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Paul J. Schenarts and Ronald F. Martin

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Ann Yih-Ann Chung and Meredith Colleen Duke

Acute biliary disease is a ubiquitous acute surgical complaint. General surgeons managing emergency surgical patients must be knowledgeable and capable of identifying and caring for common presentations. This article discusses the workup, diagnosis, and management of the varying pathologies that make up biliary disease, including cholelithiasis, cholecystitis, biliary dyskinesia, choledocholithiasis, cholangitis, gallstone pancreatitis, and gallstone ileus. Also addressed are more challenging and rare presentations, including pregnancy and bariatric anatomy.

Pancreatitis	895
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Abdulrahman Y. Hammad, Michael Ditillo, and Lourdes Castanon

Acute pancreatitis is an inflammation of the glandular parenchyma of the retroperitoneal organ that leads to injury with or without subsequent destruction of the pancreatic acini. This inflammatory process can either result in a self-limited disease or involve life-threatening multiorgan complications. Chronic pancreatitis consists of endocrine and exocrine gland dysfunction that develops secondary to progressive inflammation and chronic fibrosis of the pancreatic acini with permanent structural damage. Recurrent attacks of acute pancreatitis can result in chronic pancreatitis; acute and chronic pancreatitis are different diseases with separate morphologic patterns. Acute pancreatitis has an increasing incidence but a decreasing mortality.

Pneumoperitoneum	915
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Tiffany Nicole Tanner, Bradley Rounsborg Hall, and Jacob Oran

Pneumoperitoneum has a wide differential diagnosis and presents with varying degrees of severity; however, not all causes require operative intervention. It is imperative that all patients with this diagnosis are evaluated by a surgeon. A thorough history, physical examination, and workup, aimed at localization of the source of pneumoperitoneum, will ultimately determine the necessary treatments, including the need for operative intervention. The authors provide the reader with a working knowledge regarding the evaluation and treatment of patients with pneumoperitoneum.

Acid Peptic Disease**933**

Jason W. Kempenich and Kenneth R. Sirinek

The management of peptic ulcer disease has radically changed over the last 40 years from primarily surgical treatment to medical therapy nearly eliminating the need for elective surgery in these patients. Although there has been a decline in patients requiring acute surgical intervention for complications of peptic ulcer disease (perforation, bleeding, and obstruction), these patients still make up a significant proportion of hospital admissions every year. The modern acute care surgeon must have significant knowledge of the multiple treatment modalities used to appropriately care for these patients.

Small Bowel Obstruction**945**

Katie Love Bower, Daniel I. Lollar, Sharon L. Williams, Farrell C. Adkins, David T. Luyimbazi, and Curtis E. Bower

Identifying patients with small bowel obstruction who need operative intervention and those who will fail nonoperative management is a challenge. Without indications for urgent intervention, a computed tomography scan with/without intravenous contrast should be obtained to identify the location, grade, and cause of the obstruction. Most small bowel obstructions resolve with nonoperative management. Open and laparoscopic operative management are acceptable approaches. Malnutrition needs to be identified early and managed, especially if the patient is to undergo operative management. Confounding conditions include age greater than 65 years, post Roux-en-Y gastric bypass, inflammatory bowel disease, malignancy, virgin abdomen, pregnancy, hernia, and early post-operative state.

Volvulus**973**

Zachary M. Bauman and Charity H. Evans

Intestinal volvulus, regardless of location, is a rare disease process but one that requires high suspicion and timely diagnosis given the increased incidence of intestinal necrosis and potential mortality. Most patients with intestinal volvulus require some form of surgical intervention. However, over the last few decades, the workup and management of intestinal volvulus has changed given constant advancements in technology and patient care. Most important, however, is recognizing the need for emergent versus more elective surgery because this influences the morbidity and mortality for the individual patient.

Acute Gut Ischemia**995**

Bryan A. Ehlert

Acute mesenteric ischemia is a surgical emergency commonly caused by embolic or thrombotic occlusion of the superior mesenteric artery. Prompt diagnosis, fluid resuscitation, systemic anticoagulation, and mesenteric revascularization are key tenets to the treatment of this lethal condition. Revascularization can be performed via open thromboemblectomy or surgical bypass, endovascular techniques, or a hybrid approach of the

two. Despite technologic advancements, mortalities remain high, and the plan of care and revascularization should be based on the patient's clinical status and available medical center resources.

