveland, Ohio
Endoscopic Esophageal Ultrasonography

[†]Deceased.

Preface

The time has come to release the seventh edition of the classic textbook *Shackelford's Surgery of the Alimentary Tract*. This publication has served as an important resource for surgeons, internists, gastroenterologists, residents, medical students, and other medical professionals over the past 57 years. I hope that you will find the seventh edition brimming with new information, beautifully illustrated, up to date, and educationally fulfilling.

BRIEF HISTORY

The first edition of *Surgery of the Alimentary Tract* was written solely by Dr. Richard T. Shackelford, a Baltimore surgeon, and was published in 1955. Following the success of the first edition, the book's publisher, W.B. Saunders Company, urged Dr. Shackelford to produce a second edition. Time passed. A second edition was released, as separate five-volume tomes, between 1978 and 1986, with Dr. Shackelford enlisting the assistance of Dr. George D. Zuidema, the Chairman of the Department of Surgery at Johns Hopkins, as co-editor. It was the second edition that served as my "bible" for alimentary tract diseases during my surgical residency and early faculty appointment.

The third edition, edited by Dr. Zuidema, was published as a five-volume set in 1991 and proved to be a major tour de force. The field of alimentary tract surgery had advanced, new research findings were included in the edition, and emerging techniques were illustrated. For the third edition, Dr. Zuidema enlisted the help of a guest editor for each of the five volumes.

The fourth edition, again headed by Dr. Zuidema, was published in 1996, and remained encyclopedic in scope, breadth, and depth of coverage. The textbook had become a classic reference source for surgeons, internists, gastroenterologists, and other healthcare professionals involved in the care of patients with alimentary tract diseases.

The fifth edition was published in 2002. At that time, Dr. Zuidema asked me to join him as a co-editor. The fifth edition remained a five-volume set, and was filled with new operative techniques, advances in molecular biology, and noninvasive therapies. It marked progress in the co-management of patients by open surgical, laparoscopic surgical, and endoscopic techniques.

In 2007, the sixth edition of *Shackelford's Surgery of the Alimentary Tract* was published. The look of the sixth edition was changed. The book went from five volumes to two volumes, deleting outdated material, and included a four-color production scheme, emphasizing new procedures and focusing on advances in technology.

THE SEVENTH EDITION

The seventh edition maintains the exterior changes and look of the sixth edition. However, the seventh edition has been carefully planned by me and the four expert section editors to represent the current state of alimentary tract surgery as practiced throughout the world. This edition has been completed with an enormous amount of assistance from my four colleagues, who have served as editors for the four major sections of the book. These section editors have worked tirelessly, planning, organizing, and developing this massive textbook. They have incorporated numerous changes in surgical practice, operative techniques, and noninvasive therapies within the text. Although each area does retain sections on anatomy and physiology, the numerous advances in genomics, proteomics, laparoscopic techniques, and even robotics are mentioned. The seventh edition includes the contributions of two new and two retained section editors, providing both innovation and stability.

Section I, Esophagus and Hernia, is again edited by Dr. Jeffrey H. Peters, the Seymour I. Schwartz Professor and Chairman of the Department of Surgery at the University of Rochester School of Medicine and Dentistry in Rochester, New York. Dr. Peters is an internationally known expert who brings his detailed knowledge of the esophagus and esophageal diseases to the textbook. Dr. Peters' reputation has been recently elevated by his being named as an associate editor of one of the most prominent surgical journals, the *Annals of Surgery*. He has enlisted new authors for many chapters and has again put together a spectacular section on esophageal diseases, including pathology and ambulatory diagnostics, extensive sections on gastroesophageal reflux disease, esophageal motility disorders, and esophageal neoplasia.

Dr. David W. McFadden has taken over as the editor for Section II, Stomach and Small Intestine. For most of the time during this edition's preparation, Dr. McFadden served as the Stanley S. Fieber Professor and Chairman of the Department of Surgery at the University of Vermont, in Burlington, Vermont. As of January 2012, Dr. McFadden has started a new position, at the University of Connecticut in Farmington, Connecticut, serving as the Professor and Chairman of the Department of Surgery. Dr. McFadden is an expert in alimentary tract diseases, surgical research, and education. He has served for many years as the co-editor-in-chief of the *Journal of Surgical Research*, and he has served as the president of the Society for Surgery of the Alimentary Tract. He has done a superb job of enlisting new chapter authors so as to present a modern, new, updated section regarding the luminal structures of the upper gastrointestinal system. Dr. McFadden's section is an outstanding contribution to this area.

