

Non-operative treatment of anastomotic leaks: Current and investigational therapies



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ABSTRACT

The treatment of anastomotic leaks remains primarily operative; however, recent advances in technology are changing the scope of non-operative interventions for managing this difficult complication. The authors sought to provide an evidence-based review of the non-operative treatment options for anastomotic leaks using both current guidelines and investigational modalities on the horizon. A search of MEDLINE, PubMed, and the Cochrane Database of relevant scientific papers and reviews was performed. Abstracts were reviewed to determine their scientific merit and relevance to non-operative treatment of anastomotic leaks. Recommendations and treatment algorithms were based on consensus conclusions of the data. A total of 87 articles were reviewed and analyzed for this article. Reoperation is the first-line therapy for many anastomotic leaks, but non-operative techniques are appropriate and effective for a subset of this population. Image-guided percutaneous drainage has changed the treatment paradigm for many patients with anastomotic leaks. Endoscopic drainage and stenting are in their infancy, and controlled trials are needed to prove their efficacy; however, the future of non-operative treatment appears promising.

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Introduction

Anastomotic leak is one of the most devastating complications following colorectal surgery.¹ It is associated with increased morbidity and mortality, longer hospital stay, higher rates of cancer recurrence, and increased health care costs and resource utilization.^{2–6} The rates of anastomotic leak in colorectal surgery vary by anastomotic location with higher rates the more distal the anastomosis.⁷ There are several other patient-related factors that increase the risk of an anastomotic leak, but thus far attempts at predicting anastomotic leaks have not been successful.^{8–14} The difficulty and failure in predicting anastomotic leaks is in part complicated by the fact that there is no clear definition for what an anastomotic leak is. In a systematic review of 97 studies, Bruce et al.¹⁵ found 56 different definitions for anastomotic leak after gastrointestinal surgery. This lack of consensus on how to define an anastomotic leak stems from the broad variation in which anastomotic leaks present, and in turn, how they are managed. Anastomotic leaks can present both subclinically with vague

clinical signs and extravasation on radiographic imaging, and clinically with signs of sepsis including fever, tachycardia, hypotension, tachypnea, leukocytosis, and peritonitis.

As opposed to dividing anastomotic leaks into clinical or subclinical, many international experts categorize anastomotic leaks anatomically as intraperitoneal or extraperitoneal.⁷ Intraperitoneal leaks often present with more classic clinical signs of peritonitis likely because of the large peritoneal surface.¹⁶ On the other hand, extraperitoneal leaks lack an innervated peritoneal surface and may present more insidiously.⁸ Anatomic location can not only determine the clinical presentation of a leak but can also direct the clinical management of the patient. In an attempt to standardize the management of anastomotic leaks, the International Anastomotic Leak Study Group published an algorithm based on intraperitoneal (Fig. 1), extraperitoneal (Fig. 2) leaks, and leaks in the presence of fecal diversion (Fig. 3).⁷ The primary management decision point for all three scenarios is predicated on the presence and identification of peritonitis and/or the degree of sepsis. The therapeutic intervention in the setting of sepsis and peritonitis is largely operative and maintains the tenants of surgical control of sepsis and stabilization of the patient usually through fecal diversion, abdominal irrigation, and drainage. However, depending on the clinical situation, some clinical scenarios warrant a non-operative approach to the management of an

Author contributions: Rickles and Fleming—conception, design, data/literature acquisition, analysis, and drafting of article.

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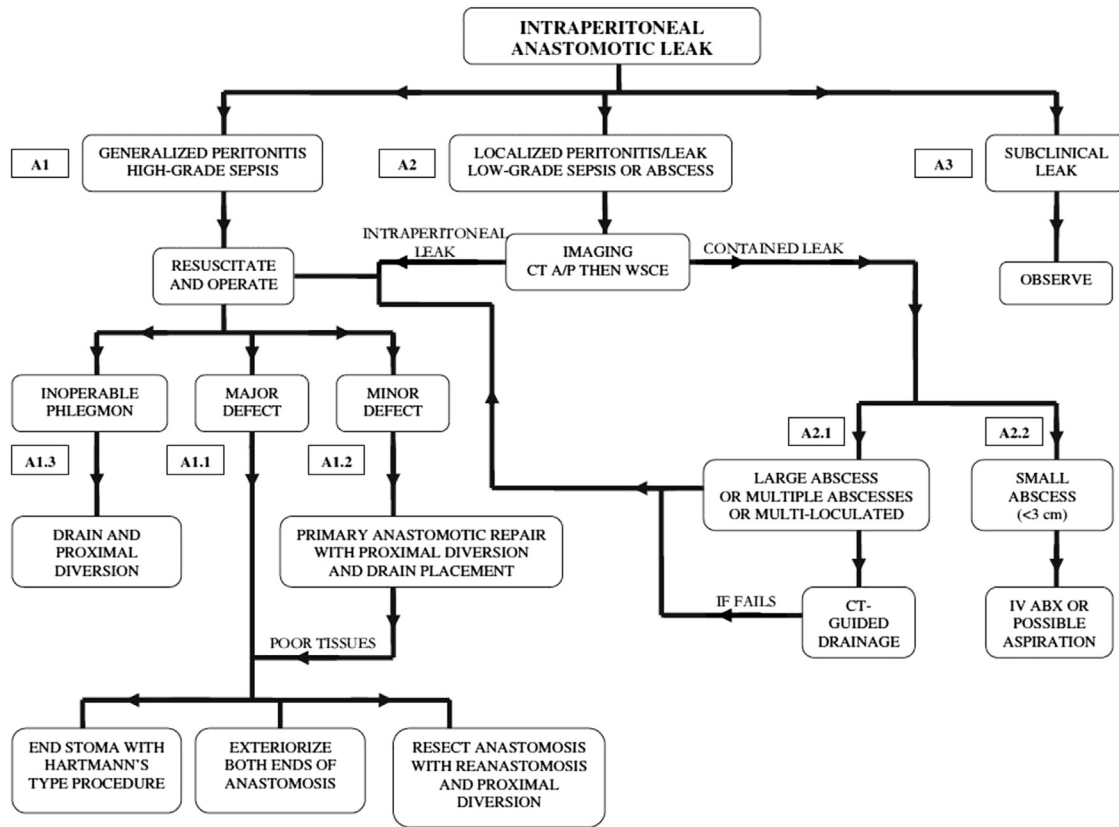


