

Unexpected Intra-operative Findings

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KEYWORDS

- Reoperative abdominal surgery • Hostile abdomen • Damage control
- Presacral hemorrhage • Intestinal anastomosis

KEY POINTS

- Unexpected intraoperative findings are a commonly encountered; however, there is little peer-reviewed evidence on which to base management decisions.
- Modern cross-sectional imaging techniques often elucidate many intra-abdominal findings. Careful review of any available preoperative imaging often assists the surgeon in anticipating challenges in difficult operations.
- Many intraabdominal collections can usually be temporized with nonoperative techniques such as image-guided percutaneous drainage allowing definitive surgical treatment after sepsis has resolved.
- Surgeons should be familiar with a number of different techniques to address commonly encountered unanticipated findings.

INTRODUCTION: INTRAOPERATIVE COMPLICATIONS AND FINDINGS

With advances in perioperative imaging and diagnostic studies, surgeons will have greater degrees of access to important surgical diagnoses before entering the operating theater. However, undiagnosed intraoperative findings and complications from surgery can still arise and cause challenges in decision making and treatment. Guidance on how to treat these intraoperative occurrences is difficult to find. For many topics there are few data and surgeons are left with only rare descriptions in the

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literature. The best advice often comes from senior colleagues with significant surgical experience. This article seeks to describe options for treatments using both available literature and the wisdom of senior surgeons to better prepare surgeons for handling unexpected intraoperative findings.

UNEXPECTED INTRAOPERATIVE FINDINGS

Because of the wide availability of cross-sectional imaging in the United States, it is unusual to operate without extensive preoperative intra-abdominal imaging. At our respective institutions, it is rare for patients to undergo elective or emergent surgery without having had imaging in the form of either a computed tomography (CT) or magnetic resonance imaging. Nevertheless, on occasion, patients have findings that were not suggested by the preoperative evaluation. Four of the more common intraoperative findings are abdominal abscess, Meckel diverticulum, right-sided diverticulitis, and endometriosis.

Abscess

Abscesses can be encountered in any case involving perforation of a hollow viscus. Preoperative diagnosis of sepsis of unknown origin should be addressed with preoperative imaging such as CT scanning. Abscesses can usually be managed with nonoperative techniques such as image-guided percutaneous drainage. This approach allows sepsis to resolve, patients to recover, and inflammation to dissipate before definitive operation. This approach is common in the management of diverticulitis, Crohn disease, and perforated appendicitis.¹⁻⁴

When abscess cavities are encountered intraoperatively (**Fig. 1A**), the surgeon should attempt to control sepsis and provide adequate drainage. Initially, the abscess cavity should be unroofed. In most cases, full exposure of the abscess cavity will involve resection of the perforated segment of bowel. Often, the abscess cavity can be separated from other organs by using finger-fracture and other blunt dissection techniques, minimizing damage to adjacent loops of bowel (see **Fig. 1B**). These techniques are particularly helpful when the anatomic relationships are unclear.

In the setting of an infected field requiring bowel resection, diversion is considered the most conservative approach. However, several studies have demonstrated that an anastomosis can be performed safely provided the remaining bowel has a good vascular supply, the bowel is not significantly dilated, the infection is largely cleared, and the patient is an otherwise good candidate for anastomosis.^{5,6}

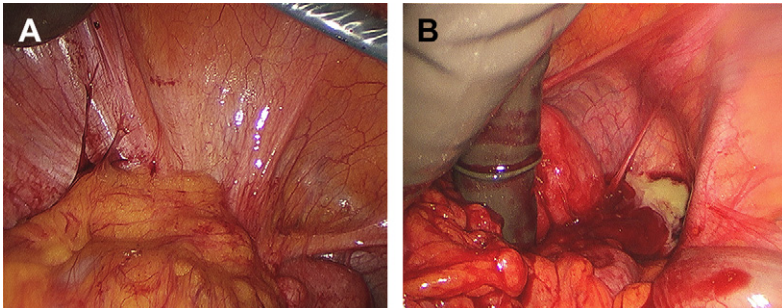


Fig. 1. (A) Walled-off abscess cavity from diverticulitis. (B) Abscess cavity following opening from finger-fracture technique. (Courtesy of Howard Ross, MD.)

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