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MANAGEMENT STRATEGIES FOR MALIGNANT BOWEL OBSTRUCTION IN CANCER PATIENTS: A COMPREHENSIVE LITERATURE REVIEW

Heloisa Tasca Benvenho

Faculdade: Pontifícia Universidade Católica do Paraná (PUCPR)

<https://lattes.cnpq.br/6736476200312142>

<https://orcid.org/0009-0005-4944-3632>

Caio Moraes Godoy

Faculdade: Universidade do Oeste Paulista (UNOESTE)

<http://lattes.cnpq.br/4106212672247497>

<https://orcid.org/0000-0002-7414-9137>

Hade Andrezza Montanholi Bueno

Faculdade: Universidade do Oeste Paulista (UNOESTE)

<http://lattes.cnpq.br/8484945532647320>

<https://orcid.org/0009-0005-1098-3543>

Bruno Marcelo Miguel

Faculdade: Pontifícia Universidade Católica do Paraná (PUCPR)

<http://lattes.cnpq.br/0293710373838688>

<https://orcid.org/0009-0008-5518-486X>

Yinlan Guan

Faculdade: Pontifícia Universidade Católica do Paraná (PUCPR)

<https://lattes.cnpq.br/6773011778271722>

<https://orcid.org/https://orcid.org/0000-0003-2255-8622>

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Mariana Cristina Gomes Morila

Faculdade: Pontifca Universidade Católica do Paraná (PUCPR)
<https://lattes.cnpq.br/3967342215035864>
<https://orcid.org/https://orcid.org/0000-0001-7532-9300>

Paulo Vitor Ferreira

Faculdade: Universidade do Oeste Paulista (UNOESTE)
<http://lattes.cnpq.br/2347161452318654>
<https://orcid.org/0009-0001-2577-8893>

Marcelo Crellis de Carvalho

Faculdade: Universidade do Oeste Paulista (UNOESTE)
<http://lattes.cnpq.br/5900729617216524>
<https://orcid.org/0009-0009-2594-5047>

Samer Majid Ghadie

Faculdade: Universidade Estadual de Mato Grosso do Sul (UEMS)
<https://lattes.cnpq.br/1991192270896411>
<https://orcid.org/0000-0002-7729-3433>

Paulo César Farias

Faculdade: Integrado - Campo Mourão
<http://lattes.cnpq.br/2438246903203633>
<https://orcid.org/0000-0002-6355-0355>

Juliana Marrafon Linário Leal

Faculdade: Universidad del Pacífico - Pedro Juan Caballero
<http://lattes.cnpq.br/6663774824237519>
<https://orcid.org/0009-0004-3146-1544>

Luana Carolina Holler Santos

Faculdade: Pontifca Universidade Católica do Paraná (PUCPR)
<http://lattes.cnpq.br/3009855730706522>
<https://orcid.org/0009-0007-1382-0402>

Abstract: Objectives: This literature review aims to analyze the management strategies for malignant bowel obstruction (MBO) in cancer patients, comparing the outcomes of surgical and non-surgical approaches, evaluating the effectiveness of palliative care, and examining the impact of prognostic factors on survival and quality of life. The review seeks to provide a comprehensive overview of current treatment methods and identify potential areas for improvement and future research. **Methods:** A systematic search was conducted across multiple databases to identify relevant studies addressing the management of MBO in cancer patients. Studies were selected based on inclusion criteria that required a focus on surgical or non-surgical treatment strategies, palliative care, and patient outcomes. A total of 15 studies were included in the final analysis, covering surgical and pharmacological interventions, complications, survival rates, and quality of life outcomes. The selected literature spans randomized controlled trials, systematic reviews, and retrospective cohort studies. **Results:** Surgical management of MBO can offer symptom relief and improve survival in select patients, particularly those with localized obstruction and good health. However, surgery carries significant risks, including high rates of postoperative complications and re-obstruction. Non-surgical approaches, including the use of octreotide, corticosteroids, and other pharmacological agents, were found to be effective in symptom management, particularly in patients with poor prognostic factors. Palliative care plays a central role in providing comfort, reducing symptoms, and improving quality of life for patients who are not candidates for surgery. The review highlights that prognostic factors such as cancer type, disease progression, and overall patient health significantly influence treatment outcomes and quality of life. **Conclusion:** The management of MBO in cancer patients requires

an individualized approach that balances the risks and benefits of surgical and non-surgical treatments. Surgery may provide benefit in carefully selected patients, but non-surgical management is often the preferred strategy for those with advanced disease. Palliative care, focused on symptom relief and quality of life, should be integrated into all treatment plans. Future research should focus on refining treatment criteria, improving pharmacological therapies, and developing standardized measures that prioritize quality of life outcomes.

Keywords: Malignant Bowel Obstruction; Cancer Management; Palliative Care; Surgical vs. Non-Surgical Treatment; Quality of Life in Cancer Patients

INTRODUCTION

Intestinal obstruction is a serious complication that often occurs in patients with advanced-stage cancers, particularly in those with malignancies of the gastrointestinal and gynecological systems. It develops when tumor growth, metastases, or cancer-related adhesions obstruct the normal flow of intestinal contents, leading to distressing symptoms such as nausea, vomiting, abdominal pain, and a complete inability to pass stool or gas. This condition is most common in patients with ovarian and colorectal cancers, where studies suggest incidence rates ranging from 5% to 51% in ovarian cancer and up to 28% in gastrointestinal cancers. Such obstructions can develop gradually or occur acutely, making their management a significant clinical challenge.

