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Brief Communication

Treatment preferences in diverticulitis are common and rarely change after a clinic visit

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ABSTRACT

With the increasing prevalence of diverticulitis, professional guidelines encourage the individualization of treatment. However, the frequency of treatment preferences of both surgeons, and patients, and the resultant impact of that preference on diverticulitis management is underexplored. We reviewed 27 consecutive patient visits of 3 colorectal surgeons at our institution to evaluate factors that drove their treatment, as well as their equipoise for patient randomization into medical or surgical treatments. Using standardized pre- and post-visit questionnaires, we investigated the impact of the clinic visit on treatment recommendations. Our results demonstrate that our surgeons have a practice bias towards complicated disease, and have a preference towards operative management of diverticulitis, in both complicated and uncomplicated disease. This preference was frequently unchanged after clinic visit, which has implications for guiding truly shared decision making, as it continues to be the recommendation.

Introduction

Diverticulitis is an increasingly prevalent disease [1], with both medical and surgical treatments having roles in contemporary management. Current recommendations from professional societies for the management of diverticulitis have transitioned away from "episode counting" to focus on individualization of treatment, either with surgical or medical management incorporating considerations like lingering symptoms, lifestyle limitations, and concerns about recurrence [2].

The weight of the considerations that drive surgical or medical management of diverticulitis still represents a grey area of management, and the nuance involved in decision making for patients is difficult to measure despite existing recommendations [3]. Some reports have suggested using a standardized quality of life scoring index to represent disease burden. A study from 2022 which reviewed patient quality of life scores demonstrated that a patient's self-reported, standardized quality of life index had a stronger correlation with disease measures of patient health (activity impairment, contentment, etc.) than episode count [4]. Another study used data from the DEBUT trial (Diverticulitis Evaluation of Burden and Trajectory) to rank surgeon and patient factors in the decision for surgical intervention. This study of 11 surgeons and 34 patients noted that the factors important for patients and surgeons were not often shared, suggesting a gap in the decision-making process [1].

Therefore, it appears that the frequency of treatment preferences are not well characterized, and the resultant impact on treatment decision making with patients is not well understood. In this context, it is possible that both surgeons and patients have partiality towards what may be the preferred treatment, even prior to a formal consultation or clinical visit. Therefore, we aimed to describe surgeon treatment preferences before and after meeting with a patient, and evaluate the frequency in which the treatment recommendation was changed after a patient visit. We hypothesized that surgeons felt that they had enough information to make a definitive treatment decision prior to meeting patients, but were uncertain how often that treatment decision would be altered by a patient meeting.

Methods

The Institutional Review Board of the Benaroya Research Institute at Virginia Mason deemed this study exempt from human subjects' research. The study included 27 consecutive patients evaluated by three colorectal surgeons at our institution over 3 months (February to April

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2022). We prospectively track all patients with a CT-confirmed episode of diverticulitis, and patients were included in this study if they were a newly referred patient with a CT-confirmed diagnosis of diverticulitis prior to initial clinic visit. We excluded patients that were already established or had prior diverticulitis operations.

To ascertain surgeon treatment preferences before and after a clinic visit, we performed semi-structured interviews using a standardized pre- and post-clinic evaluation survey (Appendix 1). The survey assessed whether the surgeon felt there was enough information to make a treatment decision (including imaging, colonoscopy reports, and other parts of the medical record), if the surgeon had equipoise between operative and non-operative treatment decision, and if, outside a clinical trial, the surgeon or patient had preferences for the 'best treatment.' This was important as our site was actively recruiting patients for the Comparison of Surgery and Medicine on the Impact of Diverticulitis (COSMID) Trial (NCT04095663) [5]. The survey also asked the surgeon to define the diverticulitis as complicated or uncomplicated. The survey was repeated after the actual clinic visit, such that surgeon could comment on any changes in the decision making after the visit. Three patients evaluated did not have completed post-visit evaluations.

