

Brazilian Society of Surgical Oncology guidelines for malignant bowel obstruction management

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Abstract

Background: Malignant bowel obstruction (MBO) is a frequent complication in advanced cancer patients and especially those with abdominal tumors. The clinical management of MBO requires a specific and individualized approach based on the disease prognosis. Surgery is recommended. Less invasive approaches such as endoscopic treatments should be considered when surgery is contraindicated. The priority of care for inoperable and consolidated MBO is to control the symptoms and promote the maximum level of comfort.

Objectives: This study aimed to develop recommendations for the effective management of MBO.

Methods: A questionnaire was administered to all members of the Brazilian Society of Surgical Oncology, of whom 41 surgeons participated in the survey. A literature review of studies retrieved from the National Library of Medicine database was conducted on particular topics chosen by the participants. These topics addressed questions regarding the MBO management, to define the level of evidence and

strength of each recommendation, and an adapted version of the Infectious Diseases Society of America Health Service rating system was used.

Results: Most aspects of the medical approach and management strategies reviewed were strongly recommended by the participants.

Conclusions: Guidelines outlining the strategies for management MBO were developed based on the strongest evidence available in the literature.

KEYWORDS

abdominal neoplasms, malignant bowel obstruction, practice guideline, treatment

1 | INTRODUCTION

Malignant bowel obstruction (MBO) associated with advanced-stage cancers is a medical complication frequently occurring in patients with gastrointestinal and gynecological tumors. Hence, it remains a challenge for surgeons to decide whether to perform palliative surgery or provide exclusive conservative medical comfort measures as end-of-life care. Recognizing MBO requires clinical evidence with a medical history of cancer often of gynecological or gastrointestinal origin, physical examination, and imaging examinations (computerized tomography or magnetic resonance imaging [MRI]) showing the presence of an intraperitoneal malignant disease. Despite the fact that most of the diagnosed primary tumors are of gynecological and gastrointestinal origin, extra-abdominal malignancies are also involved with MBO as part of the potential medical complications.^{1–3}

The primary cancers commonly associated with MBO are colorectal cancer (25%–40%), ovarian cancer (16%–29%), and stomach cancer (6%–19%). The syndrome can present with multiple or single points of obstruction and may be due to other underlying causes and mechanisms. The obstruction can be partial or complete. Depending on the degree of lumen occlusion, patients with an MBO will present with pain due to abdominal distension, cramps, nausea and vomiting, cessation of gas and feces elimination, and progressive inability to eat.^{4,5}

This high load of symptoms compromises the patient's quality of life. It is associated with a dismal prognosis and a short life expectation of a few weeks to months, making the diagnosis of MBO a preterminal event and causing a devastating impact on the lives of affected patients and their families. The nature and aggressiveness of the symptoms are due to the obstruction of the intestinal lumen, impaired peristalsis, and altered motility due to tumor growth. The retention of fluids and gases causes an increase in endoluminal pressure, production of 5-hydroxytryptamine 3 (5-HT₃) by intestinal enterochromaffin cells, activation of the interneuronal system, and release of nociceptive mediators leading to splanchnic vasodilation and cell hypersecretion. This series of events causes the appearance of intense intestinal edema, increase in retained secretions, distension, and abdominal pain, a condition that must be differentiated from those unrelated to tumor growth such as adhesions, actinic adhesions, constipation, and opioid colon.^{6,7}

In view of the suspicion of MBO, the literature recommends the performance of imaging tests. Computed tomography (CT) is considered the gold standard for diagnosis, being useful not only in identifying the level and degree of obstruction but also in determining the associated pathological processes, playing a fundamental role in defining the appropriate surgical and invasive approaches. CT has a lower predictive value in identifying the low rates of peritoneal carcinomatosis and does not clearly differentiate MBO from nonmalignant adhesions. Despite its low accuracy, plain abdominal radiography is also useful in assessing constipation and its severity as a potential cause of symptoms and remains an important initial imaging study in almost all patients with suspected bowel obstruction, considering its low cost and accessibility.^{1,8}