Evolution and Current Trends In the Management of Acute Appendicitis

1005

Michel Wagner, Dustin John Tubre, and Juan A. Asensio

The treatment of appendicitis has evolved since the first appendectomy in the eighteenth century. It seems to have come full circle with nonoperative management in the era before frequent surgical interventions, to open surgical interventions, minimally invasive interventions, and now back to a renewed interest in nonoperative management of acute appendicitis. Scoring systems to help refine the diagnosis of acute appendicitis and advances in medical imaging have also changed the management of this condition. Scientific investigations into the effects the microbiome of the appendix play in this disease process are also being considered.

Emergency Presentations of Diverticulitis

1025

Michael P. Meara and Colleen M. Alexander

Acute diverticulitis is a common condition that has been increasing in incidence in the United States. It is associated with increasing age, but the pathophysiology of acute diverticulitis is still being elucidated. It is now believed to have a significant contribution from inflammatory processes rather than being a strictly infectious process. There are still many questions to be answered regarding the optimal management of acute diverticulitis because recent studies have challenged traditional practices, such as the routine use of antibiotics, surgical technique, and dietary restrictions for prevention of recurrence.

The Acute Upper Gastrointestinal Bleed

1047

David W. Nelms and Carlos A. Pelaez

Upper gastrointestinal bleeding (UGIB), defined as intraluminal hemorrhage proximal to the ligament of Treitz, can range from mild and asymptomatic to massive life-threatening hemorrhage. For the purposes of this article, the authors define an acute UGIB to be one that results in new acute symptoms and is, therefore, potentially life-threatening. UGIB requires a systematic approach to evaluation and treatment, similar to the management of a trauma patient. Surgeon involvement in UGIBs remains integral despite the rare need for operative management. Endoscopy is the primary tool for diagnosis and treatment.

Lower Gastrointestinal Bleeding

1059

Brandt D. Whitehurst

Lower gastrointestinal bleeding entails a range of severity and a multitude of options for localization and control of bleeding. With experience in trauma, critical care, endoscopy, and definitive surgical interventions, general surgeons are equipped to manage this condition in various clinical settings. This article examines traditional and emerging options for bleeding localization and control available to general surgeons.

Rapid Reversal of Novel Anticoagulant and Antiplatelet Medications in General Surgery Emergencies

1073

Lisa L. Schlitzkus, Jessica I. Summers, and Paul J. Schenarts

The reversal of the new class of nonvitamin K antagonist oral anticoagulants (NOACs) is challenging in the emergent perioperative setting. This article focuses on the reversal of NOACs, determining the emergent nature (risk analysis), and other considerations in reversal.

Acute Limb Ischemia

1081

Michael M. McNally and Junior Unvers

This article details the classification of limb ischemia, outlines the numerous causes of limb ischemia, highlights the diagnosis with treatment options and describes common postoperative conditions after limb ischemia intervention. The causes of acute limb ischemia presented in the article are divided into sections including the presentation, diagnosis, and therapy for each cause. The causes of broad limb ischemia include embolism, thrombosis, venous obstruction, trauma, and upper-extremity unique pathologic condition. Postoperative management is extremely important after revascularization of an acutely ischemic extremity. Reperfusion injury, myoglobinuria, and compartment syndrome are summarized in the postoperative section.

Aggressive Soft Tissue Infections

1097

Nicole M. Garcia and Jenny Cai

Necrotizing soft tissue infections (NSTIs) are characterized by rapidly progressive infection that causes tissue necrosis with associated sepsis and multisystem organ failure. A rapid diagnosis is essential to decreasing the morbidity and mortality of NSTIs. There must be a high index of suspicion based on history and physical examination. There are no adjunct laboratory values or imaging that have high sensitivity and specificity in the diagnosis of NSTI. The treatment involves emergent, radical surgical debridement of involved tissues and broad-spectrum antibiotics. Follow-up should include close monitoring of the wound and repeat debridements in the operating room.