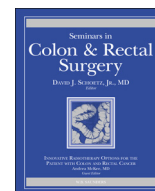




ELSEVIER

Contents lists available at ScienceDirect

## Seminars in Colon and Rectal Surgery

journal homepage: [www.elsevier.com/locate/yjscr](http://www.elsevier.com/locate/yjscr)

## Influence of trauma, peritonitis, and obstruction on restoring intestinal continuity—To connect or not to connect?



Jason R. Bingham, MD, Scott R. Steele, MD, FACS, FASCRS\*

Department of Surgery, Madigan Army Medical Center, Fort Lewis, WA

### ABSTRACT

The timing and approach to the restoration of intestinal continuity in emergent lower gastrointestinal surgery remains controversial. The authors sought to provide an evidence-based review of the treatment options for the restoration of intestinal continuity during emergency surgery in the setting of trauma, obstruction, and peritonitis. A search of MEDLINE, PubMed, and the Cochrane Database of Collected Reviews was performed. Abstracts were reviewed to determine their scientific merit. We then performed a complete evaluation of selected articles. A directed search of the embedded references from the primary articles was also performed in select circumstances. Recommendations and treatment algorithms were based on consensus conclusions of the data. A total of 128 articles were reviewed and analyzed for this article. The decision regarding when and how to restore intestinal continuity in emergent lower gastrointestinal surgery is complex and requires a thorough understanding of the underlying pathology, careful consideration of patient factors, and intimate knowledge of available treatment options.

Published by Elsevier Inc.

### Introduction

The surgical treatment of patients undergoing emergency surgery of the lower gastrointestinal tract has undergone significant evolution over the previous decades. Whether in the setting of trauma, generalized peritonitis, or acute obstruction, there has been an emerging trend favoring single-staged procedures over multi-staged procedures implementing fecal diversion at the initial operation. While each specific disease process holds unique challenges, the common end point is often a systemically ill and potentially unstable patient with a diminished physiologic reserve. Significant bowel wall edema and dilation, as well as co-existing conditions and injuries, often further complicate the surgical management of these patients.

The decision regarding how and when to restore intestinal continuity in these settings is complex. Generally speaking, the surgeon's options include (1) diversion alone with end colostomy/

ileostomy, (2) proximal diversion alone with end/loop colostomy/ileostomy, (3) primary repair or resection and anastomosis with proximal diversion, or (4) primary repair or resection and anastomosis without proximal diversion. In cases of acute obstruction secondary to malignancy, the use of endoluminal stents as bridging therapy to elective surgery has also been described (Fig. 1). Additionally, damage control surgery—in which the bleeding and soilage is initially controlled and followed by temporary closure—remains an option for those with severe illness or injury unable to tolerate more traditional methods.

Diversion with an end ostomy at the time of emergent lower gastrointestinal surgery has the potential advantages of being a quick and efficient way to control the source of abdominal sepsis, prevent further contamination, avoid risk of a subsequent leak, and often has shorter operative times than those needed for definitive repair. Unfortunately, the choice to divert does not come without its own inherent problems. Potential stoma-associated complications can be significant and include electrolyte derangements, dermatitis, parastomal hernia, prolapse, and stenosis. In addition, the psychological and quality-of-life effects of living with a stoma must also be considered. Furthermore, stoma reversal procedures can be technically challenging and carry significant morbidity, which is often underrepresented in literature comparing diversion to primary repair/resection with anastomosis. In reality, Hartmann's reversal after acute colonic perforation carries a reported morbidity and mortality of 25–66% and 1.9–14%, respectively, with

The opinions and assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of Defense.

Author contributions: Bingham was involved in the data/literature acquisition, analysis, and drafting of article. Steele was responsible for the conception, design, data/literature acquisition, analysis, and drafting of article.

\*Correspondence to: 9606 Piperhill Dr SE, Olympia, WA 98513.

E-mail address: [harkersteele@mac.com](mailto:harkersteele@mac.com) (S.R. Steele).



**Fig. 1.** Endolumenal stent placement across a near-obstructing colonic mass. (Courtesy of David E. Beck, MD)

an anastomotic leak rate of 3.8–6.2%.<sup>1–5</sup> Although a few studies have suggested slightly lower complication rates (~5–10%) when performed following traumatic injuries,<sup>6,7</sup> others have reported much higher rates (~17–55%) in trauma patients.<sup>8–10</sup> Clearly, it is desirable to avoid the inherent risk and inconvenience associated with stoma formation whenever possible. However, anastomotic leak following primary anastomosis is a real concern (Fig. 2), with a reported rate between 2.2% and 27%.<sup>2,3,11–16</sup> More importantly, the mortality rate associated with an anastomotic leak can be significant, with larger series generally reporting rates between 10% and 15%.<sup>17–20</sup> This must be balanced against the alternative. While the use of proximal diversion with loop ileostomy may decrease the rate of clinically significant leak when primary anastomosis is performed, the outcome can still be potentially devastating in patients with an already compromised physiologic reserve.<sup>21,22</sup>

Fortunately, overall mortality rates for emergent colorectal surgery have improved in recent decades. That being said, the optimal timing and approach to the restoration of intestinal continuity remains controversial. While the surgeon's experience, discretion, and judgment are the best factors to determine whether to restore intestinal continuity at the time of initial operation, we will review the options and outcomes in the settings of trauma, peritonitis, and obstruction.