Conservative measures include bowel rest and drug therapy. Anticholinergic drugs, antisecretory drugs such as somatostatin analogs, neuroleptics, glucocorticoids, and opioids are the essential drugs that inhibit inflammation and decrease intraluminal secretion volume, prevent painful peristaltic movements, and promote gastric emptying, reducing pain and cramps, nausea, and vomiting in up to 70% of the cases.^{5,9,10}

After more than 30 years of octreotide use, some controversial issues remain, and further research is recommended to clarify the time of use and effectiveness related not only to the number of days free from vomiting as an endpoint but also to discuss the reduction in the daily frequency of vomiting as a relevant clinical parameter, considering the high cost of the drug.^{11,12}

However, when consensus and guidance regarding the definition of a care plan for these patients were sought, which includes the appropriate surgical approach and clinical management of symptoms, clinical issues related to their medical management were observed owing to the lack of robust evidence required to establish the ideal treatment for MBO. The Palliative Care Status of MBO demands the development of an individualized individualization and personalized approach focused on the patients' desires, as well as the expectations of the patients and their family members. Surgical intervention plays a fundamental role in the correction of serious situations such as peritonitis, perforation, or signs of ischemia. Complete or persistent obstructions during the period of conservative treatment are also an indication of surgery. Techniques involving segmental resection of

loops, intestinal bypass, ostomy, and drainage are recommended strategies. However, most patients are considered inoperable (6.2%–50%); in all contexts, the surgical approach is associated with high morbidity (6%–32%) and mortality (7%–44%), prolonged hospitalization, and risk of early reobstruction (6%–37%).^{3,13,14}

Several studies have been conducted to identify the prognostic factors, performance status (PS), ascites > 3 L, carcinomatosis, multiple points of obstruction, and palpable abdominal mass, to help select patients who can safely undergo surgical or invasive approaches, with better-defined risks and benefits.^{8,15,16}

The decision to use an open surgical approach involves the proper selection of these patients and determination of whether MBO is a manifestation of terminal disease or an initial event, with the patient in good clinical condition to tolerate the stressful effects of surgery and its risks already described. However, questions related to nasogastric decompression, laparoscopy, debulking procedures, and the use of parenteral nutrition still persist. The effectiveness of a palliative intervention must be evaluated based on the success in controlling the symptoms and complete resolution of symptoms recognized by the patient. If accompanied by a general improvement in quality of life, limited morbidity and mortality, and rational use of resources, the approach has enormous added value.^{6,17,18}

In recent years, the development of more effective techniques for symptomatic treatment, such as stents and decompression endoscopic or radiological procedures, in particular gastrostomy, has improved the quality of care for these patients, whenever conventional surgery cannot be indicated, thus decreasing the complication and mortality rates and increasing the success rates in controlling the symptoms, particularly nausea and vomiting, in more her than 70% of the patients with high-level obstruction and 60%–100% of those with low-level obstructions.^{19,20}

The decision regarding the treatment of any surgical condition is usually carried out based on the existing principles, well-described surgical procedures, and robust evidence in the literature. When dealing handling MBO cases, there are still shadow areas that must be clarified.

Since only a few trials related to the surgical palliative care for MBO have been conducted this questionnaire seeks to bring together the best available scientific evidence and the current state-of-the-art approaches aimed at treating this condition, comparing them with the practices and assessment results of 41 cancer surgeons, to generate data that can build a robust body of knowledge, improve the diagnostic approach, and define the best clinical and surgical management strategy for each patient.

2 | MATERIALS AND METHODS

This study was carried out between June 10, 2021, and October 29, 2021. A questionnaire was administered to all members of the Brazilian Society of Surgical Oncology (BSSO). Of them, of whom only 41 surgeons participated in the study. In total, 11 clinically relevant questions about the management of MBO were divided into

the following main topics: imaging method, surgical indications, use of the nasogastric tube, symptomatic medications, total parenteral nutrition (TPN), chemotherapy, decompression gastrostomy, stents, derived procedures, pressurized intraperitoneal aerosol chemotherapy (PIPAC) and hyperthermic intraperitoneal chemotherapy (HIPEC). A working group was created to review the literature available in the National Library of Medicine database and draft recommendations for each of the assigned questions. Initial recommendations were reviewed by 13 BSSO medical coordinators. An adapted version of the Infectious Diseases Society of America Health Service rating system was used to define the level of evidence and strength of each recommendation proposed by the working group (Table 1). Finally, through the Survey Monkey website, voting was carried out to determine the level of agreement among the members of the expert panel for each of the recommendations. To establish a consensus, at least 90% of the panel members had to agree with the answer; failure to achieve this percentage resulted in another round of voting at the end of the survey. Ultimately, a recommendation was suggested as approved by the majority.