The presentation of intestinal obstruction in cancer patients often indicates advanced disease and is associated with a poor prognosis. The complexity of this condition lies not only in its physical manifestations but also in the broader considerations of patient care. The management of malignant bowel obstruction (MBO) must take into

account the patient's overall health, their quality of life, and their treatment goals, particularly when curative treatment options are no longer viable. Various treatment approaches, including surgical intervention, pharmacological management, and palliative care strategies, are employed depending on individual patient circumstances. However, deciding between these approaches is fraught with challenges, as the benefits of symptom relief must be weighed against the potential risks and complications of each option.

In the context of advanced cancer care, malignant bowel obstruction represents a pivotal point in treatment decision-making, often necessitating a shift from curative intent to palliative care. Effective management of this condition is critical, as the symptoms significantly affect the patient's quality of life. Addressing MBO is particularly important because it often occurs late in the cancer trajectory, when patients may already be physically weakened and emotionally exhausted from their disease and treatment. The physical distress caused by bowel obstruction, combined with its potential to dramatically reduce life expectancy, places it among the most critical issues in palliative oncology care.

The variety of treatment options available, ranging from aggressive surgical interventions to conservative medical management, complicates the clinical decision-making process. Surgical treatments can potentially relieve obstruction and extend life, but they carry a high risk of complications, particularly in patients who are already frail due to advanced cancer. Non-surgical approaches, including pharmacological management with medications like corticosteroids and anti-emetics, focus on symptom relief but may not address the underlying obstruction. Meanwhile, newer techniques such as stent placement offer less invasive alternatives but may not be suitable for all patients.

Given these complexities, a thorough understanding of both the benefits and risks of each treatment modality is essential. The decisions made in managing MBO have a profound impact not only on survival but also on the patient's comfort and quality of life during their final months. As such, the topic remains a critical area of investigation and debate in oncology care, where individualized treatment planning is essential for optimizing patient outcomes.

OBJECTIVES

The primary goal of this literature review is to provide a comprehensive analysis of the current management strategies for intestinal obstruction in cancer patients, particularly those with advanced malignancies. By consolidating existing research, this review aims to offer a clearer understanding of the outcomes associated with various treatment approaches, including surgical and non-surgical interventions. A key focus is on evaluating the effectiveness of these methods in terms of improving patient outcomes, such as symptom relief, quality of life, and survival rates.

This review seeks to compare the outcomes of different management strategies, specifically looking at the effectiveness of surgical interventions, pharmacological treatments, and emerging techniques like stent placement in relieving symptoms of malignant bowel obstruction. It will assess which approaches offer the best results for controlling distressing symptoms such as pain, nausea, and vomiting, while also weighing the risks and benefits of each method. Additionally, the evaluation of complications is a crucial element of this analysis, as the risks associated with surgery—such as infection, re-obstruction, and mortality—are often significant, while non-surgical treatments, though potentially less risky, may not fully alleviate the obstruction or extend survival.

The review will also focus on the role of palliative care in managing bowel obstruction, particularly in cases where surgery is not an option. It will examine the effectiveness of palliative care in controlling symptoms and improving patient comfort, as well as its influence on quality of life in the later stages of cancer. Moreover, the review aims to explore key prognostic factors that affect management decisions, including the patient's overall health, cancer type, and the extent of metastases, and how these factors impact survival and quality of life.

Through this analysis, the review will not only provide insights into the current landscape of malignant bowel obstruction management but also highlight areas where further research is necessary to enhance the care and treatment of cancer patients suffering from this serious complication.

METHODOLOGY

The methodology for this literature review involved a systematic and comprehensive search of academic databases to gather relevant studies on the management of malignant bowel obstruction in cancer patients. The databases used in the search included PubMed, MEDLINE, Cochrane Library, and Google Scholar, given their extensive collection of peer-reviewed articles in the fields of oncology, surgery, and palliative care. The search was conducted using a combination of keywords and Medical Subject Headings (MeSH) terms, including “malignant bowel obstruction,” “cancer-related intestinal obstruction,” “palliative care,” “surgical management,” “non-surgical treatment,” and “quality of life.”

The inclusion criteria for the review were as follows: studies published in English between 1990 and 2023; studies focusing on the management of bowel obstruction in patients with advanced cancer; randomized control-

led trials (RCTs), cohort studies, case-control studies, systematic reviews, and meta-analyses; and studies that reported outcomes such as symptom control, survival rates, quality of life, and complications. Exclusion criteria included studies that focused on non-cancer-related bowel obstruction, articles not available in full-text, and studies with inadequate reporting on outcomes or methodologies.

From the initial search, over 300 studies were identified. After removing duplicates and screening titles and abstracts, 50 articles were deemed potentially relevant for further review. These studies were thoroughly examined to determine their eligibility based on the aforementioned criteria. Ultimately, 15 studies were included in the final analysis, providing a broad and detailed overview of the surgical, non-surgical, and palliative care approaches for managing malignant bowel obstruction in cancer patients. The selected studies varied in design, but all contributed meaningful data on clinical outcomes, treatment efficacy, and the associated risks and benefits of different management strategies.

LITERATURE REVIEW

PATHOPHYSIOLOGY OF INTESTINAL OBSTRUCTION IN CANCER PATIENTS

Intestinal obstruction is a frequently encountered complication in patients with advanced cancer, especially in those suffering from abdominal or pelvic malignancies. Malignant bowel obstruction (MBO) is a particularly distressing condition seen in cancer patients, with rates ranging from 5% to 51% in ovarian cancer and between 10% and 28% in gastrointestinal cancers (¹). This complication can result from direct tumor involvement, previous surgeries, or the effects of cancer treatments like chemotherapy and radiotherapy.

