

Optimal management strategies for patients presenting with complicated peritoneal carcinomatosis in the emergency setting: a clinical perspective

Belinda De Simone

Department of Emergency and Oncological Minimally Invasive Surgery, Infermi Hospital, AUSL Romagna, Rimini, Italy

Abstract

Peritoneal carcinomatosis (PC) often represents an advanced intra-abdominal malignancy. In some cases, bowel obstruction represents the first manifestation of cancer; in others, it indicates disease progression in previously treated patients. Individuals presenting to the emergency department with symptoms such as vomiting and abdominal pain require prompt assessment to determine the appropriateness of conservative *versus* surgical management, decisions frequently made under prognostic uncertainty and limited survival expectations.

Recent evidence suggests that surgery can offer symptomatic relief in selected patients, though it is associated with significant perioperative risks and has a limited impact on long-term survival. Non-operative management – including bowel rest, somatostatin analogues, corticosteroids, and antiemetics – remains the first-line approach in hemodynamically stable patients. Given the absence of formal guidelines, this commentary underscores the need for evi-

dence-based recommendations, expert consensus, and the integration of palliative principles into emergency care. Communication strategies, individualized triage, and ethical alignment with patient values are essential to avoid inadvertently harmful interventions. Data from the ongoing World Society of Emergency Surgery (WSES)-endorsed international “End-of-Life Care” survey are expected to inform future best practices.

Introduction

Peritoneal carcinomatosis (PC) is a frequent complication of advanced intra-abdominal malignancies, most commonly originating from ovarian, colorectal, gastric, and pancreatic cancers, as well as from primary peritoneal tumors such as pseudomyxoma peritonei and mesothelioma.^{1,2} In elective settings, PC is typically managed with cytoreductive surgery, systemic chemotherapy, or hyperthermic intraperitoneal chemotherapy (HIPEC), aiming for oncological control.

However, PC may also present acutely with life-threatening complications such as bowel obstruction, gastrointestinal perforation, hemorrhage, or sepsis, requiring urgent surgical evaluation.³ These emergency scenarios demand high-stakes decision-making in patients who often have poor physiological reserve, an uncertain oncologic trajectory, and no prior relationship with the surgical team. In such cases, the treatment goal shifts from curative intent to symptom relief, damage control, and alignment with patient values.^{4,5}

Despite growing knowledge of peritoneal metastasis, emergency presentations of PC remain among the most ethically and clinically complex situations in surgical practice. Decisions must frequently be made under intense time pressure and emotional stress, often with incomplete clinical information.

Currently, no standardized guidelines exist to support decision-making in this setting, whether the emergency arises as the first manifestation of cancer or as progression in patients with known disease. Reassessing the role of emergency surgery in this population is essential, especially in balancing the potential for symptom relief against procedural risks and overall prognosis.

While surgery may be life-saving in selected patients, it also carries the risk of accelerating clinical decline or failing to alleviate symptoms, particularly in those with diffuse peritoneal involvement. Prognostic uncertainty, time constraints, and emotional distress further complicate decision-making. In these situations, the therapeutic focus must shift from oncologic control to mitigation of suffering and support of patient-centered goals.⁴⁻⁶

A personalized, compassionate, and evidence-based approach is therefore critical. Such strategies are essential not only to avoid harm in potentially curable patients but also to prevent undue suffering in those approaching the end of life.

Correspondence: Belinda De Simone, MD, Department of Emergency and Oncological Minimally Invasive Surgery, Infermi Hospital, AUSL Romagna, Rimini, Italy.
E-mail: desimone.belinda@gmail.com

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Symptom management and non-operative strategies

Malignant bowel obstruction (MBO) occurs in up to 50% of patients with recurrent ovarian cancer and in 10% to 28% of those with recurrent colorectal cancer. Mortality rates following emergency surgery for MBO range from 10% to 20%, with morbidity frequently exceeding 30% across reported series.⁶ A 2016 Cochrane review⁷ confirmed the high complication rates and highlighted that a significant proportion of patients do not regain enteral function postoperatively. As a result, symptom management has become the cornerstone of initial care in this setting.

Laval *et al.*⁸ provide comprehensive recommendations for managing MBO in patients with advanced cancer, including those with

peritoneal carcinomatosis. Their work underscores the importance of non-operative strategies and prioritizing comfort in this vulnerable population.

