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Failure to Rescue After the Whipple: What Do We Know?

Elizabeth M. Gleeson and Henry A. Pitt

Mortality after pancreatoduodenectomy has improved over time. This progress is likely related to advancements in failure to rescue (FTR—the percentage of patients who die after developing a major complication). Several factors associated with FTR include patient-specific risks, development of certain postoperative complications, surgeon-specific factors, hospital-specific factors, rescue techniques, and regional differences. Efforts should be made to explore additional factors such as the influence of safety culture in the postoperative setting. Improvement in FTR may be better explored through randomized controlled postoperative management trials. In stable patients, management of complications by interventional radiology is preferred over reoperation.

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Management of Necrotizing Pancreatitis

Thomas K. Maatman and Nicholas J. Zyromski

Necrotizing pancreatitis affects 10% to 15% of all patients with acute pancreatitis. Despite improved understanding of this complex disease, it is still attended by up to 15% mortality. Necrotizing pancreatitis provides the clinical challenges of working in a multi-disciplinary group, determining proper timing for intervention, and identifying appropriate intervention approaches. The step-up approach consists of supportive care initially. When there is documented infected necrosis, treatment begins with antibiotics, progressing to minimally invasive mechanical necrosis intervention, and reserving surgery as the final treatment modality. However, treatment must be tailored to the individual patient. This article provides an overview of necrotizing pancreatitis.

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Should We Utilize Routine Cholangiography?

L. Michael Brunt

Intraoperative cholangiography (IOC) is an essential skill that surgeons need for the safe performance of cholecystectomy and intraoperative diagnosis and management of bile duct stones. Whether it should be performed routinely or selectively is an ongoing debate that goes back to the early days of laparoscopic cholecystectomy (LC). Benefits of IOC include ability to detect bile duct stones, recognition of aberrant anatomy, and, in some circumstances, mitigation of the risk of bile duct injury. In this review, key aspects of this debate, technical aspects of performing IOC, evidence regarding

its benefits, and imaging alternatives to IOC during LC are presented.

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Reducing Firearm Injury and Death in the United States

Joseph V. Sakran and Nicole Lunardi

Firearms injury is a major cause of American morbidity and mortality. Although the firearm is a common vector, the intentions with which it is used represent a wide array of social ills—suicide, community violence, domestic violence, mass shootings, legal intervention, and unintended injury. The political and social underpinnings of this epidemic are inseparable from its prevention measures. Surgeons have an important role in firearm policy, research, prehospital and hospital advances, trauma survivor networks, and hospital-based violence prevention programs. It is only through interdisciplinary, multilevel, evidence-based prevention measures that the tides will turn on American firearm injury.

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Reducing Complications After Surgery for Benign Anorectal Conditions

Alton Sutter and Vitaliy Poylin

While generally perceived as mundane and low-risk procedures, anorectal surgeries by virtue of their anatomic real-estate—dense with nerves, blood supply, and structures critical to the quality of life—are fraught with the potential for complications. While these complications are generally not life-threatening, their impact to the quality of life can be severe. Furthermore, the sheer volume of anorectal procedures performed each year means that even low complication rates or less severe complications can have significant economic impact.

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Private Equity and Its Increasing Role in US Healthcare

Kristen M. Beyer, Lyudmyla Demyan, and Matthew J. Weiss

Private equity investments in health care and surgery are on the rise. There are potential advantages and drawbacks of private equity investment in health care. However, if done under the right parameters, PE investment may have the potential to address some of the challenges and inefficiencies of the current health care system.

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Facts and Fallacy of Benchmark Performance Indicators

James P. Byrne and Elliott R. Haut

Efforts to improve quality in healthcare have arisen from the recognition that the quality of care delivered and resulting outcomes are highly variable. Performance benchmarking using high-quality data to compare risk-adjusted outcomes between hospitals and surgeons has been widely adopted as one means for addressing this problem. In this article we discuss the history, current state, methodologies, and potential pitfalls of

benchmarking efforts to improve quality of healthcare in the United States.	
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Transcarotid Artery Revascularization: Is It Better than Carotid Endarterectomy?