The mechanisms leading to intestinal obstruction in cancer patients can be broadly categorized into mechanical and functional causes. Mechanical obstructions are usually due to tumor growth that either narrows or completely blocks the bowel lumen, a process often exacerbated by peritoneal carcinomatosis or the spread of tumors throughout the abdominal cavity (⁴). Extrinsic compression from metastatic masses in the omentum or mesentery can also create a physical barrier, contributing to the obstruction (⁹). Additionally, surgical adhesions from previous procedures can cause bowel tethering or twisting, further obstructing intestinal flow (¹⁵).

In some cases, however, obstruction may arise from functional causes, such as motility disorders. Tumor infiltration into the mesentery, enteric nerves, or bowel musculature can lead to impaired peristalsis, resulting in pseudo-obstruction without any physical blockage (⁵). This dysfunction may be further exacerbated by opioid medications, which are often used for pain management in palliative care settings, as well as chemotherapy-induced neuropathy, which can negatively affect bowel function (¹²).

Radiotherapy is another contributing factor to intestinal obstruction in cancer patients. Radiation-induced fibrosis or strictures in the bowel can occur long after treatment and often lead to chronic obstruction (^{1, 10}). Additionally, patients with peritoneal carcinomatosis frequently experience bowel obstructions as cancer infiltrates the abdominal cavity, leading to widespread adhesions and tumor nodules that restrict normal bowel movement (⁷).

In advanced cancer cases, ascites—excess fluid accumulation in the abdominal cavity—can contribute to the obstruction by increasing intra-abdominal pressure, compressing the bowel, and limiting its functional capacity (¹⁴). The resulting distention from blo-

cked intestinal contents and fluids can lead to further complications, including bowel ischemia, bacterial translocation, and systemic inflammation (¹³).

Overall, the pathophysiology of malignant bowel obstruction in cancer patients involves a complex interplay between mechanical blockage and functional impairment. Proper diagnosis and understanding of these mechanisms are essential for effective management and treatment, particularly in palliative care settings where symptom control and quality of life are the primary goals (^{4, 8, 11}).

MANAGEMENT APPROACHES

The management of malignant bowel obstruction (MBO) in cancer patients is complex and involves a range of surgical, non-surgical, and emerging approaches, each tailored to the specific condition of the patient. The primary goal in managing MBO is to relieve distressing symptoms such as nausea, vomiting, pain, and bowel distension while preserving the patient's quality of life, especially in palliative settings. Surgical and non-surgical approaches are used depending on factors like the patient's overall health, prognosis, and the extent of the obstruction.

Surgical intervention has historically been the standard treatment for patients with MBO, particularly when the obstruction is localized and operable. Surgery can involve resection of the obstructed segment, bypass procedures, or the creation of ostomies to divert bowel contents. Studies show that surgical intervention can relieve symptoms in many cases, but it is also associated with high morbidity and mortality rates, especially in patients with poor prognostic factors such as carcinomatosis or poor performance status (^{1, 9}). In such patients, the risks of surgery, including post-operative complications, infection, and prolonged hospital stays, often outweigh the potential benefits (^{4, 11}). Moreover, the recur-

rence of obstruction post-surgery is common, with rates ranging from 6% to 63% (⁹).

For patients deemed unsuitable for surgery due to poor health or the presence of widespread metastatic disease, non-surgical approaches are preferred. One common non-surgical intervention is the use of nasogastric tubes for gastrointestinal decompression. This technique is often effective for short-term relief but can be uncomfortable for patients and is not a long-term solution (^{1, 6}). An alternative to nasogastric tubes is the insertion of self-expanding metallic stents (SEMS), particularly for obstructions in the colon or gastric outlet. SEMS can effectively relieve obstruction in select cases, allowing patients to resume oral intake and avoid invasive surgery (¹⁰). However, stenting is not suitable for all patients, especially those with multiple sites of obstruction or extensive peritoneal involvement (³).

Pharmacological management plays a critical role in the treatment of MBO, particularly for symptom control in non-surgical patients. A combination of anti-secretory agents, anti-emetics, and analgesics is typically used to manage the symptoms of bowel obstruction. Somatostatin analogs such as octreotide have been shown to reduce gastrointestinal secretions and alleviate symptoms such as vomiting and nausea more effectively than traditional anticholinergics like hyoscine butylbromide (^{4, 14}). Octreotide, when combined with other medications like analgesics and antiemetics, can provide significant relief for patients with inoperable bowel obstruction (¹⁵).

Corticosteroids are another important pharmacological option for MBO management. They help reduce peritumoral inflammation and associated edema, which can decrease bowel wall pressure and, in some cases, partially resolve the obstruction. Although corticosteroids have shown promise in alleviating

symptoms, their role in the complete resolution of obstruction remains uncertain (^{2, 5}). Additionally, their long-term use is limited by side effects such as immunosuppression and gastrointestinal bleeding, making them most appropriate for short-term relief (¹²).

Emerging treatment strategies are being explored to improve the management of MBO. These include multimodal approaches that combine various pharmacological agents to target multiple symptoms simultaneously. For instance, combining somatostatin analogs with corticosteroids and opioids may offer synergistic effects in symptom management (¹⁴). However, there is still a need for more research on these combinations to determine their long-term efficacy and safety in palliative care (^{4, 6}).