The Multinational Association for Supportive Care in Cancer (MASCC) MBO Study Group also published evidence-based guidelines focused on five key outcomes: symptom control, obstruction resolution, prognosis, overall survival, and quality of life.⁹

Non-operative management (NOM) is typically the first-line strategy for patients with PC-related MBO, unless there are absolute surgical indications such as perforation, ischemia, or volvulus. NOM includes: i) bowel rest and nasogastric decompression, particularly in patients with profuse vomiting; ii) pharmacologic therapy to manage nausea and vomiting (as summarised in Table 1); iii) pain control tailored to symptom severity; and iv) parenteral hydration or limited fluid support, depending on the patient's goals of care.

Table 1. Pharmacological treatment options for malignant bowel obstruction in peritoneal carcinomatosis.

Drug class	Agent	Administration and dose	Indication/use
Gastric antisecretory: PPI	Omeprazole, pantoprazole	Continuous IV injection over 24 h or single injection SC is feasible for omeprazole	Reduces gastric secretions
Somatostatin analogues	Octreotide, lanreotide	Octreotide 600 mg/24 h IV continuous or SC discontinuous every 24 h Lanreotide prolonged release 30 mg single injection IM	Reduces secretions and vomiting
Corticosteroids	Methylprednisolone, dexamethasone	Short course: 5-10 days; IV or SC; 1-4 mg/kg/24 h of methylprednisolone in one single injection or 0.25-1 mg/kg/24 h of dexamethasone in one single injection	Reduces inflammation, nausea, and intestinal edema
Antiemetics	Haloperidol, chlorpromazine, droperidol	Haloperidol SC 5-15 mg/24 h continuous or discontinuous every 8-12 h Chlorpromazine IV or SC 12-50 mg/24 h continuous or discontinuous every 8-12 h Droperidol IV or SC 2.5-5 mg/24 h continuous or discontinuous every 8-12 h	Controls nausea and vomiting, especially in complete obstruction
Antiemetics	5-HT ₃ receptor antagonists (second-line treatment, alone or associated)	Ondansetron IV: 4-8 mg/d, suppository 16-32 mg/d Granisetron IV: 3-9 mg/24 h Tropisetron IV: 5 mg/24 h Dolasetron IV: 100-200 mg/24 h	Controls nausea and vomiting, especially in complete obstruction
Prokinetics	Metoclopramide	Metoclopramide (only incomplete obstruction) SC, IV: 30-60 mg/24 h	For partial MBO only (contraindicated in complete obstruction)
Anticholinergics	Hyoscine butylbromide	Butylscopolamine 40-120 mg/24 h SC or IV continuous or every 6-8 h	May relieve cramping; less effective than octreotide
Analgesics/Opioids	Morphine, fentanyl	Involve as soon as possible the palliative team	Pain control; may slow motility. Opioids are commonly used to treat pain associated with MBO, but there is no evidence to support their use
Hydration	IV fluids or minimal infusion	Involve as soon as possible the palliative team	Depends on goals of care and symptom burden
Oral water-soluble contrasts	Gastrografin	Usually a single dose of 100 mL	Gastrografin was found to be a relatively effective option for the treatment of MBO but there is insufficient evidence from RCTs to determine the place of OWSC in predicting which patients with inoperable MBO will respond with conservative treatment alone
Lassatifs	Macrogol	Involve as soon as possible the palliative team	Oral osmotic laxatives should be considered in the management of impaired bowel movements in partial bowel obstruction but should be avoided in complete MBO

IV, intravenous; IM, intramuscular; SC, subcutaneous; d, day; OWSC, oral water-soluble contrast; h, hour; PR, prolonged release. Use should be guided by the degree of obstruction (complete vs. partial), patient condition, and goals of care.

Although not curative, this approach often provides substantial symptom relief and may delay or obviate the need for surgery in high-risk patients.^{8,9}

These pharmacologic strategies are intended for palliative symptom control, ideally in conjunction with interdisciplinary care and advance care planning.

Palliative care integration

Early integration of palliative care in the management of patients with MBO and PC is strongly recommended and has been associated with significant improvements in symptom burden, patient satisfaction, and overall quality of care.⁸⁻¹⁰

The World Health Organization (WHO) defines palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering”, and explicitly states that it should be introduced “early in the course of illness, in conjunction with other therapies that are intended to prolong life”.¹⁰ This modern framing expands palliative care beyond end-of-life support, aligning it with the needs of patients who may not be curable but still benefit from comprehensive symptom management and goal-oriented care planning.