3 | RESULTS AND DISCUSSION

3.1 | PIPAC

MBO is a contraindication of PIPAC as well as those with a life expectancy of less than 3 months, who received exclusive TPN, with decompensated ascites, who underwent simultaneous tumor debulking with gastrointestinal resection, who developed anaphylactic reaction before chemotherapy in addition or as a relative contraindication to extraperitoneal metastasis, with an Eastern Cooperative Oncology Group (ECOG) PS score of >2, and with portal vein thrombosis.²¹

Recommendation: PIPAC is contraindicated in the treatment of MBO treatment.

Evidence level: IV; Recommendation degree: C.

Consensus level: agreement—61.9%; disagreement—7.2%; voting abstention—30.9%.

3.2 | HIPEC and cytoreduction

The context of MBO makes complete surgical debulking extremely unlikely. However, in an isolated focus of carcinomatosis and if it is possible to resect the affected area to achieve a CC0 or CC1 cytoreduction (in specific histological types and responses to adjuvant cancer therapies), the addition of HIPEC can be considered for selected patients after multidisciplinary discussion in centers with experience in performing the technique.^{22–27}

Recommendation: Cytoreductive surgery plus HIPEC can be considered for selected patients after multidisciplinary discussion in centers with experience in performing the technique.

Evidence level: IV; Recommendation degree: C.

TABLE 1 Levels of evidence and grades of recommendation

Levels of evidence	
I	Evidence from at least one large randomized controlled trial with of good methodological quality (low potential bias) or meta-analyses of well-conducted randomized trials without heterogeneity
II	Small randomized trials or large randomized trials with suspected bias (poor methodological quality), meta-analyses of these trials, or trials that demonstrated sample heterogeneity
III	Prospective cohort studies
IV	Retrospective cohort or case-control studies
V	Studies without control groups, case reports, and expert advice
Grade of recommendation	
A	Strong evidence of efficacy with substantial clinical benefit: strongly recommended
B	Strong or moderate evidence of efficacy, but with limited clinical benefit: usually recommended
C	Insufficient proof of efficacy or benefit does not outweigh risk or disadvantages (i.e., adverse events, costs, other factors): recommended in some cases
D	Moderate evidence of ineffectiveness or occurrence of adverse outcomes: rarely recommended
E	Strong evidence of ineffectiveness or occurrence of adverse outcomes: never recommended

Consensus level: agreement—73.8%; disagreement—9.6%; voting abstention—16.6%.

3.3 | Complementary examinations in the diagnosis

Abdominal radiography should be performed as an initial screening in patients with suspected MBO. Abdominal CT plays a key role in the diagnosis of MBO. It can determine the level of obstruction by defining whether the obstruction is high or low or total or partial, and may detect the presence of ischemia, necrosis, or perforation. Still, the evaluation of the disease along with the detection of ascites and multiple metastases in distant organs contributes to the determination of the prognosis and selection of treatment. MRI is more time-consuming, more expensive, and more variable in terms of image quality compared with CT. In the evaluation of more acutely manifesting MBO, CT is preferred as it detects perforation more accurately and quickly compared with MRI.^{4,28,29}

Recommendation: The radiological evaluation of MBO conditions is initially composed of abdominal radiography and contrast CT. MRI is less available and adds few advantages compared to CT.

Evidence level: II; *Recommendation degree:* B.

Consensus level: agreement—100%.

