

Editorial Board **ix**

Contributors **xi**

Laparoscopic Hernia Repair

Javier Otero, Andrew T. Huber, and B. Todd Heniford

Introduction	1
Indication for laparoscopic ventral hernia repair	3
Special considerations	4
Obesity	4
General steps of the laparoscopic ventral hernia repair technique	5
Bowel Preparation	5
Abdominal Access and Trocar Placement	5
Adhesiolysis	5
Measuring the Defect	6
Primary Fascial Defect Closure	6
Mesh Selection	7
Mesh Size and Overlap	7
Mesh Fixation	8
Innovations in the laparoscopic ventral hernia repair technique	9
Transabdominal Preperitoneal Repair	9
Laparoscopic Retrorectus Repair/Enhanced-View Totally	
Extraperitoneal Repair	9
Robotic Ventral Hernia Repair	10
Outcomes of laparoscopic ventral hernia repair	11
Recurrence	11
Seroma	11
Surgical Site Infections	12
Enterotomies	12
Pseudorecurrence	13
Quality of Life	13
Summary	13

Ductal Carcinoma In Situ of the Breast: Controversies and Current Management

Andrea V. Barrio and Kimberly J. Van Zee

Introduction	21
Significance	22

Standard treatment of ductal carcinoma in situ	22
Factors associated with local recurrence	25
Low-risk subsets of ductal carcinoma in situ: can radiation therapy be avoided?	28
Predicting the risk of local recurrence: nomograms and genomic signatures	29
Present relevance	30
Concern for overtreatment	30
Natural progression	30
Studies of observation	31
Summary	32

What Is the Role for Carotid Stenting Versus Endarterectomy?

Kyla M. Bennett and John E. Scarborough

Introduction	38
Original trials comparing endarterectomy to medical therapy	38
Asymptomatic carotid stenosis: asymptomatic carotid atherosclerosis study and the first asymptomatic carotid surgery trial	38
Symptomatic carotid stenosis: North American symptomatic carotid endarterectomy trial and european carotid surgery trial	39
Summary of original trials	40
Carotid arterial stenting	40
Early trials comparing carotid arterial stenting to carotid endarterectomy	41
The carotid revascularization endarterectomy versus stenting trial	43
Beyond the trials	45
Improvements in medical therapy	45
Identification of high-risk characteristics of asymptomatic stenosis	45
Age-associated increase in risk of periprocedural stroke with carotid arterial stenting	47
Timing of revascularization in symptomatic patients	47
Current recommendations and future directions	48
Asymptomatic stenosis	48
Symptomatic stenosis	49
Ongoing trials	49
Summary	50

Managing Complications of Bariatric Surgery

Richard M. Peterson and John D. Scott

Introduction	55
Gastric sleeve complications	56
Leaks	56
Bleeding	57

Stenosis	57
Portal vein thrombosis	57
Gastric bypass	58
Early peritonitis	59
Late peritonitis	60
Obstructive	61
Early obstruction	61
Late obstruction	61
Gastric band complications	63
Erosion	63
Slippage	63
Esophageal dilation	64
Nutritional emergencies	64
Thiamine	64
Cobalamin (B12)	65
Summary	66

Trends in Palliative Surgical Care

Allison R. Wilcox and Sandra L. Wong

Introduction	69
Evolution of palliative surgical care	70
Therapeutic trends	72
Surgical oncology	72
Emergency surgery and malignant bowel obstruction	74
Burns and surgical critical care	75
Overarching work in surgical palliative care	76
Evolution of palliation and future directions	78
Summary	78

Management of Difficult Dialysis Access Issues for Dialysis Patients

Matthew J. Dougherty, Douglas A. Troutman, and
Krystal C. Maloni

Hemodialysis access	83
Tunneled dialysis catheters	83
Arteriovenous fistula	84
Arteriovenous grafts	84
Tissue-engineered grafts	85
Complications	86
Thrombosis/stenosis	86
Infection	87
Dialysis-associated steal syndrome	89
Pseudoaneurysm and aneurysm	95
Erosion/bleeding	96
High flow states	97
Summary	98

Has Personalized Medicine for Pancreatic Cancer Arrived?

