



Review

Management of intestinal obstruction in advanced malignancy

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HIGHLIGHTS

- We review up-to-date evidence on assessment and management of Malignant Bowel Obstruction (MBO).
- MBO is a complex entity, common in disseminated intra-abdominal malignancy.
- Treatment of true MBO with multilevel obstruction requires multispecialty involvement.
- Surgery is rarely indicated.
- If surgery is indicated, resection and anastomosis is preferable to bypass or stoma formation.

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ABSTRACT

Patients with incurable, advanced abdominal or pelvic malignancy often present to acute surgical departments with symptoms and signs of intestinal obstruction. It is rare for bowel strangulation to occur in these presentations, and spontaneous resolution often occurs, so the luxury of time should be afforded while decisions are made regarding surgery. Cross-sectional imaging is valuable in determining the underlying mechanism and pathology. The majority of these patients will not be suitable for an operation, and will be best managed in conjunction with a palliative medicine team. Surgeons require a good working knowledge of the mechanisms of action of anti-emetics, anti-secretories and analgesics to tailor early management to individual patients, while decisions regarding potential surgery are made. Deciding if and when to perform operative intervention in this group is complex, and fraught with both technical and emotional challenges. Surgery in this group is highly morbid, with no current evidence available concerning quality of life following surgery. The limited evidence concerning operative strategy suggests that resection and primary anastomosis results in improved survival, over bypass or stoma formation. Realistic prognostication and involvement of the patient, care-givers and the multidisciplinary team in treatment decisions is mandatory if optimum outcomes are to be achieved.

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1. Introduction

Acute and subacute intestinal obstruction are common occurrences among patients with disseminated abdominal and pelvic malignancies. Malignant bowel obstruction (MBO) is estimated to occur in 10–28.4% of colorectal cancers and 5.5–42% of ovarian malignancies [1]. Overall, it is estimated to occur in 2% of all patients with advanced malignancy [2]. It represents a presentation of recurrence in some patients, and a progression of disease in others. Consequently, presentation with bowel obstruction has a significant impact upon both patients and their families [3]. This review outlines current management of MBO, expanding upon the medical, interventional and surgical approaches that are used in combination to optimise outcomes in these complex patients.

2. Pathophysiology

True MBO occurs secondary to diffuse peritoneal malignancy causing either direct obstruction, or secondary to malignant adhesions. This represents transcoelomic metastasis. In reality, a mixed picture with mechanical and ileus-related elements is most commonly encountered. Intestinal obstruction can also occur as a primary event, independent of a patient's malignancy, be it from intraperitoneal adhesions, an obstructed hernia, or intestinal or colonic volvulus. Synchronous and metachronous primary malignancies are relatively common in the cohort of patients with malignancy [4]. It is therefore possible for primary intestinal obstruction to occur from an unrelated colonic or gynaecological malignancy directly obstructing or infiltrating the colon or ileum, or indeed as a result of the patient's unresected primary tumour. MBO most commonly affects the small bowel in isolation (61%), but may also affect only the large bowel (33%) or both simultaneously (20%) [5]. The primary malignant diagnosis is relevant in suggesting the likelihood of MBO as a cause for obstructive symptoms. Cancers of abdominal origin that most frequently produce MBO are those of the ovary (20–50%) [6], colon (10–28%) [7], stomach (6–19%), pancreas (6–13%), bladder (3–10%), and endometrium (3–11%), with breast cancer and melanoma also described [2]. Peritoneal carcinomatosis is often also previously diagnosed, and should raise the index of diagnostic suspicion.

Alongside the primary mechanical process of MBO, there is evidence that the presence of multiple levels of subacute obstruction can lead to an upregulation of serotonin, which causes release of substance P, nitric oxide, acetylcholine, somatostatin, and vasoactive intestinal peptide, which have a further inhibitory effect on gut motility, as well as mediating mucosal oedema [2]. This increases retention of secretions, and raises intraluminal pressure,

therefore further complicating the obstructive picture. This, coupled with the confounding effects of opioids, immobility, poor dietary intake and intestinal neural dysfunction (either as a result of the presence of tumour in the bowel wall or as part of a paraneoplastic process), can give rise to the mixed picture of mechanical obstruction and ileus commonly encountered among these patients.

3. Clinical assessment

In established MBO, nausea is present in 100%, vomiting in 87–100%, colicky abdominal pain in 72–80%, pain due to distension in 56–90%, and the absence of stools or emission of flatus in the previous 72 h in 85–93% [2]. However, subacute or intermittent presentations are common, where some or all of these symptoms may be absent, so a high index of suspicion must be held. Generally, the absence of colicky abdominal pain should point towards a biochemical or functional ileus rather than mechanical MBO. Constant pain may represent tumour related pain, abdominal distension or, in the presence of peritonism on examination, intestinal perforation. Within the history, it is also important to assess the patient and caregivers' understanding of the diagnosis and prognosis, as well as gaining a good grasp of the patient's coexisting medical conditions.

Inspection of the abdomen will often show abdominal distension, but other important signs such as previous abdominal incisions and abdominal wall hernias must be noted for accurate diagnostic synthesis. Abdominal palpation may identify a specific tumour mass, or indeed a 'woody' abdomen secondary to diffuse malignant infiltration. Percussion of the abdomen is useful to differentiate the tympanic note of intestinal obstruction, from the dull percussion note in cases where malignant ascites predominates as the cause of abdominal distension. In cases of true intestinal obstruction, hyperactive bowel sounds may be present, as may borborygmi. However, if a paralytic picture predominates, bowel sounds may be absent. This clinical sign is a useful discriminating factor when cross sectional imaging is unavailable. A digital rectal examination is essential, as severe constipation can mimic, worsen or coexist with symptoms of intestinal obstruction. A full rectum should be emptied by the use of local suppository or enema preparations before presuming a diagnosis of bowel obstruction. Stercoral perforation can and does occur in terminal disease, often due to the combination of long-term opiate medication and immobility, so obstructive symptoms, especially with pain should be treated seriously, even when constipation is suspected [8].

The functional status of the patient with advanced malignancy can be objectively assessed using the World Health Organisation

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