For Section III, Pancreas, Biliary Tract, Liver, and Spleen, we have another new section editor, Dr. Jeffrey B. Matthews, the Dallas B. Phemister Professor and Chairman of the Department of Surgery at the University of Chicago, in Chicago, Illinois. Dr. Matthews' surgical career has focused on diseases of the nonluminal

structures of the alimentary tract, and he has done a superb job in enlisting new contributors and reorganizing this section. Dr. Matthews' credentials include serving as the co-editor-in-chief of the *Journal of Gastrointestinal Surgery*, and he is soon to be the president of the Society for Surgery of the Alimentary Tract. This section has been carefully redone and serves as an outstanding contribution to the field.

Finally, Section IV, Colon, Rectum, and Anus, has once again been expertly edited and supervised by Dr. John H. Pemberton, Professor of Surgery at the Mayo Clinic College of Medicine in Rochester, Minnesota. Dr. Pemberton is an internationally known figure in his field, and his section has been wonderfully redone. Included are various new developments in the field, updates on pelvic floor anatomy and physiology, new therapies for inflammatory bowel disease, increased emphasis on laparoscopic interventions, and new chapters dealing with both surgical outcomes and an overview of colorectal surgery.

ACKNOWLEDGMENTS

The seventh edition would have been impossible to complete without the expertise, dedication, and hard work of each of these four expert section editors. They have been helped immensely by their colleagues, staff, and all the chapter contributors. I would like to thank each of these section editors for their vision, dedication, expertise, and incredible hard work in bringing this project to fruition.

As is often the case with printed works of this size, hundreds of individuals have contributed chapters to this edition. In fact, more than 400 contributors are listed in the Contributors section. We understand how difficult it is to produce superb chapters, and I wish to recognize these individuals and thank them for their dedication and commitment. Most of these contributors are nationally and internationally known leaders in their fields, and I am deeply indebted to them for sharing their knowledge and enthusiasm about their topic, culminating in an outstanding overall product.

I would also like to thank the production team at Elsevier, who again have been instrumental in making this edition a reality. My thanks go out to Judith Fletcher, Jessica Becher, Marie Clifton, Teresa McBryan, and Maureen Iannuzzi, and many others who have been involved in overseeing this project. This edition represents an enormous amount of new work, and thousands of hours have been spent on its production. These professionals have made it a labor of love to work on this project.

Finally, I must thank individuals who have helped me during this new edition process over the past four years. Here in my office at Jefferson Medical College, accolades go out to Claire Reinke and Dominique Marsiano, who have been outstanding assistants in bringing this work to fruition. Even in the current day and age of electronic mail and electronic manuscript management systems, there is much that still gets done using paper and writing implements!

Charles J. Yeo, MD

To my wife, Theresa, and my children, William and Katerina;
to my many mentors (some now deceased, many still alive) who have contributed to the science of surgery and to my education; to the many colleagues and friends whose contributions made the seventh edition possible; and to those young alimentary tract surgeons and other health care professionals who will learn from these pages, move the field forward, and continue to improve our understanding of alimentary tract diseases

CHARLES J. YEO

To Dr. William Silen and my late grandfather, Dr. Benjamin M. Banks, for their wisdom;
to the surgical residents and students, for their thirst for knowledge;
and to my wife, Joan, and our boys, Jonathan, David, and Adam, for their love and support

JEFFREY B. MATTHEWS

To my wife, Nancy, and my children, William, Hunter, and Nora;
and to all of my mentors, colleagues, and patients who challenge and inspire me every day

DAVID W. McFADDEN

To Char, the world is a better place with you in it. Your loving and generous spirit has enriched my life and the lives of many more than you could possibly imagine

JEFFREY H. PETERS

To the people who believed in me more than I believed in me: Albert and Nancy Pemberton, Jane Wagner, James Knight, Ollie Beahrs, Bill Remine, Dick Symmonds, Bob Beart, Don McIlrath, Jon van Heerden, Sid Phillips, Keith Kelly, Roger Dozois, and Dave Nagorney
And, of course, to Jim

JOHN H. PEMBERTON

This page intentionally left blank

Contents

VOLUME 1

SECTION I

Esophagus and Hernia

Section Editor: Jeffrey H. Peters

VOLUME 2

SECTION **III**

Pancreas, Biliary Tract, Liver, and Spleen

Section Editor: Jeffrey B. Matthews

PART ONE

Pancreas

†Deceased.