In conclusion, the management of malignant bowel obstruction requires a highly individualized approach that balances the risks and benefits of surgical versus non-surgical interventions. While surgery may offer the potential for longer-term symptom relief, it is often not feasible for patients with advanced disease. Non-surgical methods, including stenting, decompression, and pharmacological symptom control, provide important alternatives that can enhance patient comfort and quality of life in the palliative care setting (^{1, 9, 11}).

COMPLICATIONS: OVERVIEW OF POTENTIAL RISKS AND CHALLENGES IN TREATMENT

The management of malignant bowel obstruction (MBO) in cancer patients is fraught with complications, regardless of whether surgical or non-surgical interventions are pursued. The complexity of these cases, combined with the underlying cancer and its associated systemic effects, can lead to significant risks during treatment. This section outlines the common complications observed in both surgical and non-surgical approaches, highlighting the challenges in managing MBO effectively.

Surgical interventions, while potentially curative in cases of localized obstructions, are associated with a high risk of morbidity and mortality, particularly in patients with advanced cancer or poor performance status. Post-operative complications such as infection, wound dehiscence, deep vein thrombosis, pulmonary embolism, and anastomotic leakage are frequent and can lead to extended hospital stays, increased patient suffering, and even death. Mortality rates within 30 days of surgery can range from 4% to as high as 40%, depending on the patient's overall condition and the type of surgery performed (^{1, 9}). The recurrence of bowel obstruction following surgery is another major issue, with recurrence rates reported between 6% and 63%, depending on the type of malignancy and the surgical procedure used (^{9, 11}). Re-obstruction often requires further interventions, adding to the patient's distress and reducing their quality of life (^{4, 12}).

Another significant challenge with surgery in MBO is that it may not always result in a resolution of symptoms. In some cases, the patient undergoes an "open and shut" laparotomy, where the surgery is aborted due to the extent of the disease, leaving the patient in the same or worse condition than prior to

surgery (¹). This scenario not only exposes the patient to the risks of anesthesia and surgery but also delays the initiation of more appropriate palliative care measures.

Non-surgical management, though less invasive, also presents its own set of complications. Nasogastric tube decompression, while effective in the short term, can lead to discomfort, nasal and esophageal injury, and prolonged hospital stays if the tube remains in place for extended periods (¹). The use of self-expanding metallic stents (SEMS), particularly in obstructions of the colon or gastric outlet, can result in stent migration, perforation of the bowel, or tumor overgrowth, which may necessitate emergency surgical intervention (¹⁰). Stents are also less effective in patients with multiple sites of obstruction or widespread carcinomatosis, limiting their utility to a subset of patients (⁶).

Pharmacological management, although central to symptom control, carries the risk of adverse drug reactions. For example, somatostatin analogs like octreotide, while effective in reducing gastrointestinal secretions and controlling vomiting, may cause side effects such as diarrhea, abdominal pain, and cholelithiasis (¹⁵). Corticosteroids, which are frequently used to manage inflammation and reduce edema in the bowel, are associated with significant side effects, including immunosuppression, hyperglycemia, gastrointestinal bleeding, and increased risk of infections, especially in patients who are already immunocompromised due to their cancer or prior treatments (^{2, 15}). Long-term use of corticosteroids is generally not recommended due to these complications, which limit their application to short-term symptom relief.

In palliative care settings, managing the side effects of medications is a critical challenge. Patients receiving opioids for pain management, for instance, frequently experience opioid-induced bowel dysfunction, including

constipation, nausea, and in some cases, worsening of the obstruction (⁴). Anticholinergics and antiemetics, while essential for controlling nausea and vomiting, can cause sedation, dry mouth, and confusion, which may further diminish the patient's quality of life (¹⁴). Balancing effective symptom control with the risk of drug-induced side effects is a delicate process in managing MBO.

Furthermore, the decision to pursue aggressive treatments such as surgery or stenting can conflict with the overall goals of care in patients with advanced, incurable cancer. Patients who undergo surgery may experience prolonged recovery times, with a significant proportion of their remaining life spent in the hospital rather than at home or in hospice care. Studies have shown that patients with poor prognostic factors, such as those with carcinomatosis or ascites, may spend more than half of their remaining life in the hospital following surgery for MBO (⁹). This raises ethical concerns about the appropriateness of aggressive interventions in patients with limited life expectancy, where the focus should ideally be on maximizing comfort and minimizing invasive procedures (^{8, 11}).

In conclusion, both surgical and non-surgical approaches to MBO carry significant risks and complications, underscoring the need for careful patient selection and individualized treatment plans. The high rates of morbidity, mortality, and recurrence associated with surgery must be weighed against the patient's prognosis and goals of care, while non-surgical methods require careful management of drug side effects and potential procedural complications. Multidisciplinary collaboration between oncologists, surgeons, and palliative care specialists is crucial to navigating these challenges and ensuring that patients receive the most appropriate and compassionate care for their condition (^{1, 9, 14}).

PROGNOSTIC FACTORS AND QUALITY OF LIFE CONSIDERATIONS

Prognostic factors and quality of life (QoL) considerations play a pivotal role in the management of malignant bowel obstruction (MBO) in cancer patients. Given that MBO typically occurs in patients with advanced or terminal cancer, decisions regarding treatment are often influenced by the overall prognosis and the expected impact of interventions on the patient's quality of life rather than the potential for curative outcomes. Understanding the factors that affect prognosis and the ways in which different treatment strategies influence QoL is crucial for tailoring care to the individual patient.

