Bowel obstruction in recurrent gynecologic malignancies: Defining who will benefit from surgical intervention

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Abstract

Aim: To define factors that could help select, in a cohort of gynecologic cancer patients with malignant gastro-intestinal obstruction, those most likely to benefit from palliative surgery.

Methods: In this retrospective study of patients with malignant gastro-intestinal obstruction who underwent palliative surgery in our institute over 7 years, outcome measures were oral intake, chemotherapy, and 30-day, 60-day and overall survival. Based on Cox proportional-hazards regression models and Kaplan–Meier curves with log-rank tests, a prognostic score was developed to identify those most likely to benefit from surgery.

Results: Sixty-eight palliative surgeries were performed in 62 patients with ovarian (69.1%), primary-peritoneal (8.8%), cervical (11.8%) or uterine (10.3%) malignancies. Procedures were colostomy (26.5%), ileostomy (39.7%), colonic stent (1.5%), gastrostomy (7.3%), gastro-enterostomy (5.9%) and bypass/resection and anastomosis (19.1%). Eighteen patients died prior to discharge, within 3–81 days (median 25 days). The 30-day and 60-day mortality rates were 14.7% and 29.4%, respectively. Postoperative oral-intake and chemotherapy rates were 65% and 53%, respectively, with albumin level identified on multivariate analysis as the only significant predictor of both. Median post-operative survival was 106 days (3–1342). Bypass/resection and anastomosis was associated with improved survival. Ascites below 2 L, younger age, ovarian primary tumor, and higher blood albumin correlated with longer postoperative survival. A prognostic index based on these factors was found to identify patients with increased 30-day and 60-day mortality.

Conclusions: Our proposed prognostic index, based on age, primary tumor, albumin and ascites, might help select those gynecological cancer patients most likely to benefit from palliative surgery.

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Introduction

Patients with recurrent gynecologic malignancies may suffer from bowel obstruction once they become incapable of responding to therapy, usually near end-stage disease. The reported frequency of malignant bowel obstruction (MBO) in ovarian cancer patients might be as high as 50%.[1] The usual cause is either extrinsic, due to compression of the bowel by a tumor mass, or intrinsic with infiltration of tumor into the bowel wall or mesentery.[1] Once the disease recurs it is usually incurable, and the goal of treatment is to improve quality of life and, if possible, to prolong survival.[2–4] Since the quality of life experienced by patients with bowel obstruction is severely impaired, physicians usually initiate conservative treatment.[5,6] In many cases, unfortunately, these measures fail[7] and the option of palliative surgery is considered. Possible procedures are colostomy, ileostomy, gastrostomy, and Bypass/resection and anastomosis or stent placement. However, the role of palliative procedures in this situation, as well as

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their true palliative potential, is controversial. There is no consensus with regard to their safety in frail patients, the operative mortality and morbidity rates are high,[8,9] and the reported overall survival following surgery is about 190 days.[10,11] There are no generally accepted criteria for selecting patients with MBO who could benefit from palliative procedures, although some prognostic factors have been proposed, including the patient's age, platinum sensitivity, extent of disease, presence of ascites, and nutritional status.[10–14]

Our aim was to detect, in gynecologic cancer patients with MBO, prognostic factors for durable palliative surgical procedures that would benefit such patients in terms of symptom control, oral intake, ability to tolerate further chemotherapy, and survival. In particular, we aimed to develop a scoring system that would help identify those patients likely to benefit most.

Patients and methods

Patients

The study was approved by the Ethics Committee of our medical center. All consecutive patients with gynecologic malignancies who underwent bowel surgery performed by a single surgeon (D.R.) in our institute between October 2004 and January 2013 were identified from our prospectively created operating-room database. Of the 88 patients whose medical records were reviewed, those with recurrent gynecologic malignancy and MBO were enrolled in this study. Excluded were patients who were operated on for a recto-vaginal fistula (6 patients), bowel resection during primary cytoreductive surgery due to malignant involvement of the gastrointestinal tract (16 patients), and bowel resection at secondary debulking without obstruction (4 patients). The remaining 62 patients, who had a total of 68 procedures, constituted the study group. In all cases, diagnosis of obstruction was suspected by clinical symptoms and signs and confirmed by a computed tomography scan. The collected data consisted of demographic, clinical, and histological characteristics at diagnosis, course of disease, and clinical details of obstruction and surgery. Ascites fluid amount was estimated pre operatively by imaging and measured at surgery. Postoperative outcome measures for successful palliation were oral intake, chemotherapy, and 30-day, 60-day, and overall survival.

Statistical analysis

IBM SPSS Statistics for Windows, Version 21.0 (Armonk, NY: IBM Corp.) was used for statistical analyses, which included Kaplan–Meier survival analysis and log-rank (Mantel–Cox) tests. Cox proportional-hazards regression models were used to assess the association between different characteristics and the above outcome measures. Log–log plots for each variable were inspected to verify

the assumption of proportionality of the hazards, which was confirmed for all variables studied. A value of $P < 0.05$ was considered statistically significant. The variables identified as significant for 30- and 60-day survival were then incorporated in the development of a scoring system to predict short-term survival after surgery for MBO. Groupings by score were analyzed for significance.

Results

Baseline and patient characteristics

Demographic and clinical characteristics of the 68 cases are presented in Table 1. The primary malignancy was ovarian or primary peritoneal in 53 cases (78%). Of these, neoadjuvant chemotherapy was administered in 20 cases (37.7%). Optimal cytoreduction at primary surgery was achieved in 40 cases (75.4%), and 25 cases (47%) were platinum resistant. Median overall survival after surgery for MBO was 106.5 days (range, 3–1342 days). Outcomes of the 68 various procedures are presented in Table 2.

Table 1
Characteristics of 68 palliative surgeries for malignant bowel obstruction.

Variable	n (%)
Age in years, median (range)	54 (28–75)
Primary malignancy	
Epithelial ovarian	43 (63.2)
Low malignant potential ovarain	4 (5.9)
Primary peritoneal	6 (8.8)
Cervix	8 (11.8)
Uterine	7 (10.3)
FIGO stage	
I–II	8 (11.8)
III–IV	56 (82.3)
Unknown	4 (5.9)
Number of chemotherapy lines prior to MBO	
1	9 (13.2)
2	18 (26.5)
3	17 (25.0)
4	7 (10.3)
≥5	17 (25.0)
Time in months from diagnosis to MBO, median (range)	32 (3.5–133.8)
Number of previous abdominal operations at time of MBO	
0	3 (4.4)
1	30 (44.1)
2	15 (22.1)
3	9 (13.2)
≥4	11 (16.2)
Peritoneal carcinomatosis at MBO	58 (85.3)
Ascites>2 L at MBO	26 (38.2)
Serum albumin (g/dl) at MBO, median (range)	2.8 (1.6–4.7)
Serum lymphocytes (absolute count) at MBO, median (range)	0.8×10^3 (0.3–3.5×10^3)
Serum hematocrit (%) at MBO, median (range)	31.5 (21–45)