Several trials, such as the landmark study by Temel *et al.* in patients with metastatic non-small-cell lung cancer, have demonstrated that early palliative care improves quality of life, reduces depressive symptoms, and may even prolong survival when compared to standard oncologic care alone.¹¹ While most data derive from medical oncology, the core principles are highly applicable to surgical settings, where patients often face complex decisions under significant physical and emotional distress. In the context of MBO, symptom control – particularly for pain, nausea, and vomiting – psychosocial support, and care goal clarification are especially critical yet frequently under-addressed.

Despite the documented benefits, palliative care integration in surgical practice remains inconsistent. Common barriers include late referrals, insufficient resources, and enduring misconceptions –

among both clinicians and patients – that equate palliative care with imminent death.¹² Surgical culture may further delay referrals, given its traditional emphasis on curative intent and technical intervention.

To address these challenges, conceptual models such as the palliative triangle (emphasizing alignment among patient, family, and clinician), the bow tie model (illustrating the shift from curative to palliative focus), and the Harbinger Influence Pyramid (describing readiness levels for palliative transition) offer structured frameworks to facilitate timely and meaningful integration of palliative care across the disease continuum.^{13,14}

In a prospective study by Minar *et al.*,¹⁵ 227 patients with symptomatic, incurable cancer were evaluated using the palliative triangle model to guide surgical decision-making. Patients selected for palliative operations – primarily for gastrointestinal obstruction, tumor-related symptoms, or jaundice – achieved symptom resolution or improvement in over 90% of procedures, with a 30-day morbidity rate of 20.1% and mortality of 3.9%. Median survival was 212 days. Notably, the structured selection process helped avoid surgery in more than half of the cohort, many of whom were successfully managed nonoperatively. These findings highlight how thoughtful integration of palliative intent within surgical frameworks can improve outcomes and minimize harm through appropriate patient selection.

Integrating palliative care into surgical decision-making requires a multidisciplinary approach involving surgeons, palliative care specialists, oncologists, nurses, and case managers. Such collaboration supports shared decision-making that honors patient preferences, optimizes symptom control, and balances life-prolonging interventions with quality-of-life considerations.

Figure 1 illustrates the adapted Bow Tie Model for emergency surgical settings, highlighting curative, transitional, and palliative care goals.

Surgical considerations: what the evidence tells us

When surgery is pursued in patients with MBO and PC, the intent is palliative rather than curative. Common procedures include

The Bow Tie Model in Emergencies

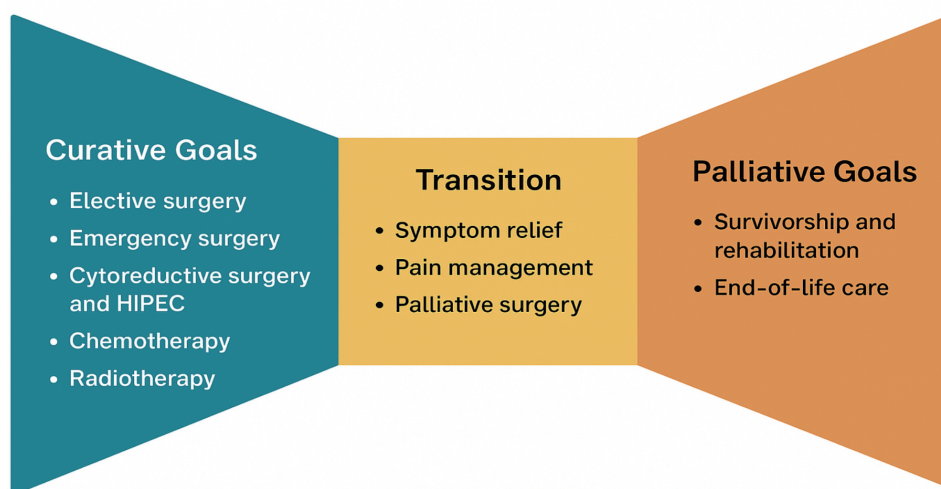


Figure 1. The bow tie model in the emergency setting.

ostomy formation (colostomy, ileostomy), bypass, or resection with diversion, depending on the location of the obstruction, the extent of carcinomatosis, and the patient's overall condition.^{16,17}

A UK prospective cohort study¹⁶ reported that bypass without resection was the most frequent approach in patients with diffuse PC (31.9%), while resection with a stoma was more commonly performed in cases of right-sided colonic obstruction. The success of surgical intervention in this setting depends on careful patient selection, technical feasibility, and alignment with the patient's goals of care.