Prognosis in MBO is generally poor, particularly in patients with advanced-stage cancers like ovarian or gastrointestinal malignancies, where the obstruction often signals disease progression (1, 9). Several prognostic factors have been identified that help clinicians predict outcomes in patients with MBO. These include the patient's performance status, the extent of carcinomatosis, the presence of ascites, the time interval from cancer diagnosis to the onset of obstruction, and nutritional status (4, 12). Patients with a poor performance status, extensive peritoneal carcinomatosis, and ascites generally have a shorter life expectancy and are less likely to benefit from aggressive surgical interventions (13, 15). Moreover, patients who present with multiple sites of obstruction or who have already undergone multiple lines of chemotherapy are typically considered poor candidates for surgery due to the high risk of postoperative complications and limited survival benefit (1, 12).

One of the most significant prognostic indicators in MBO is the presence of ascites, which is often associated with extensive peritoneal involvement and poorer outcomes.

Studies have shown that patients with ascites have shorter survival times and higher rates of postoperative complications compared to those without ascites (4, 9). In these patients, surgical interventions are less likely to result in long-term symptom relief, and the focus is often shifted toward palliative care and symptom management rather than curative attempts (8). Similarly, patients with advanced age, poor nutritional status, or significant weight loss prior to the onset of MBO have a higher likelihood of poor outcomes following surgery, further limiting the viability of invasive treatments in this population (6, 12).

While surgical intervention may provide relief from obstructive symptoms in some patients, the impact of surgery on QoL is a crucial consideration. For patients with advanced cancer, the primary goal of care is often to improve or maintain quality of life rather than extend life at all costs. Surgical interventions for MBO, particularly in patients with poor prognostic factors, can lead to prolonged recovery periods, significant postoperative pain, and high rates of complications, which may outweigh the benefits of symptom relief (4, 10). In some cases, patients spend a significant portion of their remaining life in the hospital recovering from surgery, with minimal improvement in their ability to resume normal activities or enjoy time with loved ones (11). Studies have shown that patients with poor prognostic factors, such as those with extensive carcinomatosis or ascites, may spend as much as 61% of their remaining life in the hospital following surgery for MBO, highlighting the importance of careful decision-making when considering surgical options (8).

Non-surgical management, while less invasive, also has implications for QoL. Palliative care measures, such as pharmacological management with opioids, antiemetics, and antisecretory agents, are primarily aimed at symptom control and improving patient com-

fort. However, these treatments are not without side effects, which can further diminish QoL. For instance, opioids, though effective in controlling pain, often cause constipation, nausea, and sedation, which can exacerbate the symptoms of bowel obstruction or create new challenges for patients (15). Similarly, somatostatin analogs like octreotide, used to reduce gastrointestinal secretions, can lead to side effects such as diarrhea and abdominal discomfort, which may impair the patient's quality of life despite relieving vomiting and nausea (14).

Quality of life in patients with MBO is also influenced by their ability to maintain oral intake and avoid prolonged hospitalization. For many patients, the ability to eat and drink is a key factor in their overall well-being and psychological state (9). Treatment approaches that restore or maintain oral intake, such as stent placement or conservative management with medication, are often preferred when surgery is not feasible, as they allow patients to experience a more normal lifestyle, even if for a limited period. However, stent placement, while effective in some cases, carries its own risks of complications like stent migration or perforation, which can further complicate care and negatively impact QoL (10).

Another important consideration in assessing QoL in patients with MBO is the emotional and psychological burden of the disease. Patients with advanced cancer who experience bowel obstruction often report feelings of anxiety, distress, and depression due to the inability to eat, persistent nausea, and the discomfort of invasive treatments like nasogastric tube placement (11). Providing emotional support, clear communication, and involving patients in decision-making regarding their treatment options is critical in ensuring that care aligns with their personal goals and preferences (1, 12). In some cases, patients may prioritize comfort and the avoidance of ag-

gressive interventions, choosing instead to focus on symptom relief through non-invasive means and spending time with loved ones (4).

In conclusion, the prognosis for patients with MBO is influenced by several factors, including the extent of cancer involvement, the presence of ascites, and overall patient health. Surgical interventions, while potentially beneficial in selected cases, often come with significant risks and may not improve QoL for patients with poor prognostic factors. Non-surgical approaches, though less risky, still require careful management of symptoms and side effects to optimize QoL. Ultimately, treatment decisions should prioritize the patient's goals, focusing on maintaining or improving QoL, minimizing invasive procedures, and providing compassionate care in the context of advanced cancer (1, 9, 12).

RESULTS

SURGICAL VS. NON-SURGICAL OUTCOMES

The management of malignant bowel obstruction (MBO) in cancer patients typically involves a choice between surgical and non-surgical approaches, with each strategy offering varying outcomes in terms of symptom relief, survival, and complication rates. Several studies have explored the effectiveness of these interventions, weighing the benefits of surgery against the potential risks, particularly in patients with advanced cancer and poor prognostic factors.

Surgical interventions, such as resection, bypass, or stoma formation, are often considered when there is a chance to restore bowel function and improve quality of life. Studies have shown that surgery can provide symptom relief in up to 32% to 100% of cases, with varying rates of success depending on the patient's underlying health and extent of disease (4, 9). For instance, surgery is more likely to be

successful in patients without extensive peritoneal carcinomatosis or ascites, as these conditions are associated with a lower likelihood of postoperative recovery and a higher risk of complications (¹, ¹²). In a significant number of cases, surgical interventions can help restore oral intake, which is a major determinant of a patient's quality of life. However, the outcomes can be mixed, with some patients experiencing short-lived benefits and others enduring long recovery periods or frequent readmissions due to re-obstruction or complications (⁹, ¹⁰).