Categorical responses were summarized using frequency distributions, and pre- and post-visit frequencies compared used paired *t*-test. Descriptive and comparative statistics were applied using STATA, version 15.1 (STATA Corp, College Station, TX).

Results

Surgeons reported they had adequate information needed to make a clinical decision in 26/27 (94 %) of pre-visit evaluations, and categorized the patient's diverticulitis as complicated in 12/27 (44 %).

The surgeon believed it would be appropriate to randomize the patient to operative vs medical management in 14/27 pre-visit evaluations and 10/24 post-visit evaluations (52 % vs 42 %, $p = 0.043$) (Fig. 1). In the absence of a clinical trial, the surgeon believed that the best treatment would be surgical in 19/27 of patients pre-visit, and 14/24 post-visit (70 % vs 58 %, $p = 0.083$).

The reasons cited by surgeons for and against operative management for patients are listed in Table 1. For patients who were recommended operative intervention, the most commonly cited reason was complicated diverticulitis or immunocompromised status. For those with non-operative management recommendations, the most commonly cited reason was patient preference to not undergo surgery.

Table 1
Reasons cited for or against operative management.

Based on my evaluation, I think the best treatment for this patient would be	N	%
Operative	**14**	**58**
Complicated diverticulitis or immunosuppression	9	64
Uncomplicated diverticulitis	5	36
- Increasing frequency of uncomplicated episodes	2	14
- Randomized to COSMID trial-medical arm	1	7
- Patient preference	2	14
Nonoperative	**10**	**41**
Complicated diverticulitis or immunosuppression	2	20
- Patient asymptomatic	1	10
- Patient prefers to avoid surgery	1	10
Uncomplicated diverticulitis	8	80
- Patient preference	7	70

Discussion

This study aimed to evaluate how often surgeons had 'preferences' on best treatment for a patient with diverticulitis, before ever meeting the patient. Our study confirmed that surgeons felt they often had enough information to make a clinical recommendation when meeting a patient, and that the best treatment was typically operative. After meeting patients, this preference towards operative treatment decreased, but was still the preferred approach in most patients. There are several potential explanations and implications for these findings.

First, bias towards patients with complicated disease likely reflects referral pattern for this particular clinic. It is possible that there was selection bias of the patients and disease severity given their referral to a colorectal surgeon. We expect that roughly only 20 % of diverticulitis patients have complicated disease [2], a group in which operative intervention is typically recommended. In this clinic the proportion of patients with complicated disease was more than twice that, suggesting that the surgeons are seeing patients for which they typically are offering operations, potentially swaying decision making [3]. Whether that higher proportion of complicated disease is what is driving this difference is unknown.

It is also possible that surgeon decision making did not change following clinic visits due to the decisional bias of the surgeon. This study did not independently quantify patient factors that may influence surgeon decision (patient BMI, prior operations, comorbidities, etc.). We also did not compare different surgeon treatment preferences of the same patient, to evaluate if there was existing decisional bias towards