Madar *et al.*¹⁷ conducted a literature review evaluating the outcomes of palliative surgery for obstructive PC in terms of complications and overall survival (OS). Among 313 patients with MBO, the reported median OS following surgery was 6.4 months. When stratified by procedure, median OS was 7.2 months for resection, 3.4 months for ostomy, and 2.7 months for enteral bypass. Major complications occurred in 37% of patients who underwent resection. Based on these findings, surgical resection appeared to offer superior OS and fewer complications compared to bypass in appropriately selected patients.

Olson *et al.*¹⁸ found that surgery was able to palliate obstructive symptoms in 32% to 100% of patients, enable resumption of oral intake in 45% to 75%, and facilitate discharge to home in 34% to 87%. However, mortality ranged from 6% to 32%, and serious complications were common (7-44%). Re-obstruction (6-47%), readmissions (38-74%), and reoperations (2-15%) were frequently observed. Median survival ranged from 26 to 273 days, and hospitalization often consumed a substantial portion (11-61%) of the patient's remaining life.

Feuer *et al.*⁷ similarly reported that while surgery may relieve symptoms in selected patients, it is associated with morbidity rates of 20-40% and perioperative mortality approaching 10-20%. Moreover, symptom relief is not guaranteed, and up to one-third of patients never recover bowel function postoperatively.

The SWOG S1316 randomized trial¹⁹ compared surgical and non-operative management in 221 patients with MBO. Although overall survival was similar in both groups (median 4.8 months), patients who underwent surgery experienced more days alive and out of hospital, a meaningful endpoint in the context of palliative care. However, 43% of patients randomized to surgery ultimately did not undergo the procedure due to rapid clinical deterioration, highlighting the fragility of this population.

More recently, a prospective study by Bateni *et al.*²⁰ showed that patients who underwent surgery for MBO reported greater reductions in symptom burden over time, particularly regarding appetite and pain, compared to those managed medically. These findings support the notion that, in carefully selected patients, surgery can provide not only mechanical decompression but also meaningful symptomatic improvement.

Santangelo *et al.*²¹ performed a systematic review involving 548 patients who underwent surgery for MBO in the context of PC, with a median age of 58 years (range: 19-93). Symptom relief was achieved in 26.5% to 100% of cases. Postoperative morbidity ranged from 7% to 44%, and mortality from 6% to 22%. Surgical patients demonstrated longer median survival (8-34 weeks) compared to those managed conservatively (4-5 weeks). Factors associated with poor outcomes included poor performance status, diffuse carcinomatosis, prior radiotherapy, and small bowel obstruction. Although old age was associated with worse prognosis on univariate analysis, this association did not persist in multivariate analysis.

Lodoli *et al.*²² retrospectively analyzed 98 patients who underwent surgery for MBO with PC, aiming to identify predictors of surgical success. Palliative goals were achieved in 77.5% of patients.

Factors significantly associated with surgical failure included recurrent disease ($p=0.015$), absence of bowel obstruction ($p<0.001$), absence of bowel distension ($p<0.001$), mesenteric involvement ($p=0.001$), and mesenteric retraction ($p<0.001$). On multivariate analysis, the absence of bowel distension ($p=0.046$) and obstruction ($p=0.012$) remained independent predictors of surgical failure.

Overall, the decision to perform surgery in patients with MBO and PC must be highly individualized. While selected patients may derive symptom relief and modest survival benefits, the risks of morbidity, mortality, and poor postoperative recovery remain considerable. Patient selection should be based on clinical status, disease burden, and goals of care, which is critical. Multidisciplinary assessment and early palliative care involvement are essential to guide decision-making and optimize out. A multidisciplinary approach, including the early involvement of palliative care, is essential to guide decisions and optimize outcomes in this vulnerable population.

The communication challenge

Emergency settings pose significant barriers to shared decision-making. Patients and families are often confronted with compressed timeframes, no prior relationship with the surgical team, and overwhelming emotional distress. Compounding these difficulties, evidence suggests that individuals undergoing emergency palliative procedures frequently hold unrealistic expectations regarding potential benefits.²³ In such high-stakes environments, effective communication becomes not only a clinical necessity but also an ethical imperative.