Despite the potential for symptomatic relief, surgery is associated with high morbidity and mortality rates, particularly in patients with advanced-stage cancers. Postoperative mortality rates vary between 6% and 32%, reflecting the high-risk nature of these procedures in an already frail population (¹², ¹³). In addition, the risk of postoperative complications, such as infections, fistula formation, and further obstructions, ranges from 7% to 44% in different studies (¹, ⁹). These complications can significantly impact the patient's remaining quality of life, with many patients spending prolonged periods in the hospital recovering from surgery. For instance, some studies have reported that patients spend up to 26% of their remaining life in the hospital post-surgery, further complicating the decision to opt for surgical management (⁸, ¹¹).

Non-surgical management, by contrast, focuses on symptom control through pharmacological means, such as the use of opioids, antiemetics, corticosteroids, and antisecretory drugs like octreotide. These approaches are typically employed when surgery is not feasible or when the patient's prognosis does not warrant the risks associated with surgical intervention (⁵, ⁶). Studies have demonstrated that non-surgical approaches can be effective in managing symptoms such as pain, nausea, and vomiting, which are common in patients with

MBO. For example, somatostatin analogs like octreotide have been shown to reduce gastrointestinal secretions and control symptoms more effectively than traditional treatments such as anticholinergics (⁹, ¹⁵). Non-surgical management tends to have fewer complications and a lower immediate mortality risk compared to surgery, but the symptom relief is often temporary, and patients may still experience recurrent obstruction or a decline in overall health due to disease progression (¹⁴, ¹⁵).

The choice between surgical and non-surgical management is heavily influenced by patient-specific factors, including the extent of disease, overall performance status, and patient preferences. In cases where surgery is not likely to provide a significant survival benefit or improve quality of life, non-surgical management may be preferred to avoid the risks and burdens associated with surgical recovery. For example, patients with extensive peritoneal carcinomatosis or multiple sites of obstruction are generally poor candidates for surgery, as the likelihood of achieving long-term relief is low, and the risks of complications are high (¹, ⁹).

Comparing survival outcomes, surgical intervention may offer a slight survival advantage in select cases, but this benefit is often limited to patients with more favorable prognostic factors, such as those without significant ascites or with localized obstructions (⁸, ¹⁰). Median survival times following surgery for MBO range from 2 to 8.4 months, depending on the cancer type and extent of disease, while non-surgically managed patients typically have shorter survival times, ranging from a few weeks to 2 months (⁹, ¹¹). However, the survival advantage conferred by surgery must be weighed against the potential decline in quality of life due to the recovery process and the risk of re-obstruction, which occurs in 6% to 47% of surgical cases (¹²).

In conclusion, surgical management of MBO can provide symptomatic relief and potentially extend survival in a select group of patients, particularly those without extensive carcinomatosis or ascites. However, the high rates of postoperative mortality and complications, as well as the potential for recurrent obstruction, often make non-surgical approaches a more favorable option for patients with poor prognostic factors. Non-surgical management focuses on maximizing patient comfort and minimizing hospitalizations, offering a more conservative but often more appropriate approach for patients nearing the end of life (^{13, 15}). The decision between surgical and non-surgical treatment must be made on an individualized basis, taking into account the patient's overall prognosis, quality of life considerations, and personal treatment preferences.

EFFECTIVENESS OF PALLIATIVE CARE

Palliative care plays a critical role in the management of malignant bowel obstruction (MBO) in patients with advanced cancer, focusing on improving quality of life through symptom control rather than curative interventions. The effectiveness of palliative care in managing MBO has been demonstrated across multiple studies, where non-surgical interventions such as pharmacological management, nasogastric decompression, and stenting are frequently employed to alleviate distressing symptoms like pain, nausea, and vomiting (^{2, 6, 15}).

Pharmacological management forms the cornerstone of palliative care in this setting, with drugs such as opioids, antiemetics, antisecretory agents (e.g., octreotide), and corticosteroids being commonly used to relieve symptoms. Studies have shown that corticosteroids can reduce peritumoral edema, which may help in resolving partial obstructions and

alleviating symptoms (^{2, 5}). Octreotide, a somatostatin analogue, has been particularly effective in reducing gastrointestinal secretions and controlling symptoms of nausea and vomiting, often outperforming traditional medications like hyoscine butylbromide (^{3, 4, 15}). Patients managed with palliative pharmacotherapy frequently experience significant improvements in comfort, with fewer side effects compared to more invasive treatments like surgery.

In addition to pharmacological approaches, non-invasive interventions such as stenting have emerged as an effective method for palliating MBO in certain cases. Stenting can alleviate symptoms by providing mechanical relief from obstructions, particularly in cases of colonic or gastric outlet obstruction. This approach can restore the ability to eat and drink, which is a major determinant of quality of life for patients with advanced cancer. Stenting is less invasive than surgery and has a shorter recovery time, making it a viable option for patients who are not suitable candidates for more aggressive interventions (^{6, 12}). However, the effectiveness of stenting can be limited by the extent of disease, and the recurrence of obstruction remains a concern in some cases.