3.4 | Percutaneous endoscopic gastrostomy/jejunostomy (PEG/J) tube

In MBO, the nonsurgical management must be selected quickly, as the delay in conducting the treatment, beyond 72 h, increases the risk of mortality by three times and systemic infectious complications by two

times, with a significant increase in time of hospitalization. Endoscopic procedures are promising for patients who are not candidates for surgery or who refuse to undergo an open surgical intervention. The most frequently performed percutaneous decompression procedure is gastrostomy, also called “PEG tube” and eventually PEG/J. PEG is used as an alternative to nasogastric tubes and minimizes their side effects, such as strictures, nasal discomfort, nasal erosions, and even bronchoaspiration. Due to the ease of insertion in most cases, PEG is commonly used in patients unlikely to survive a resection or bypass. Because the tube is placed along the anterior wall of the stomach, decompression and symptom relief are not completely achieved additional palliative measures are often required to treat symptoms. In combination with other medical techniques, percutaneous gastrostomy offers the possibility of intermittent ingestion of oral fluids. These procedures should be performed by experienced endoscopists or interventional radiologists. They are easily performed by these professionals and enable symptom control in more than 80% of patients. Complications related to the insertion of PEG for bowel decompression rarely occur particularly when used for relatively short periods of time in the advanced malignancy setting. Greater care is needed in patients with ascites, who have higher complication rates and require prior treatment of ascites with relief paracentesis or placement of intraperitoneal relief catheters.^{17,30–35}

Recommendation: The percutaneous endoscopic procedure should only be performed by trained endoscopists or experienced interventional radiologists and should be indicated for debilitated patients, those not suitable for receiving anesthesia, and those with a life expectancy of less than 90 days.

Evidence level: III; *Recommendation degree:* B.

Consensus level: agreement—73.1%; disagreement—9.1%; voting abstention—17.8%.

3.5 | Stents

Endoscopic self-expanding metallic stents play an important role in the resolution of MBO. For this reason, they have been increasingly indicated for the resolution of primary obstructions and obstructions caused by peritoneal carcinomatosis. Endoluminal wall stents have a high success rate for symptom relief in MBO. In malignant obstructions of the upper digestive tract, endoluminal wall stents have a success rate of greater than 70% (gastric, duodenal, and jejunal obstructions); in complete and incomplete colorectal obstructions, it has a success rate of 64%–100%. Definitive stent implantation may include preliminary procedures for channeling the lumen, for example, laser or balloon dilations. Although the risks include perforation (0%–15%), stent migration (0%–40%), or reocclusion (0%–33%), stents can often lead to adequate palliation of symptoms for long periods of time. Stents insertion is indicated for selected patients with limited carcinomatosis and obstructions restricted to a single proximal point. In addition to benefits such as shorter hospital stay, lower morbidity, and lower mortality and cost, with stent placement, MBO symptoms decrease within 48 h, and the patient is allowed to take oral feedings. Currently, the early recurrence of symptoms in up to 40% of cases is discussed, often requiring additional approaches such as stent replacement or additional surgical approach through perforation (4.5%), migration (11%), or potential tumor growth, which is subjected to new endoscopic intervention. In addition, it should be performed by trained professionals in high-volume centers that can provide adequate surgical interventions in cases where complications occur. Although less durable for obstruction relief compared with surgical approaches, stenting is more often consistent with the goals of end-of-life care with success in 90% of cases.^{2,30,35–40}

Recommendation: Upper digestive tract stents are recommended for primary obstructions and obstructions due to peritoneal carcinomatosis. They must be performed under endoscopic guidance by trained professionals. They are mainly indicated for debilitated patients who are not suitable for receiving anesthesia and undergoing surgery. It is also recommended for patients who might require palliative chemotherapy for immediate symptom relief. Colonic and rectal stents have a high success rate in selected patients with MBO.

Evidence level: II; **Recommendation degree:** B.

Consensus level: agreement—83.3%; disagreement—0%; voting abstention—16.7%.