Patric Liang and Marc L. Schermerhorn

Transcarotid artery revascularization (TCAR) is a novel carotid stenting method that avoids the manipulation of the aortic arch and uses a flow-reversal neuroprotection system that effectively reduces the risk of embolic events during carotid intervention. Studies have shown a lower risk of stroke or death compared with the transfemoral carotid stenting approach, and an equivalent risk of stroke or death compared with traditional carotid endarterectomy. TCAR has added benefits of lower risk of myocardial infarction, cranial nerve injuries, and shorter operative times compared with endarterectomy. TCAR has become widely adopted by vascular surgeons in the United States for the treatment of patients with

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Endovascular Repair of Descending Thoracic Aortic Aneurysms

Michol A. Cooper, Zain Shahid, and Gilbert R. Upchurch Jr.

Descending thoracic aortic aneurysms (DTAAs) are an important cause of morbidity and mortality in the elderly. Once diagnosed, they should be surveilled and then repaired at a diameter of 5.5 to 6 cm, depending on the individual patient's physiologic and anatomic risk of repair. Thoracic endovascular aortic repair (TEVAR) is the preferred approach for repair and there are multiple procedural adjuncts that can expand indications for and use of TEVAR. Spinal cord injuries are an important and highly morbid complication after TEVAR and it is imperative to mitigate this risk.

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What Surgeons Need to Know About Gene Therapy for Cancer

Shanmugappiriya Sivarajah, Kevin Emerick, and Howard L. Kaufman

The broad field of gene therapy offers numerous innovative approaches for cancer treatment. An understanding of the different modalities including gene replacement therapy, cancer vaccines, oncolytic viruses, cellular therapy, and gene editing is essential for managing patients with neoplastic disease. As in other areas of oncology, the surgeon plays a pivotal role in the diagnosis and treatment of the disease. This review focuses on what the clinical surgeon needs to know to optimize the benefit of gene therapy for patients with cancer.

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Is There a Place for Hyperbaric Oxygen Therapy?

Kinjal N. Sethuraman, Ryan Smolin, and Sharon Henry

Hyperbaric oxygen therapy (HBOT) involves treating patients by providing 100% oxygen through inhalation while inside a treatment pressurized chamber. The oxygen acts as a drug and the hyperbaric chamber as the dosing device. The effect of hyperbaric hyperoxia is dose dependent and, therefore, treatment depth and duration are important when considering its use. HBOT can either be the primary method of treatment or used adjunctively to medications or surgical techniques. The underpinning physiology is to bring oxygen-rich plasma to hypoxic tissue, preventing reperfusion injury, strengthening immune responsiveness, and encouraging new collagen deposition as well as endothelial cell formation.

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Endoscopic Treatment of Gastroesophageal Reflux Disease

William S. Richardson, Jessica Koller Gorham, Nicole Neal, and Robert D. Fanelli

 Video content accompanies this article at <http://www.advancesurgery.com>

There have been many devices and ideas to treat reflux disease endoscopically. Several devices have been tried and even FDA approved but now are no longer used. The push for these therapies is to find effective reflux control with lower risk and faster recovery. In this article we describe an endoscopic suturing device (TIF), radiofrequency device (Stretta) and a newer technique that has a lot of promise called antireflux mucosectomy. All these procedures seem to help control reflux at a minimum of morbidity given current information. As

reflux is so prevalent a shift to these techniques for appropriate patients is likely to improve patient care.

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Direct Peritoneal Resuscitation for Trauma

Samuel J. Pera, Jessica Schucht, and Jason W. Smith

Direct peritoneal resuscitation (DPR) has been found to be a useful adjunct in the management of critically ill trauma patients. DPR is performed following damage control surgery by leaving a surgical drain in the mesentery, placing a temporary abdominal closure, and postoperatively running peritoneal dialysis solution through the surgical drain with removal through the temporary closure. In the original animal models, the peritoneal dialysate infusion was found to augment visceral microcirculatory blood flow reducing the ischemic insult that occurs following hemorrhagic shock. DPR was also found to minimize the aberrant immune response that occurs secondary to shock and contributes to multisystem organ dysfunction. In the subsequent human trials, performing DPR had significant effects in

several key categories. Traumatically injured patients who received DPR had a significantly shorter time to definitive fascial closure, had a higher likelihood of achieving primary fascial closure, and experienced fewer abdominal complications. The use of DPR has been further expanded as a useful adjunct for emergency general surgery patients and in the pretransplant care of human cadaver organ donors.