The primary goal of palliative care in MBO management is to enhance patient comfort and minimize the physical and emotional burden of symptoms. Studies suggest that palliative care can significantly improve the quality of life for patients by controlling symptoms more effectively and avoiding the complications associated with surgical interventions (^{11, 15}). Additionally, palliative care offers a more holistic approach, addressing not only physical symptoms but also psychological, social, and spiritual needs, which is particularly important for patients nearing the end of life. The integration of multidisciplinary teams in palliative

care, including oncologists, palliative care specialists, and surgeons, ensures that patients receive individualized and comprehensive care tailored to their specific needs (^{1, 12}).

In conclusion, palliative care provides a vital, less invasive alternative to surgical management in the treatment of MBO, with an emphasis on symptom relief, patient comfort, and quality of life. Pharmacological treatments, stenting, and supportive care measures effectively manage the distressing symptoms of MBO, allowing patients to avoid the high risks associated with surgery while maintaining a better quality of life in their remaining time (^{1, 4, 15}).

COMPLICATIONS

Complications are a significant concern in the management of malignant bowel obstruction (MBO), whether treated surgically or non-surgically. Surgical interventions, while often effective in relieving obstructions, are associated with high morbidity and mortality rates. Postoperative complications such as infection, wound dehiscence, anastomotic leaks, and deep vein thrombosis are common in this fragile patient population. Studies report that the postoperative mortality rate ranges from 6% to 32%, with serious complications occurring in 7% to 44% of cases (^{9, 13}). Furthermore, re-obstruction is a frequent issue, with rates ranging from 6% to 47%, depending on the extent of disease and the nature of the surgery performed (^{9, 10, 12}). Patients who experience re-obstruction often require readmission, adding to the overall burden of treatment and hospital stay (¹⁰).

Non-surgical approaches, while generally associated with fewer immediate risks, are not without complications. Pharmacological treatments such as octreotide, hyoscine butylbromide, and corticosteroids are commonly used to manage symptoms, but their effectiveness can be variable. While

these medications can significantly reduce symptoms like vomiting and pain, they do not address the underlying obstruction and may lead to complications such as electrolyte imbalances, gastrointestinal perforations, and infections (^{3, 4}). Additionally, stent placement, while less invasive than surgery, carries risks of stent migration, perforation, and re-obstruction, with some studies reporting re-obstruction rates as high as 20% (^{6, 12}).

The choice of treatment for MBO must carefully balance the potential for symptom relief against the likelihood of complications. Surgical interventions may offer more definitive relief in some cases but come with a high risk of adverse outcomes, particularly in patients with poor overall health or extensive disease. Non-surgical approaches, while generally safer, may not be as durable in providing relief and can lead to a different set of complications (^{1, 13}). In either case, managing these complications requires a multidisciplinary approach that focuses on minimizing patient discomfort and maximizing quality of life (^{5, 12}).

PROGNOSTIC FACTORS AND QUALITY OF LIFE

Prognostic factors and quality of life considerations play a pivotal role in determining outcomes for patients with malignant bowel obstruction (MBO). Several factors, including the type of cancer, overall health status, presence of ascites, nutritional status, and the extent of metastatic disease, significantly influence both prognosis and quality of life.

Patients with ovarian or gastrointestinal cancers, particularly those with advanced disease and extensive peritoneal involvement, often experience a poorer prognosis due to the aggressive nature of their illness and the high likelihood of recurrent obstructions (^{5, 10}). Studies show that patients with ovarian

cancer are particularly prone to repeated bowel obstructions, with re-obstruction rates reaching up to 63% in some surgical cases (^{6, 13}). The prognosis for patients with widespread carcinomatosis is generally poor, with median survival times ranging from 26 to 273 days after diagnosis of MBO (^{9, 13}). For those with less favorable prognostic indicators, such as the presence of ascites, palpable masses, or poor nutritional status, survival is often reduced to just a few weeks (^{2, 9}).

Quality of life (QoL) is another critical consideration in the management of MBO. The invasive nature of many treatments, including surgery, and the high likelihood of complications can detract from the overall QoL for these patients. For instance, postoperative recovery is often lengthy, and many patients spend a substantial portion of their remaining life in the hospital, with studies showing that up to 26% of a patient's remaining life may be spent hospitalized (¹³). Furthermore, the limited availability of data on QoL outcomes makes it difficult to draw definitive conclusions about which management strategy is most effective in improving patient comfort and well-being. However, it is clear that non-surgical management approaches, while not curative, may offer a better balance between symptom control and the preservation of quality of life for many patients (^{1, 8, 10}).

Overall, the extent of disease, overall health, and the patient's preferences for end-of-life care are critical factors that guide decision-making in MBO treatment. Those with better performance status, fewer comorbidities, and localized obstructions may benefit more from aggressive interventions, while patients with diffuse carcinomatosis or poor functional status may derive more benefit from palliative care focused on maximizing comfort (^{10, 11, 12}).

DISCUSSION

INTERPRETATION OF RESULTS

The management of malignant bowel obstruction (MBO) in cancer patients continues to be a complex and multifaceted challenge. The findings from this review suggest that both surgical and non-surgical management strategies play crucial roles, but their efficacy varies depending on patient-specific factors, including the type and extent of cancer, overall health status, and the stage of disease. The results show that surgery can provide symptomatic relief and improve survival in select patients, particularly those without widespread metastatic disease or those with localized obstruction. However, surgery is associated with high complication rates, including re-obstruction, and a significant portion of patients may experience limited benefits due to the advanced nature of their disease (^{4, 9, 12}).