3.6 | Parenteral nutritional support

A MBO is usually a late event in the course of the disease, and patients have a median survival of 1–9 months after diagnosis. Although MBO symptoms recur after initial control in four of five MBO patients and in 32%–71% of surgically treated patients, the role of TPN in the management of consequent progressive starvation remains controversial in the oncological literature. One of the

objectives of TPN is the maintenance or recovery of the nutritional status of patients who are candidates for surgery. In MBO, TPN only plays a permissive role, prolonging the intestinal rest period while keeping the patient alive. The benefits of TPN are uncertain, with a very low level of evidence provided primarily by studies that were only conducted in patients who received TPN, rather than comparing them with those who did not receive TPN. The possible indication of TPN depends mainly on the evaluation of two premises: patients who died early due to nutritional deterioration or due to rapid tumor progression. Approximately 13% of MBO patients who received TPN developed complications, including infection in the catheter insertion site (central venous catheter), thrombosis, electrolyte disturbances, and fluid overload; TPN is administered to help maintain the nutritional status of patients for a maximum of 2–3 months before death. TPN is discontinued when the intestinal transit is restored, after the initiation of other treatments for MBO, or when the patient has other conditions that are contraindicated for parenteral support, such as refractory cachexia, active process of death, or an MBO whose broader critical picture was not thoroughly investigated. In these situations, discontinuation of parenteral support is recommended and should be discussed with patients and family members. Finally, only 30% of patients who survived more than 3 months were able to benefit from TPN. Thus, it should not be routinely used in the treatment of MBO.^{4,11,41–43}

Recommendation: The objective of TPN, in the context of MBO, is the maintenance or recovery of the nutritional status of patients who are candidates for surgery. The indication of TPN in advanced cancer patients with inoperable MBO remains controversial.

Evidence level: II; **Recommendation degree:** B.

Consensus level: agreement—90.4%; disagreement—2.4%; voting abstention—7.2%.

3.7 | Evaluation and management of MBO

There is no high evidence describing an ideal therapeutic approach for most patients who present with MBO, although surgical evaluation must be guaranteed for possible complications (e.g., ischemia and perforation). Even in cases of surgical emergencies, a nonoperative approach can still be selected if the patient's overall disease prognosis or treatment goals are inconsistent with more aggressive measures. The surgical approach depends on the extent and location of the disease, general prognosis, nutritional status, and recent use of steroids/chemotherapy. The multiple warnings and ill-defined recommendations for appropriate surgical intervention further highlight the need for a multidisciplinary approach and the importance of early management planning. Careful selection of patients is imperative. The literature documents that increasing age, advanced disease, deteriorating general health, and malnutrition are primary factors associated with poor prognosis in cases where surgery can be avoided. Several studies have focused on identifying some prognostic factors for selecting patients who can benefit from surgery that seems to be useful for those with a life expectancy of

more than 2 months. Previous studies have identified age, ascites, previous radiotherapy, intestinal obstruction in multiple sites, carcinomatosis, palpable masses, and a short interval from diagnosis to obstruction as clinical indicators of poor surgical prognosis. PS is a measure of a patient's functional capacity. The two most common measurement systems used are as follows: ECOG and the Karnofsky Performance Scale. In addition, PS is an important prognostic indicator in patients with MBO. The survival of patients with ECOG PS scores of 0–1 was 222 days, while those with ECOG PS scores of 2 and 3–4, were 63 and 27 days, respectively. In the study published by Perri et al., four variables were correlated with the overall survival times of 30 and 60 days after palliative surgery for MBO: age > 60 years, ascites greater than 2 L, nonovarian primary tumor, and albumin of <2.5 g/dl. However, the PS was not evaluated. With regard to the underlying primary disease process and the general outcome of the management, no significant difference was observed between patients with gastrointestinal and those with gynecological diseases. In a palliative setting, the patient's expectations as they are subjective.

For these reasons, patients and their families must be informed, in addition to the current morbidity condition about their life expectancy.^{4,28,44–46}

Recommendation: In carefully selected patients, symptom relief after palliative surgery can be expected, but new or recurrent symptoms limit their duration. The potential benefits, in addition to minimizing postoperative complications, will be less predictable for patients with low PS, malnutrition, and no previous treatment for the neoplasm.

Evidence level: IV; **Recommendation degree:** D.

Consensus level: agreement—85.7%; disagreement—0%; voting abstention—14.3%.