Fig. 1. Recommendations for the management of intraperitoneal anastomotic leak. Key: IV ABX = intravenous antibiotics; CT = computed tomography; WSCE = water-soluble contrast enema; CT A/P = computed tomography scan of the abdomen and pelvis. (Reprinted with permission from Phitayakorn et al.)

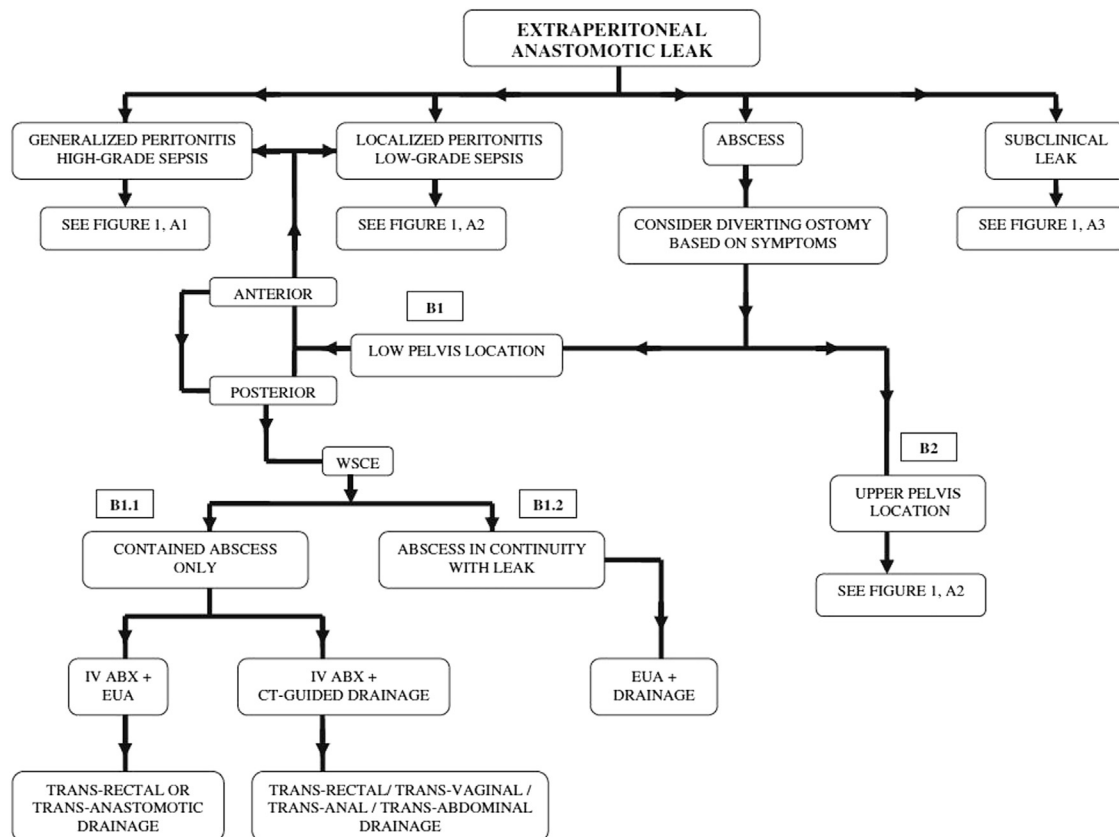


Fig. 2. Recommendations for the management of extraperitoneal anastomotic leak. Key: IV ABX = intravenous antibiotics; CT = computed tomography; WSCE = water-soluble contrast enema; EUA = exam under anesthesia. (Reprinted with permission from Phitayakorn et al.)

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