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What is the Best Inguinal Hernia Repair?

Jennwood Chen and Robert E. Glasgow

As the management of inguinal hernias have evolved over hundreds of years, so too has our paradigm of what constitutes the “best repair.” To best answer what the ideal inguinal hernia repair is, the authors take an in-depth look at considerations to the patient, the provider, and the health care system.

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Do all Patients Get the Same Care Across Hospitals?

Adrian Diaz and Timothy M. Pawlik

There is extensive research demonstrating significant variation in the utilization of surgery and outcomes from surgery, including differences in mortality, complications,

readmission, and failure to rescue. Literature suggests that these variations exist across as well as within small area geographies in the United States. There is also significant evidence of variation in access and outcomes from surgery that is attributable to race. Emerging research is demonstrating that there may be some variation attributable to a patient’s social determinants of health and their lived averment. Those affected must work together to determine rate of utilization and how much variation is acceptable.

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What Is the Role of Neoadjuvant Endocrine Therapy for Breast Cancer?

Anna Weiss and Tari A. King

There is growing interest in neoadjuvant endocrine therapy (NET) for the treatment of hormone receptor-positive, human epidermal growth factor receptor 2-negative (HR + HER2-) breast cancer. Expanding the use of genomic assays demonstrates that many patients with HR + HER2-breast cancer do not benefit from chemotherapy, leading to growing interest in NET as a less toxic alternative. Although NET’s ability to downsize breast tumors and achieve breast conservation is well-known, axillary surgery algorithms are not well-defined. Here we review primary endocrine therapy, the landmark NET clinical trials, and management of residual nodal disease following NET.

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What Is the Best Treatment for Acute Limb Ischemia?

Elizabeth G. King and Alik Farber

Acute limb ischemia (ALI) is a vascular emergency associated with high rates of limb loss and mortality. Management of these patients is challenging given the severe systemic illness resulting from tissue ischemia and the high incidence of preexisting comorbid conditions and underlying peripheral arterial disease. Expeditious diagnosis, anticoagulation, and revascularization are of utmost importance in reducing morbidity. Revascularization may be accomplished using open, endovascular, or hybrid techniques. Approach to revascularization depends on the severity of ischemia, location of occlusion, cause, chance of recovery, comorbidities, and available resources.

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Endovascular Repair of Complex Aortic Aneurysms

Guilherme B.B. Lima, Marina Dias-Neto, Emanuel R. Tenorio, Aidin Baghbani-Oskouei, and Gustavo S. Oderich

Fenestrated-branched endovascular aortic repair (FB-EVAR) has gained widespread acceptance in patients

with complex aortic aneurysms. It has evolved from an alternative to treat elderly and higher risk patients to the first line of treatment in most patients with suitable anatomy, independent of the clinical risk. Currently, these devices are available off-the-shelf (ready to use) and tailored to the patient anatomy with the options of fenestrated, branched and mixed fenestrated, and branched designs. Reports from single and multicenter experiences and systematic reviews have shown lower mortality and morbidity for FB-EVAR compared with historical results of open surgical repair. The main advantages are noted on mortality, respiratory complications, acute kidney injury, and length of hospital stay. The purpose of this article is to review the advances in the endovascular repair of complex aortic aneurysms exploring the indications for treatment, preoperative evaluation, patient selection, device design, and implantation technique.

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Is There a Role for Rib Plating in Thoracic Trauma?

Chaitan K. Narsule and Anne C. Mosenthal

Rib fractures are a morbid consequence of blunt trauma and are associated with a highly variable clinical presentation ranging from nondisplaced rib fractures causing limited, manageable pain to severely displaced rib fractures with concomitant thoracic injuries leading to respiratory failure. Due to an evolution of techniques, hardware technology, and general acceptance, rib plating has increased substantially at trauma centers all throughout the United States over the past decade. This

article aims to review the most recent and current reports for rib plating with respect to indications, preoperative evaluation and imaging, approaches, timing for intervention, outcomes in patients with flail chest and nonflail injuries, and the management of complications. From these data, it becomes clear that the surgical stabilization of rib fractures (SSRF) has a firm place in the management of thoracic trauma.

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