3.8 | Nasogastric tube

The nasogastric tube can promote temporary decompression of the gastrointestinal tract and reduce nausea, vomiting, and pain. However, it is not a realistic long-term solution considering the discomfort it causes, frequent obstructions requiring replacement, and the risk of more serious events, including aspiration pneumonitis, mucosal ulceration, pharyngitis, and sinusitis. Thus, the insertion of a probe is indicated in selected patients, to control vomiting refractory caused by drug treatment and should be removed as soon as possible. The probe should be removed if it drains lower than 500 ml/24 h. When removal is not feasible, placement of decompressive gastrostomy (via endoscopic or interventional radiological guidance) is a reasonable long-term alternative.^{2,47,48}

Recommendation: The use of a nasogastric tube should be a temporary measure indicated in selected patients to control vomiting caused by drug treatment.

Evidence level: II; **Recommendation degree:** B.

Consensus level: agreement—95%; disagreement—5%.

3.9 | Drugs to treat symptoms

Pharmacological management of patients focuses on adequate control of pain, nausea, vomiting, and dehydration. In inoperable patients, it provides symptomatic relief in 60%–80% of patients with MBO and aims to reduce inflammation and peritumoral intestinal edema (glucocorticoids), as well as intraluminal secretions and peristaltic movements (anticholinergic agents and octreotide).^{8,49}

Opioids: The basic analgesic approach involves the use of opioids due to their safety profile, multiple possible administration routes, wide therapeutic range, and good efficacy against most pain mechanisms (somatic, visceral, and neuropathic). Morphine is the opioid of choice, and it can be used intravenously or subcutaneously.⁵⁰

Somatostatin analogs (octreotide): inhibit gastric, pancreatic, and intestinal secretions; reduce gastrointestinal motility; and may relieve pain and other symptoms of intestinal obstruction. Although existing data are conflicting, some studies demonstrate therapeutic success in more than 60% of patients and superiority over an isolated anticholinergic agent in the symptomatic management of MBO.^{11,31,51,52} Octreotide is used at a dose of 0.2–0.9 mg (divided into 2–3 doses/day, administered subcutaneously). Patients who respond to the treatment may receive a depot injection of long-acting octreotide (Sandostatin LAR) or monthly lanreotide for maintenance therapy.^{8,53} **Antiemetics:** haloperidol (dose: 0.5–2 mg, 6/6 h, intravenously or 5–10 mg/day in continuous infusion), a selective dopamine (D2) receptor antagonist, is the primary antiemetic drug used for patients with MBO.⁵⁴

Prokinetic agents such as metoclopramide (30–40 mg/day) may be tried for partial obstructions, but are contraindicated if there is complete mechanical or colonic obstruction. However, findings of previous studies regarding the effectiveness of 5-HT₃ antagonists remain inconsistent.⁵⁵

Anticholinergics: Scopolamine butylbromide (hyoscine) is a preferred first-line antisecretory drug for the treatment of inoperable bowel obstruction. The dose usually prescribed is 40–120 mg/day, administered intravenously, or hypodermoclysis.¹¹

Glucocorticoids: the use of dexamethasone (8–16 mg/day) may be helpful in patients who do not respond to antisecretory therapy with an antiemetic.⁵⁶

In the context of partial intestinal obstruction, in which the physiopathologic mechanism is functional and can be reversible if treatment is started early, the combination of propulsion and antisecretory agents can act synergistically to allow the rapid recovery of the intestinal transit.²

Recommendation: In the symptomatic control of intestinal obstruction, especially nausea and vomiting, medications that reduce gastrointestinal secretions such as anticholinergics (scopolamine), somatostatin (octreotide), and antiemetics (metoclopramide or haloperidol) are used. Among the antisecretory drugs, scopolamine is used; for patients who are not responsive to this drug, octreotide can be used. Corticosteroids can be prescribed, to reduce loop edema, tumor mass, and local inflammatory factors.

Evidence level: II; *Recommendation degree:* B.

Consensus level: agreement—97.5%; disagreement—0%; voting abstention—2.5%.

3.10 | Impact of chemotherapy on MBO

Although systemic therapies are the mainstays of treatment for patients with metastatic cancer, the use of this strategy in patients with MBO is limited, as previous retrospective studies showed conflicting.