Ashley Krepline and Susan Tsai

Introduction	103
Evolution of the molecular classification of pancreatic cancer	105
Translating molecular profiling into clinical relevance	110
Moving from precision medicine to personalized medicine	112
Summary	113
Acknowledgments	113

Is Hyperthyroidism Diagnosed and Treated Appropriately in the United States?

Ammar Asban, Sophie Dream, and Brenessa Lindeman

Introduction	117
Significance	118
Disease impact on multiple organ systems	118
Laboratory and imaging evaluation	120
Treatment of hyperthyroidism	122
Discussion (present relevance and future avenues)	124
Underdiagnosis of hyperthyroidism	124
Undertreatment of hyperthyroidism	125
Summary	126

How Do We Prevent Burnout in Surgery?

Gerard M. Doherty

Introduction	131
How did we come to be where we are as a profession?	132
Surgery is a young field in the midst of transition	132
Surgery has changed	133
Surgeons have changed	135
Our career structure and expectations have been static	135
Burnout is a prevalent and threatening issue	136
What affects physician satisfaction?	138
What we should do to alleviate and prevent burnout	140
Align with patients	140
Develop expertise in diseases, not techniques	141
Practice redesign	142
Progressive employment policies	142
Respect our own choices	142

Elimination of Bile Duct Injury in Cholecystectomy

Maria S. Altieri and L. Michael Brunt

Introduction	145
Etiology and risk factors	147
Conditions associated with the difficult gallbladder	147
Acute cholecystitis and timing of cholecystectomy	148

Strategies for reducing biliary injury	148
Step 1: use of the critical view of safety	149
Step 2: understanding normal and aberrant anatomy	150
Step 3: role of intraoperative imaging to enhance identification of structures (cholangiogram, ultrasound, and intraoperative cholangiography)	151
Step 4: intraoperative time-out	153
Step 5: bailout options (when the dissection and conditions in the hepatocystic triangle are difficult and potentially dangerous)	154
Step 6: getting help from another surgeon when conditions are difficult	156
Suspected bile duct injury	156
Summary	157

Surgical Emergencies in the Pregnant Patient

Don J. Selzer and Dimitrios Stefanidis

Introduction	161
Evaluation	162
Physiology and physical examination	162
Laboratory	163
Radiology	164
Common emergencies	165
Appendicitis	165
Acute cholecystitis	166
Ovarian torsion	168
Bowel obstruction	169
Abdominal trauma	169
Less common emergencies	172
Hepatic adenomas	172
Inflammatory bowel disease	172
Renal colic	173
Splenic artery aneurysm	173
Abdominal wall hernias	173
Considerations during treatment	173
Fetal monitoring	173
Operative technique	174
Complications	174
Summary	175

Transoral Endoscopic Thyroidectomy Vestibular Approach

Neeta J. Erinjeri and Robert Udelsman

Introduction	179
Evolution of thyroid surgery	180
Development of transoral thyroidectomy	181
Indications and patient selection	182
Surgical technique	183

Preparation and positioning	183
Access	183
Exposure	184
Dissecting the thyroid	185
Specimen retrieval and closure	185
Postoperative management	187
Surgical results	187
Surgical complications	187
Implementation	190
Parathyroid application	190
Discussion	190
Summary	191

Firearm Violence in America: Is There a Solution?

