



The evolution of surgery for the treatment of malignant large bowel obstruction



Sameer K. Sharma, MBBCh, MRCS, Jeffrey W. Milsom, MD, FACS*

Minimally Invasive New Technologies and the Center for Advanced Digestive Care, Weill Cornell Medical College, New York Presbyterian Hospital, 525 E 68th St, Box 172, New York, New York 10065

ARTICLE INFO

Article history:

Received 9 June 2014
Accepted 26 July 2014

Keywords:

Malignant
Large bowel
Intestine
Surgery

ABSTRACT

Large bowel obstruction (LBO) secondary to malignancy is an urgent or emergent surgical condition. Despite recent advances in alternative therapies, surgery remains the primary evidence-based curative, palliative, or temporizing treatment option. Acute presentations of malignant LBO are likely to be associated with advanced age, multiple comorbidities, advanced disease stage, and a poor prognosis. Immediate management should focus on prompt diagnosis, resuscitation, and treatment to relieve the obstruction. The modern operating room should be thought of as the arena where the highest probability for optimal outcomes is achieved. This article outlines the evolving role of malignant LBO surgery, and how newer approaches to operative treatment may improve clinical outcomes.

© 2014 Elsevier Inc. All rights reserved.

1. Introduction

Large bowel obstruction (LBO) secondary to cancer is a serious clinical condition, requiring prompt intervention to reduce its significant morbidity and mortality rates. The diagnosis has profound implications on a patient's prognosis—it is nearly always associated with an advanced tumor stage and poor survival. Even so, the role of surgery remains paramount, as it represents the highest chance for acute event recovery and disease cure [1–9]. Newer therapeutic options, some of which are discussed elsewhere in this issue, must be benchmarked against classical surgical approaches as we deliberate how malignant LBO (MLBO) may be treated in the future. Similarly, as we point out, the definition of surgery in the context of all relevant intestinal conditions is in transition; therefore, the treatment of MLBO is also entering a phase of surgical evolution. In an era of rapidly evolving surgical practice and the utilization of several technologies based in the operating room (OR), endoscopy-suite, and office (clinic), we benchmark and define the current and future role of surgery in the management of MLBO.

1.1. Definition and incidence

MLBO is the cessation of the luminal content flow due to a primary (originates from an anatomical location within the

intestine) or secondary (tumor has an origin not within the intestine) tumor. Within this are varying clinical patterns associated with a pathological range flanked by “complete” obstruction (total obstruction of luminal content passage) and significant “partial” obstruction (incomplete obstruction of luminal passage with clinical signs or symptoms).

In the United States, nearly one hundred and forty thousand cases of colorectal cancer (CRC) will be diagnosed yearly, and fifty thousand of those diagnosed will succumb (National Institutes of Health—Surveillance, Epidemiology, and End Results Program). CRC is the third most common cancer worldwide, and there is mounting evidence that its incidence is increasing rapidly in developing countries [10]. Cancer is the most common cause of LBO in the Western world [10–12] and data predict between ten and forty thousand cases of MLBO this year (in the United States) [13].

1.2. Outcomes following surgery and projected future trends

Previous studies have confirmed a significant increase in morbidity and mortality following surgery for MLBO (nontreatment carries a grave prognosis), attributed to the advanced age, frequent comorbidities, and progressive stage of disease of patients [7]. Mortality approaches 50% following surgery from a variety of causes, including delay in diagnosis [4].

A fifty-seven percent increase in the number of individuals with cancer is projected in the coming twenty years (with rates alarmingly increasing in developing countries and the young) [10]. We predict that the numbers of patients with MLBO worldwide will rise in line with this (possibly tempered in Western countries by colonoscopic surveillance and early treatment). The caseload of

The author reports no direct financial interests that might pose a conflict of interest in connection with the submitted manuscript.

* Corresponding author.

E-mail address: mim2035@med.cornell.edu (J.W. Milsom).

advanced, complicated, and emergency CRC cases will likely increase in the coming decades, and although unfortunate, it presents an opportunity for innovation and change.

2. Clinical presentation and diagnosis

MLBO is the culmination of a progressive disease course; however, it usually presents acutely—either in the emergency department or in the physician's office. A high clinical index of suspicion is necessary, as rapid corrective measures are typically required. As presentation can range widely from the apparently healthy individual to the moribund, with potential for rapid deterioration, initial surgical management should be based on a principle of “what reasons are there not to proceed with operation” (optimally within 6–12 hours).

The clinical picture is generally one of abdominal distension, diffuse pain, and possibly nausea and vomiting, coupled with either absolute constipation or a marked change in the pattern of bowel function for more than twenty-four hours (even diarrhea may be seen with significant partial MLBO). Infrequent prior visits to health professionals are common. Although time is of the essence in the management of MLBO, a thorough history and physical examination are mandatory.