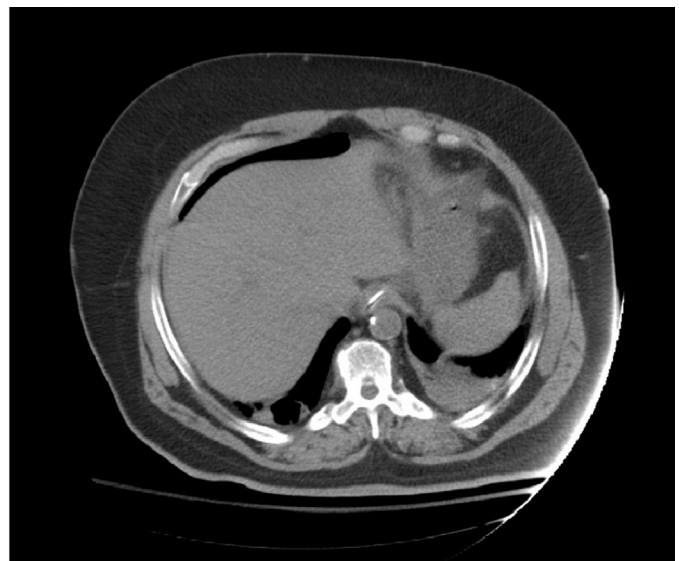
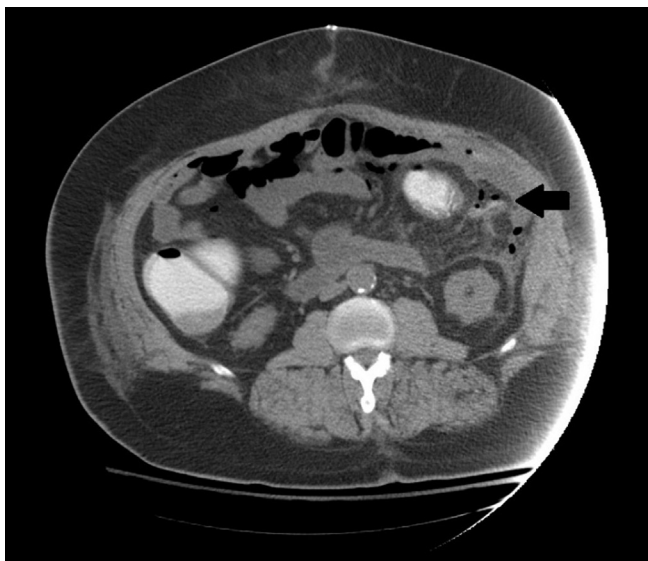
## Epidemiology and incidence

### Trauma

The colon (Fig. 3) is the second most frequent organ injured in penetrating abdominal trauma after the small bowel. As many published series consist of cohorts of only colorectal-injured patients, the exact incidence of colorectal injury in trauma is difficult to ascertain. Wartime series have reported an incidence of colonic injury at ~5–10%,<sup>23,24</sup> with our 2007 review that included 3400 patients treated during Operation Iraqi Freedom revealing colon and rectal injuries present in 5.1%.<sup>25</sup> Civilian series, in general, report a lower overall incidence of ~1–3%, with the incidence following blunt trauma being much lower at 0.1–0.3%.<sup>26–28</sup> The overall numbers depend, in part, on the environment and underlying mechanism of injury. For example, a 2010 wartime series of colorectal injuries encountered during the conflicts in Afghanistan and Iraq revealed 71% of injuries occurred secondary to penetrating trauma, while 23% were secondary to blast and 5% occurred during blunt trauma.<sup>29</sup> While reports of “high energy” and “blast” injuries are rare in civilian literature, recent events such as the 2013 Boston Marathon bombing and other terrorist activity remind us that these situations remain pertinent to all providers.

### Peritonitis

Peritonitis represents the physiologic response of the peritoneum of any irritant. This may be categorized as “primary” or “secondary” peritonitis. Primary peritonitis is generally managed medically with antibiotics and usually results from hematogenous spread of bacteria in patients with advanced cirrhosis. Secondary peritonitis results from the inflammation or mechanical break in the integrity of intestinal tract and is of primary concern to the surgeon. It may occur as a complication of appendicitis, diverticulitis, trauma, perforated ulcer or neoplasm, or rupture of intra-abdominal abscess. In one of the most feared situations, it can also occur secondary to an anastomotic leak. These patients present along a spectrum of disease from localized inflammation and mild abdominal pain to abdominal sepsis and diffuse peritonitis. The exact incidence in which the surgeon encounters generalized peritonitis intra-operatively is unclear and related to the frequency of underlying pathologic process. Certainly, perforated



**Fig. 2.** Axial CT scan of patient with anastomotic dehiscence. Note extra-luminal air and radiolucent material (black arrow). Free air can also be seen overlying the liver.

Download English Version:

<https://daneshyari.com/en/article/3319364>

Download Persian Version:

<https://daneshyari.com/article/3319364>

[Daneshyari.com](https://daneshyari.com)