In a study involving patients aged >65 years with gastrointestinal, gynecological, or genitourinary cancer, chemotherapy improved the survival of patients with colorectal, pancreatic, and ovarian tumors. Furthermore, the use of chemotherapy after surgery was associated with longer survival compared with surgery alone (hazard ratio: 2.97, 95% confidence interval: 2.65–3.34, $p < 0.01$).⁵⁷

A previous Canadian retrospective analysis of patients with gynecological cancer (73% ovarian cancer) demonstrated greater use of palliative chemotherapy (83% vs. 56%) in patients assisted through a multidisciplinary program for managing MBO compared with that in patients who received usual care. In this sense, chemotherapy has shown a positive impact on cancer outcomes in selected groups of patients.⁵⁸

By contrast, a retrospective study conducted on patients (75% with gastrointestinal tumors) unsuitable for surgery and candidates for palliative chemotherapy (70% treatment-naïve) demonstrated that the use of systemic treatment significantly increased the risk of toxicities, without improving the patient's survival.⁵⁹ Another study demonstrated the low efficacy and high morbidity and mortality risk of systemic chemotherapy combined with parenteral nutrition in patients with small bowel intestinal obstruction.⁶⁰ In this sense, given the uncertain benefits of chemotherapy in patients with intestinal obstruction, this should be an exception strategy guided by a multidisciplinary discussion, taking into account the tumoral biology and clinical status of the patient.

Recommendation: Palliative chemotherapy for MBO should not be routinely recommended; when performed, it should be discussed in a multidisciplinary meeting, taking into account the tumor biology, clinical status of the patient, and patient's prognosis.

Evidence level: II; *Recommendation degree:* B.

Consensus level: agreement—100%.

3.11 | Surgical bypass/ostomy in MBO

In cases of MBO due to a locally advanced or non-metastatic primary bowel tumor, surgical intervention with curative intent remains the main first line of treatment. However, for patients who present with obstruction due to advanced incurable disease, the factors that affect the final treatment plan include care goals established by the patient and their family, with the guidance of the surgeon and oncologist. It is beneficial to involve a palliative care specialist at this time as well. The patient's type of primary malignancy, cancer staging, previous treatment (surgery, radiotherapy, or chemotherapy), the patient's

clinical condition, and comorbidities all play a key role in selecting the approach. Properly identifying which patients will benefit from surgical treatment is crucial, as the morbidity and mortality risks of a surgical procedure in this population are significantly high. An initial decompression through the insertion of a nasogastric tube was attempted for 48 h in patients without peritonitis or those who did not show worsening of clinical condition. Patients who showed persistent obstructive symptoms after this time period underwent definitive surgical intervention if they were considered suitable surgical candidates: the indications for surgical intervention should be substantiated with the "30-day mortality predictors" in these patients. Once the decision to operate has been made, the type of surgical procedure necessary to treat the obstruction should be selected. Palliative surgery was associated with 30-day mortality ranging from 0% to 32% and morbidity from 22% to 87%; the primary complications include formation of fistulas, sepsis, and early reobstruction. Specifically in patients with MBO due to recurrent ovarian cancer, the most recent series reported the median survival times of 11.4–12.6 months for patients undergoing surgery for MBO and 3.7–3.9 months for nonsurgical patients. As reported, two essential factors, pain reduction, and reobstruction, were significantly improved by surgical palliation.^{28,35,61,62}

Recommendation: The decision of which techniques to use is based on the location of the obstruction, the patient's comorbidities, and the overall prognosis. Surgical management consists of less invasive and more conservative interventions to alleviate symptoms and restore bowel function when possible.

Evidence level: II; *Recommendation degree:* B.

Consensus level: agreement—100%.

4 | CONCLUSION

The BSSO assembled a group of experienced cancer surgeons and searched the medical literature for precedent to outline strategies for MBO management. This condition frequently occurs in patients with gastrointestinal or gynecologic cancers and is prevalent worldwide. Therefore, we emphasized that the selection of MBO treatment, for any surgical condition, especially in this context, should be based on principles, well-described surgical procedures, and robust evidence in the literature.

DATA AVAILABILITY STATEMENT

Not applicable.

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