Differential diagnoses include large bowel volvulus, incarcerated hernia, and stricture due to benign causes (inflammatory bowel disease, diverticular disease, and ischemia), and these may be the source of LBO in up to fifty percent of cases [14,15]. Nonetheless, in an elderly patient presenting with LBO, malignancy is the cause until proven otherwise. Relief of the obstruction is necessary to protect the patient from imminent harm (eg, perforation, dehydration, massive fluid shifts, cardiovascular collapse, and death).

The surgeon's evaluation should solicit bowel function and habit changes, weight and energy loss over the previous few months, patient or family history of CRC or other malignancies, and the occurrence of any recent diagnostic tests. A physical examination for signs of peritonitis, scars indicating previous abdominal surgery, hernias, and digital rectal examination should always be performed. The rectum is often empty when there is LBO, and particular care should be taken for a palpable tumor within the cul-de-sac.

3. Investigations and initial therapy

Blood and urine tests should be solicited for signs of anemia, electrolyte disturbances, coagulation abnormalities, and dehydration. At our institution, carcinoembryonic antigen levels are checked even in the absence of a firm diagnosis of CRC. Early establishment of a large-bore intravenous line with fluid and electrolyte replacement is a key consideration before any intervention, and clinically significant anemia can be corrected through blood transfusion. The patient should be prepared for possible surgical, radiologic, and endoscopic interventions, so early discussion with an anesthetist and instigation of the relevant tests are recommended, for example, chest and abdominal radiographs and electrocardiogram.

Computed tomography (CT) scans of the abdomen and the pelvis are an inevitable modern part of an urgent patient preparation if peritonitis is not apparent. A CT scan confirms diagnosis in most cases (ninety-six percent identification of correct location and eighty-nine percent of cases) [16] and also is the most fundamental means of preoperative cancer staging in the Western world.

Office (clinic)–flexible sigmoidoscopy is routinely available at our institution, and we consider this fundamentally important to patient management. Rectal or sigmoid tumors may be rapidly diagnosed through direct visualization and biopsy with urgent or emergent histopathologic review. The benefits of carbon dioxide use as the insufflating gas (as opposed to room air) include rapid absorption, decreased abdominal distension, and increased patient comfort [17].

Colonoscopy (also using carbon dioxide gas insufflation) may also be considered (see later), to provide direct visualization of the tumor, biopsy, intra-luminal therapies, and the option of placing a temporizing solution (such as a stent or decompression tube), however the surgeon should lead the decision making process on whether this method is indicated or not.

4. Benchmarking and advancing the roles of surgery (evolution)

Surgery has several roles, but in the context of acute malignant obstruction, it is most frequently used to prevent or extricate the patient from catastrophe. In the future, “surgery” should be thought of as extraluminal (eg, proximal diversion), endoluminal (eg, neodymium-doped yttrium-aluminum-garnet [Nd:YAG] laser therapy) or both, combined with focused intraoperative imaging (eg, radiologic and endoscopic). Combining these modalities will lead to new approaches. Traditional surgical treatment (resection) offers the most likely probability for cure (approaching forty percent in obstructing primary CRC), vs chemotherapeutic regimens (less than five percent) and radiotherapy (rectum only, less than ten percent) [18–26]. Endoluminal or medical therapies may only be considered in the absence of peritonitis or in subacute situations.

We feel that the safest place for endoluminal treatment is in the OR, if endoluminal treatment failure does occur, then surgical relief or rescue can be provided immediately and there is no delay in relieving the obstruction. Imaging modalities such as simple fluoroscopy can be useful and omnipresent in ORs, but we now prefer more functional intraoperative radiologic approaches, such as the Siemens Artis Zeego (Erlangen, Germany) system, which provides a 3-dimensional reconstructed image and has the potential for image fusion with the preoperative CT scan.

5. MLBO is a common surgical emergency

MLBO is present in up to thirty percent of cases of initial presentation of a CRC [13]. Although most of the comments in this article center on primary CRC treatment, attention should be paid to the presence of other cancers, particularly ovarian tumors that may lead to LBO. Thus biopsy and tissue confirmation should always be part of the treatment strategy.

5.1. Planning treatment (see figure 1)

5.1.1. Urgent surgery for MLBO

Once the diagnosis is made, in nonemergent situations (partial uncomplicated MLBO), a period of resuscitation followed by diagnostic confirmation, neoadjuvant therapy (chemotherapy), and then finally elective surgery is the most favored course of action (also possibly followed by further adjuvant therapy). In nonobstructed cases of advanced disease, surgery may become postponed if the primary tumor exhibits a favorable response with chemotherapy. Importantly, this time period permits thorough evaluation of the diagnosis, stage, and likely prognosis with an opportunity to discover and incorporate the patients' and families'

Download English Version:

<https://daneshyari.com/en/article/3322362>

Download Persian Version:

<https://daneshyari.com/article/3322362>

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