Frameworks such as the best case/worst case model offer structured guidance for discussing treatment options and possible prognostic outcomes.²⁴ An expert panel of surgeons and palliative care specialists has recommended that clinicians begin by assessing the patient's understanding of their illness, framing the acute issue within the broader trajectory of their disease, and presenting management options through narrative descriptions and visual aids. It is equally important to reaffirm continued support, regardless of the chosen course of action, as summarized in Figure 2.

As demonstrated by Kruser *et al.*, the best case/worst case model enhances clarity in complex clinical scenarios, particularly in the context of malignant bowel obstruction. It improves communication by structuring difficult conversations, clarifying potential outcomes of surgical and non-surgical approaches, and aligning medical interventions with the patient's values. Furthermore, this approach has been shown to reduce decisional conflict for patients and families, thereby facilitating more informed and collaborative decision-making.²⁵

Future perspectives

To further improve care for patients with PC in emergency settings, it is essential to understand how surgeons currently approach decision-making and communication in these high-stakes scenarios. The ongoing "End-of-Life" survey [<https://forms.gle/8xnga7Hru91YAxvz6>] endorsed by the World Society of Emergency Surgery (WSES) aims to explore emergency surgeons' knowledge, attitudes, and practices regarding palliative care, symptom control, and ethical considerations in the management of terminal surgical patients.

This global survey is expected to provide critical insight into how emergency surgical teams perceive prognosis, apply palliative

BEST CASE/WORST CASE

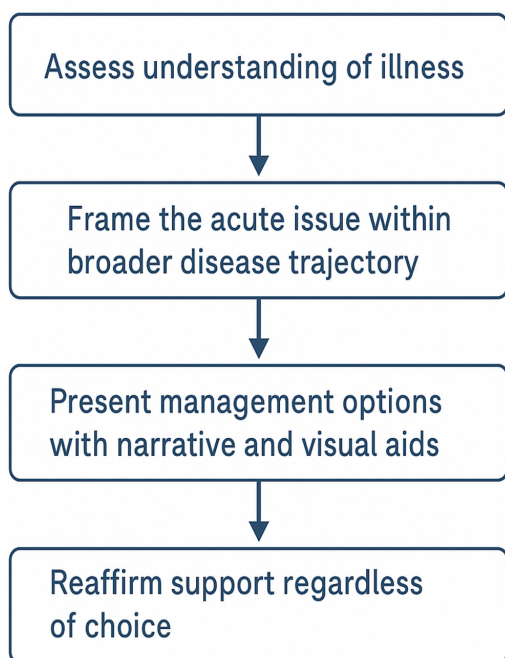


Figure 2. Best case/worst case model in the emergency setting.

principles, and navigate decisions with patients and families, particularly in the absence of dedicated guidelines. The findings will help inform educational strategies, identify gaps in training, and potentially serve as the foundation for consensus recommendations or institutional protocols aimed at improving patient-centered care in oncologic emergencies.

Conclusions

Patients with peritoneal metastases frequently develop MBO, a condition that presents both clinical and ethical challenges in the emergency setting. While non-operative palliative management is generally preferred, it often fails to provide durable symptom relief. Conversely, the role of palliative surgery remains controversial, given its associated risks and uncertain benefits. There is no universally optimal approach; instead, management must be individualized, evidence-informed, and grounded in compassion.

Palliative surgery may offer symptom relief and limited survival benefit in selected patients, but it is associated with high morbidity, significant perioperative mortality, and hospitalization that may consume a large portion of the patient's remaining life span. Therefore, surgeons should ensure that patients and families are presented with realistic expectations, including the goals and limitations of surgery. In those proceeding with surgical intervention, it is essential to discuss preferences for postoperative care, particularly regarding escalation or limitation of support, before surgery is undertaken.

In the absence of compelling surgical indications (e.g., perforation, ischemia, volvulus), non-operative management should be prioritized. When surgery is indicated, the intent must be palliative, focusing on symptom control rather than curative outcomes.

Above all, communication is paramount. In the emergency management of MBO and PC, the surgeon must serve not only as a technical expert but also as a communicator, guide, and advocate, providing clarity amidst crisis and ensuring that care remains aligned with the patient's values and goals.

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