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Surgeon attitudes and practice patterns in managing small bowel obstruction: a qualitative analysis

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ABSTRACT

Background: Historical training instructs surgeons to, “never let the sun set on a small bowel obstruction (SBO)” due to concern for bowel ischemia. However, the routine use of computed tomography scans for ruling out ischemia provides the opportunity for trial of nonoperative management, allowing time for resolution of adhesive SBO. In light of advances in practice, little is known about how surgeons manage these patients, in particular, whether there is consistency in the stated duration for safe nonoperative management.

Methods: Using a case vignette (a patient with computed tomography scan diagnosed complete SBO without bowel ischemia), we interviewed a purposive sample of general surgeons practicing in Washington State to understand stated approaches to clinical management. Interview questions addressed typical practice, preferred timing of surgery, and approach. We conducted a content analysis to understand current practice and attitudes.

Results: We interviewed 15 surgeons practicing across Washington State. Surgical practice patterns for patients with SBO varied widely. The period of time that surgeons were willing to manage patients nonoperatively ranged from 1-7 d. Interviews revealed insight into surgical decision-making, the importance of patient preferences, variation in practice, and evidence gaps. All surgeons acknowledged a lack of evidence to support appropriate management of patients with SBO.

Conclusions: Interviews with practicing surgeons highlight a changing paradigm away from routine early surgery for patients with adhesive SBO. However, there is lack of consensus in the appropriate duration of nonoperative management and practices vary considerably. These revealed attitudes inform the feasibility and design of future randomized studies of patients with adhesive SBO.

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Introduction

Small bowel obstruction (SBO) is a common problem. It is estimated that one-fifth of patients who undergo abdominal or pelvic surgery will later develop an obstruction related to adhesions.[1,2] Hospital stays for treating SBO average 8 d in length and number over 350,000 annually in the US at a cost of $2.3 billion.[3-5] A minority of SBOs are complicated by intestinal ischemia that requires emergency surgery. As a result, the historical convention was to "never let the sun rise and set on a SBO."[6] However, the increasing availability and accuracy of imaging in the emergency department, as well as other diagnostic tools, has allowed surgeons to more carefully triage those with complete obstruction and concerns for ischemia.[7] New evidence for the use of enteral contrast studies (e.g., Gastrografin, Braco Diagnostics Inc, Monroe Township, NJ) in the diagnosis and prognosis of SBO has also facilitated the practice of selecting some patients for nonoperative management.[8] As a result, many surgical practices now include a period of nonoperative management including nasogastric decompression, IV fluids, and bowel rest, in those patients without signs of bowel ischemia. In recent studies, findings suggest that a proportion of patients (28%-75%) with complete bowel obstruction may not require surgery.[9-12] However, a review of the literature revealed no published randomized trials comparing early operation with expectant management, thus evidence to guide surgeons in this practice is limited. Despite a change in the paradigm of the timing of surgery for SBO, current practice patterns among general surgeons in the United States are not known.

We have observed that the duration of nonoperative management varies among surgeons caring for patients with SBO. Using a qualitative approach, we sought to understand how surgeons' decide to operate on patients with SBO, their preferences for in-hospital care and operative approaches, and their attitudes regarding the duration of nonoperative management. Qualitative research methods are suited to understanding stakeholder perspectives, especially in the context of diverse opinions. The aim of this study is to understand variability in the stated approach to SBO management and to allow surgeons' voices to shape possible areas for future research that will guide care for patients with SBO.

Materials and methods

As part of our ongoing efforts to engage practicing clinicians in research, we conducted interviews with general surgeons participating in the Surgical Clinical Outcomes Assessment Program, a statewide physician-led initiative for quality improvement in surgery at 38 hospitals in Washington State and Oregon.[13,14] We performed purposive sampling to include surgeons from both academic and private practices and in both urban and suburban settings. Surgeons were interviewed in person or by phone until thematic saturation, the point where additional interviews did not reveal new information, was achieved. All participants provided verbal consent. This study was reviewed by the University of Washington Internal Review Board and exempted as low risk.

A semistructured interview guide was developed to frame discussions with participants around their clinical management of SBO (Appendix 1) (L.W.T., A.R.T., D.R.F., G.H.D., and D.C.L.). Interviews were conducted by three investigators (L.W.T., A.R.T., and D.C.L.). The topics discussed in each interview are summarized in Table 1. To focus the discussion on clinical management, each surgeon was presented with a standardized case vignette of a patient with suspected adhesive SBO without signs of intestinal ischemia (Table 2). All interviews were audio-recorded and transcribed, after which transcripts were reviewed for accuracy by two researchers (L.W.T. and A.R.T.).

We performed a conventional content analysis of surgeons' opinions on managing patients with SBO.[15] After review of all transcripts, the research team developed a set of codes representative of key concepts present throughout the interviews. Two researchers then independently coded all transcripts for recurring textual concepts (L.W.T. and A.R.T.). A consensus process was applied to resolve any conflicts in coding. Once review and coding of all interview transcripts was complete, the research team identified central themes that emerged among the majority of subjects (L.W.T., A.R.T. and D.C.L.). All coding was performed using commercially available computer-assisted qualitative data analysis software (Dedoose, v. 7.5.4).[16]

Results

We interviewed 15 general surgeons practicing at 11 hospitals in Washington State and one hospital in Oregon. Participants were 47% female ($n = 7$) and had a mean of 11 y of practice (standard deviation: 9 y) experience since completing residency. More than half of subjects had some subspecialty training (colorectal surgery [$n = 8$], minimally invasive surgery [$n = 1$], and trauma and critical care [$n = 2$]). Interviews lasted between 8 and 29 min. Characteristics of surgeons interviewed in this study are summarized in Table 3. Surgeons reported frequent experience in treating patients with SBO (ranging from 12-100 patients annually). We describe surgeons' use of diagnostic imaging, the role of early surgeon involvement, factors influencing surgical decision-making, time to operative management, preferences in surgical approach, accepted variation in practice, and respect for surgeon autonomy.

Use of cross-sectional imaging

Most surgeons agreed that, although computed tomography (CT) scans may not be necessary for all cases, they have become a standard part of the workup of patients with suspected SBO. One surgeon said, "Almost everybody, by the time the ER consults me, has had a CT scan [...but] plain abdominal radiographs I think are just as good in most cases." The majority of surgeons interviewed indicated that they use enteral contrast studies (e.g., Gastrografin) either selectively ($n = 5$) or routinely ($n = 8$) in patients with suspected SBO,

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