Non-surgical management, particularly palliative care involving pharmacological treatments, has emerged as a key approach for patients with poor prognostic factors or diffuse carcinomatosis. Pharmacological interventions such as octreotide, corticosteroids, and antiemetics are often effective in controlling symptoms like nausea, vomiting, and pain, contributing to improved quality of life without the invasiveness of surgery (^{1, 10, 13}). Additionally, self-expanding metal stents (SEMS) and venting gastrostomies are less invasive alternatives that provide symptom relief in carefully selected patients, offering advantages over traditional surgical approaches in terms of reduced recovery time and hospital stay (^{9, 11}).

COMPARISON WITH PREVIOUS RESEARCH

The findings of this review align with earlier research that underscores the importance of individualized treatment plans for MBO. Historically, surgical intervention was considered the primary mode of treatment for MBO, but advancements in palliative care have shifted the focus toward symptom control, particularly for patients with poor performance status or advanced disease. Previous studies have shown that non-surgical management can provide effective symptom relief while reducing the risk of postoperative complications (⁴, ⁵, ¹²). The shift toward less invasive procedures, such as stent placement, and the increasing role of pharmacological management, including the use of corticosteroids and octreotide, have been echoed in contemporary literature, suggesting consistency in the trend toward more conservative management approaches (⁵, ¹³).

However, this review also highlights some discrepancies in the literature. For instance, while some studies advocate for aggressive surgical intervention in selected patients, others caution against it, particularly due to the high rates of morbidity and mortality associated with surgery (¹¹, ¹⁴). This inconsistency points to the need for more refined selection criteria to better identify which patients are most likely to benefit from surgery versus those who may achieve better outcomes with non-surgical approaches. Additionally, while palliative care has been shown to improve quality of life, there remains a lack of consensus on the optimal combination of pharmacological agents, dosing regimens, and the timing of interventions (², ⁶).

LIMITATIONS AND FUTURE RESEARCH

Despite the valuable insights gained from the literature, several limitations exist in the current research on MBO management. First, the majority of studies included in this review are retrospective in nature, and randomized controlled trials (RCTs) are sparse, making it difficult to draw definitive conclusions about the comparative effectiveness of different treatment modalities. Furthermore, heterogeneity in study populations, treatment protocols, and outcome measures limits the ability to generalize findings across all patient populations (⁸, ⁹). For example, the lack of standardized definitions for symptom resolution and inconsistent reporting of quality of life metrics complicates the assessment of true treatment efficacy (¹², ¹³).

Another notable limitation is the underrepresentation of quality of life as a primary endpoint in many studies. Given the palliative nature of treatment for many MBO patients, future research should prioritize patient-reported outcomes, including symptom burden, functional status, and psychological well-being, to better understand the holistic impact of different management strategies (¹, ³). The development of standardized tools to assess these outcomes would greatly enhance the ability to compare the effectiveness of surgical versus non-surgical treatments in a meaningful way.

Future research should also explore the role of novel treatment modalities and combinations of pharmacological agents. For instance, while octreotide and corticosteroids are commonly used, their long-term effectiveness, potential side effects, and optimal dosing regimens remain areas of active investigation (², ¹⁴). Additionally, emerging therapies, such as biologics or targeted therapies, may offer new avenues for symptom control or disease stabilization in MBO patients, but

these approaches require rigorous evaluation through well-designed clinical trials.

In conclusion, while significant progress has been made in the management of MBO, there remains a clear need for more high-quality studies, including prospective trials and studies focusing on quality of life metrics, to guide decision-making and optimize outcomes for this challenging patient population. Tailored approaches based on individual patient factors, including the type of cancer, extent of disease, and patient preferences, should continue to be the cornerstone of MBO management.

CONCLUSION

In conclusion, the management of malignant bowel obstruction (MBO) in cancer patients remains a complex and multifaceted challenge, requiring a careful balance between surgical and non-surgical approaches. Surgical interventions, while potentially providing symptom relief and improving survival in select patients, carry significant risks of complications such as re-obstruction, postoperative mortality, and prolonged hospitalization. In contrast, non-surgical management, particularly through pharmacological treatments and palliative care, has emerged as a key strategy for patients with advanced disease or poor prognostic indicators, offering symptom relief without the invasiveness of surgery. The use of drugs like octreotide, corticosteroids, and antiemetics plays an important role in managing symptoms such as nausea, vomiting, and pain, improving the quality of life for patients who are not candidates for surgery.

The review highlights the importance of individualized treatment plans that consider patient-specific factors such as cancer type, disease stage, performance status, and overall health. The findings reinforce the need for a multidisciplinary approach to MBO management, where surgical, oncological, and palliative care teams collaborate to provide the best possible outcomes for patients.

Based on these findings, several recommendations can be made. First, surgery should be reserved for patients with localized obstruction and good overall health, as it may provide survival benefits in these cases. However, for patients with advanced disease, extensive carcinomatosis, or poor performance status, non-surgical management, including the use of pharmacological interventions and stenting, should be prioritized. Clinicians should adopt a patient-centered approach, focusing on symptom control and quality of life, rather than aggressive interventions that may not yield significant benefits.

Future developments in the field should focus on further refining the criteria for surgical versus non-surgical interventions, improving pharmacological treatment regimens, and developing standardized outcome measures that include quality of life as a primary endpoint. Additionally, more research is needed to evaluate the long-term effectiveness and safety of emerging therapies and to identify optimal combinations of treatments for MBO patients. Ultimately, the goal should be to tailor management strategies to the unique needs and preferences of each patient, ensuring that care is both effective and compassionate.

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