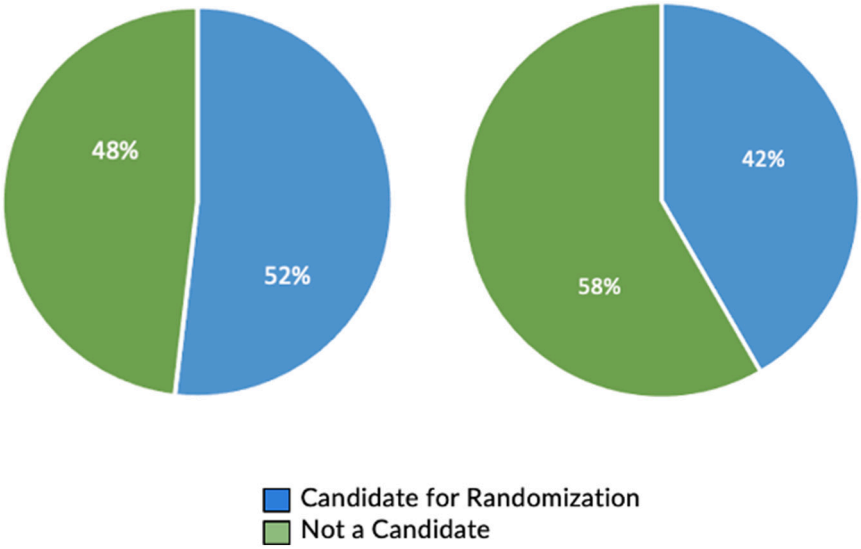


Fig. 1. Surgeon would be willing to randomize patient to either operative or medical management for diverticulitis, evaluated pre-visit (left) and post-visit (right).

medical or surgical management amongst individual surgeons.

Other limitations include small patient numbers within this study, and a relatively short inclusion period, in order to capture consecutive cases. As it is known diverticulitis fluctuates seasonally [6], and this study occurred in post-pandemic period which could have impacted patient selection and decision making.

In conclusion, surgeons in this study had a preference towards operative management of diverticulitis, both complicated and uncomplicated, that is rarely changed following clinic visit with the patient. This has implications for guiding truly-shared decision making for patients as that continues to be a recommendation in the management of diverticulitis.

Funding statement

There was no designated financial support for this manuscript.

Ethics approval

The Institutional Review Board of the Benaroya Research Institute at Virginia Mason deemed this study exempt from human subjects' research.

Previous presentation

A portion of this work was presented at the 124th Annual American Society of Colon and Rectal Surgeons Scientific Meeting. Seattle, WA. April 29–May 3, 2022.

CRediT authorship contribution statement

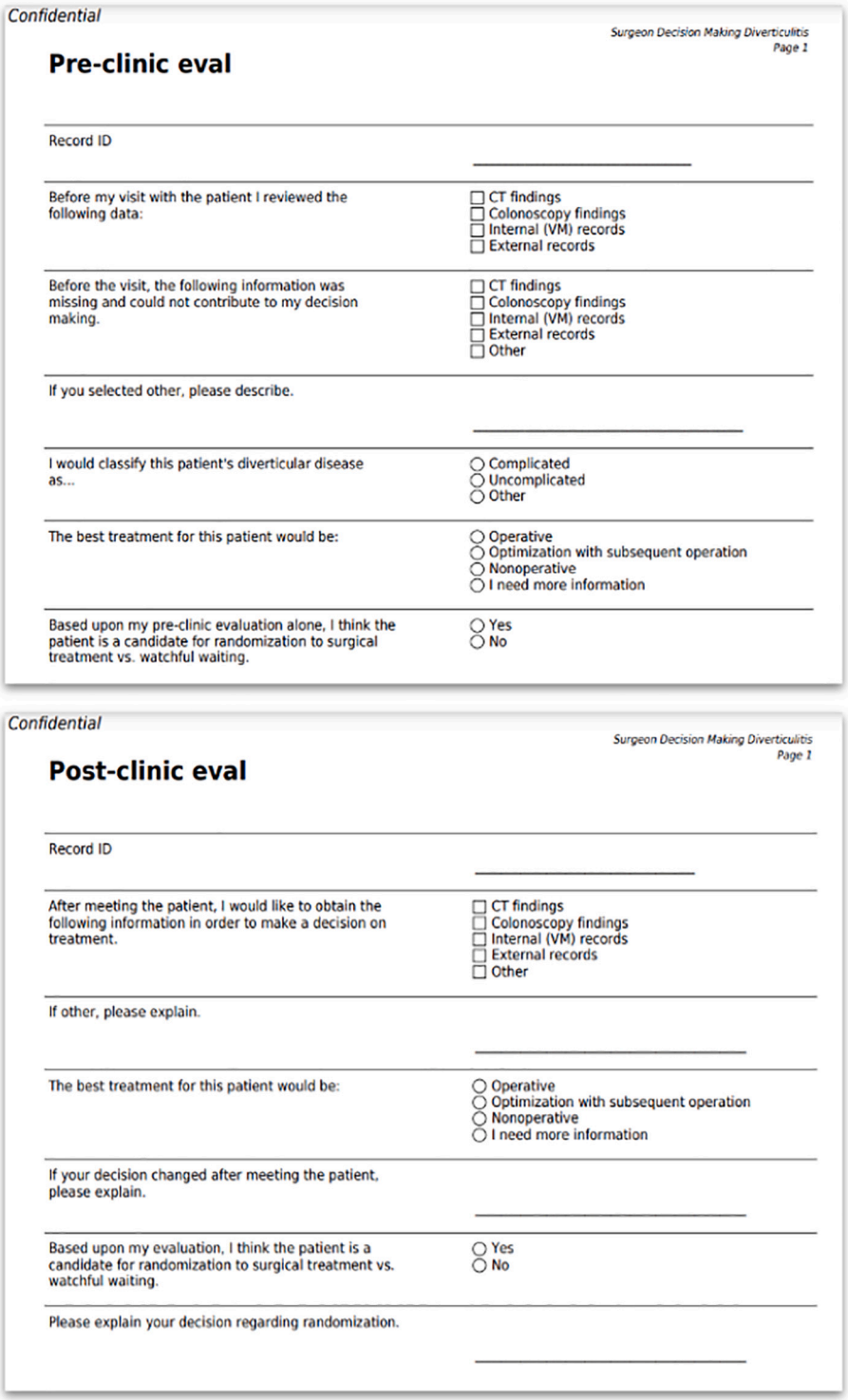
Anna A. Melio: Data curation, Formal analysis, Project administration, Visualization, Writing – original draft, Writing – review & editing. **Meredith Johnson:** Conceptualization, Investigation, Methodology. **Jennifer A. Kaplan:** Investigation, Resources, Supervision, Writing – review & editing. **Ravi Moonka:** Investigation, Resources, Supervision, Writing – review & editing. **Vlad V. Simianu:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Visualization, Writing – review & editing.