Rachel L. Choron, Sarabeth Spitzer, and Joseph V. Sakran

Introduction	196
Epidemiology of firearm violence	196
Firearm violence: a uniquely American problem	196
Firearm-related homicide	197
Firearm-related suicide	197
High-risk populations: children and adolescents	197
Mass shootings	197
Challenges to firearm-related injury prevention	198
Two conflicting narratives	198
Limitations to research funding	199
Solutions to decreasing firearm-related injuries	199
Expand universal background checks	199
Expansion of extreme risk protective orders	200
Bolster funding for firearm-related research	200
Physician's role in prevention	201
Organizations working toward a mutual goal	201
Campaigns to raise public awareness and change legislation	205
Better access and availability to mental health resources	205
Summary	206

Musculoskeletal Disorders in Minimally Invasive Surgery

H. Reza Zahiri, Alex Addo, and Adrian E. Park

Background	209
Laparoscopic minimally invasive surgery	210
Robotic minimally invasive surgery	212
Surgical endoscopy	213
Interventions to mitigate the effects of musculoskeletal disorders in minimally invasive surgery	214
Surgeon-directed efforts	214

Operating room design	216
Laparoscopic instrument design	217
Summary	217

What's New in Trauma Resuscitation?

Elizabeth Dauer and Amy Goldberg

Introduction	221
Significance	222
Present relevance and future avenues	223
Prehospital care	223
Damage control resuscitation and its adjuncts	223
Team training and video review	229
Future advances	229
Summary	230

Anticoagulants and Surgery: So Many Agents, So Many Taking Them

Ronak B. Patel and Apostolos K. Tassiopoulos

Introduction	235
Perioperative anticoagulation management	236
Evaluation of thromboembolic risk	236
Estimating bleeding risk	238
Bridging	240
Oral anticoagulant agents	241
Warfarin	241
Dabigatran	242
Rivaroxaban	243
Apixaban	244
Future directions	249
Summary	249

Status of 5-Year Survivors of the Whipple Procedure for Pancreatic Adenocarcinoma

Winta T. Mehtsun, Daniel A. Hashimoto, and Cristina R. Ferrone

Introduction	253
Incidence and Epidemiology of Disease	253
Brief history of treatment modalities and evolution of therapy	254
Surgical resection and perioperative mortality/morbidity	254
Neoadjuvant and adjuvant therapy for resectable disease	255
Neoadjuvant therapy in pancreatic cancer	257
Five-year survivors – a summary of current evidence	258
Independent predictors of 5-year survival	258
Patient Factors	258
Tumor pathology (tumor size and tumor grade)	262
Lymph node status	262
Resection margins	263

CA 19-19 levels	263
Surveillance of long-term survivors	264
Quality-of-life endpoints	264
Future directions	264

Indications for Neoadjuvant Systemic Therapy for Breast Cancer

Kristalyn K. Gallagher and David W. Ollila

Introduction	271
Landmark neoadjuvant systemic therapy trials	272
Goals of neoadjuvant systemic therapy	273
Impact on local-regional therapy	273
Neoadjuvant systemic therapy and the management of the axilla	275
Response to neoadjuvant systemic therapy as a prognostic indicator	276
Patient and drug regimen selection for neoadjuvant systemic therapy	277
Human epidermal growth factor receptor-2 overexpressing patients	278
Triple-negative patients	282
Hormone receptor–positive, human epidermal growth factor receptor-2 –negative patients	282
Neoadjuvant endocrine therapy	286
Summary	288

Watchful Waiting for Inguinal Hernia

Alexander D. Schroeder, Dustin J. Tubre, and Robert J. Fitzgibbons Jr

Introduction	293
Natural history of an inguinal hernia	294
The North American trial (2006)	295
United Kingdom trial (2006)	296
Netherlands trial (2018)	296
Comparison among the 3 trials	297
Economic impact	300
Inguinal hernia in women	301
Guidelines for treatment of inguinal hernia in men	301
Summary	302

The Opioid Crisis: The Surgeon's Role

Ross F. Goldberg

Introduction	305
Timeline of opioid analgesic use	306
The surgeon and overprescribing	307
Results of overprescribing	309

Solutions for the surgeon	310
Patient care and clinical solutions	310
Surgeons' understanding of and bias toward pain	310
Identifying patients at risks	312
Patient education	313
Perioperative pain management protocols	315
Clinician education about opioid management	317
Health care policy and advocacy	317
Federal regulation	317
State regulation	318
Surgeon and physician involvement	319
Summary	319