PART FOUR

Neoplastic Disease

PART FIVE

Techniques and Pearls

This page intentionally left blank

SECTION I

Esophagus and Hernia

Jeffrey H. Peters

PART ONE

The Normal Esophagus

CHAPTER 1

Perspectives on Esophageal Surgery

Tom R. DeMeester

To write a perspective is to describe clearly and discernibly a subject, in this case the history of esophageal surgery, through the medium of a retrospective scope. The purpose in doing so is to benefit from the collective experience of those who have preceded us in the field. According to C.S. Lewis, "authority, reason and experience; on these three, mixed in varying proportions, all our knowledge depends."[1] If today's esophageal surgeons desire to learn from their predecessors and not repeat their errors, the historical milestones in esophageal surgery must be appreciated, understood, and embraced. The modern esophageal surgeon is not what he or she does. Rather, they are what they think and understand, because what they think and understand determines what they do. We must keep a balance between our understanding and our doing. I encourage the young esophageal surgeon to listen seriously to the words of C.S. Lewis. They need to heed the authority of those older physicians and surgeons who with minimal technology moved the science of esophagology forward. They need to reason their way to new insights in esophageal disease. In so doing, they can have the confidence that in the accumulation of their own experience they will set new standards for the future treatment of esophageal disease.

DIAGNOSIS OF ESOPHAGEAL DISEASE

To comprehend the esophageal diseases requires the capacity to visualize affected tissue. Prior to the advent of clinical endoscopy, an autopsy was the only means to visualize diseased esophageal tissue. The pathology consisted mainly of spontaneous esophageal perforations (Boerhaave syndrome)[2] and tumors of the esophagus. The opportunity to study inflammatory disease, such as esophagitis, was limited as damage to the esophageal mucosa was assumed to be due to postmortem autolysis by digestive enzymes during the interval between death and when the autopsy was performed. Particularly, any mucosal injury at the gastroesophageal junction was assumed to be a postmortem change. Consequently, esophagitis and inflammatory strictures were not known to exist until Heinrich Quincke, a German pathologist, reported in 1879 the finding of distal esophageal ulcers in three cadavers.[3] Despite the evidence that ulcers were a sign of premortem healing, the report was viewed as a postmortem curiosity. Similarly, his hypothesis that the ulcers were causes by the regurgitation of gastric juice into the esophagus was also ignored. It was not until the introduction of the rigid esophagoscope, 130 years ago, by Bevan in 1868,[4] Kussmaul in 1868,[5] and Mikulicz in 1881,[6] that esophageal ulcers could be visualized prior to the patients' death. Subsequently, several breakthroughs in technology permitted the complete and safe examination of the entire esophagus, stomach, and duodenum in the living patient. These breakthroughs were the development of the incandescent light bulb by Thomas Edison in the 1870s, the rod-lens system by Hopkins in the 1950s, fiberoptic cold-light transmission in the 1960s, and the computer chip video camera in the 1980s.[7] Combined, these advancements allowed the development of a reliable flexible endoscope to directly examine and biopsy the esophageal, gastric, and duodenal mucosa. The flexible endoscope opened the door to the understanding of the pathophysiology of esophagitis, stricture, and Barrett esophagus with its inherent cancer risk. The subsequent development of clinical radiology, esophageal motility, prolonged esophageal pH monitoring, and endoscopic esophageal ultrasonography added additional diagnostic tools to the field and further clarified esophageal pathophysiology.

ESOPHAGEAL CANCER

Cancer of the esophagus provides a unique challenge for the surgeon. For decades, surgical pioneers struggled to safely remove the diseased organ. Emslie, in his "Perspectives in the Development of Esophageal Surgery," states, "the history of esophageal surgery is the tale of men repeatedly losing to a stronger adversary yet persisting in this unequal struggle until the nature of the