Declaration of competing interest

Dr. Simianu has received educational and travel support from Intuitive Surgical, Inc., serves as consultant to C-SATs, Inc., and is on the advisory board for BD. The remaining authors report no conflicts of interest, use of off-label or unapproved drugs or products, or use of previously copyrighted material.

The remaining authors have no disclosures.

Appendix 1



Confidential

Surgeon Decision Making Diverticulitis
Page 1

Pre-clinic eval

Record ID _____

Before my visit with the patient I reviewed the following data:
- ☐ CT findings
- ☐ Colonoscopy findings
- ☐ Internal (VM) records
- ☐ External records

Before the visit, the following information was missing and could not contribute to my decision making.
- ☐ CT findings
- ☐ Colonoscopy findings
- ☐ Internal (VM) records
- ☐ External records
- ☐ Other

If you selected other, please describe. _____

I would classify this patient's diverticular disease as...
- ○ Complicated
- ○ Uncomplicated
- ○ Other

The best treatment for this patient would be:
- ○ Operative
- ○ Optimization with subsequent operation
- ○ Nonoperative
- ○ I need more information

Based upon my pre-clinic evaluation alone, I think the patient is a candidate for randomization to surgical treatment vs. watchful waiting.
- ○ Yes
- ○ No

Confidential

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Page 1

Post-clinic eval

Record ID _____

After meeting the patient, I would like to obtain the following information in order to make a decision on treatment.
- ☐ CT findings
- ☐ Colonoscopy findings
- ☐ Internal (VM) records
- ☐ External records
- ☐ Other

If other, please explain. _____

The best treatment for this patient would be:
- ○ Operative
- ○ Optimization with subsequent operation
- ○ Nonoperative
- ○ I need more information

If your decision changed after meeting the patient, please explain. _____

Based upon my evaluation, I think the patient is a candidate for randomization to surgical treatment vs. watchful waiting.
- ○ Yes
- ○ No

Please explain your decision regarding randomization. _____

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