Current need for guidelines in emergency surgery in peritoneal carcinomatosis

Melissa Nardecchia,1 Carlo Vallicelli,1 Mauro Stefano,1 Vanni Agnoletti,2 Luca Ansaloni,3 Paola Fugazzola,3 Federico Coccolini,4 Marco Vaira,5 Massimo Sartelli,6 Fausto Catena1

1General, Emergency and Trauma Surgery Department, Bufalini Hospital, Cesena; 2Anesthesia, Intensive Care and Trauma Department, Bufalini Hospital, Cesena; 3General Emergency and Trauma Surgery Department, IRCC Policlinico San Matteo, Pavia; 4General, Emergency and Trauma Surgery Department, Università Hospital of Pisa, Pisa; 5Oncologic Surgery Department, FPO-IRCCS of Candiolo, Torino; 6Department of General and Emergency Surgery, Macerata Hospital, Macerata, Italy

Abstract

Malignant bowel obstruction caused by peritoneal carcinomatosis is a common complication that affects a large proportion of gastrointestinal and ovarian oncology patients and predicts poor long-term survival. The management strategy for these patients includes a variety of medical therapies and surgical options; however, how to choose the best treatment strategy remains a mystery. The purpose of this narrative review was to summarize the most recent evidence on multimodal malignant bowel obstruction treatment and determine whether or not progress had been made. We should work to establish consensus guidelines, where possible, to ensure that this unique patient group receives the appropriate treatment or compassionate care during this often terminal event.

Introduction

Peritoneal carcinomatosis (PC) is identified as the condition in which cancer cells form nodules that grow on the membrane of the parietal and/or visceral peritoneum;1 peritoneal carcinomatosis is different from primary peritoneal cancer, which is cancer that originates in the peritoneal tissue. It represents an advanced neoplastic disease that usually comes from intra-abdominal neoplasm, but it is not the occurrence of peritoneal metastasis from extra-abdominal primary tumors such as breast cancer and melanoma.1

Complications of PC requiring emergency or urgent surgery are the MIO (Malignant Intestinal Obstruction), intestinal occlusion distal to the ligament of Treitz in the presence of a primary intra-abdominal neoplasm or extra-abdominal tumor with peritoneal dissemination. The abdominal neoplasms most commonly associated with MIO are CRC (49.5%) and ovarian neoplasms (21.9%); other primary abdominal tumors that less frequently are associated with peritoneal carcinomatosis are esophagogastric tumors (12%), gynecological tumors (5%), hepatobiliary tumor (4%).² ³

MIO may be due to a condition of ab extrinsic compression from implantation of peritoneal metastases or advancement of intraluminal disease to full wall thickness or involvement of mesenteric nerve plexuses resulting in altered bowel motility. The most frequent symptoms are nausea (100% of cases), vomiting (87-100% of cases), abdominal pain (56-90%), and closed alvocutaneous tumor (5%), hepatobiliary tumor (4%).² ³

Palliative surgery for intestinal occlusions from PC has its pros and cons: on the one hand, we have the resolution of symptoms, and the possibility of the patient returning to feeding and potentially being discharged; on the other hand, we have a high rate of complications and postoperative mortality especially when performed in an emergency setting.³ The rate of recurrence of obstruction with the need for re-hospitalization is also not uncommon. Overall survival is short, and most patients spend the last moments of their lives in the hospital recovering from surgery.

The prognosis of MIO is poor regardless of the choice of treatment. Patients who have developed bowel obstruction during chemotherapy or who have undergone CHT within the last 6
months have a worse prognosis because they are in disease progres-
sion during treatment. The prognosis is therefore better in patients
who have been off chemotherapy for more than 6 months or who
have never received this treatment. Other differences in OS were not
noted according to age, sex, ASA, location of metastases (peritoneal
or distant), whether the primary tumor is still in place or has been
resected, and according to type of surgery (VL vs. Open). Finally,
patients with NET metastases have better survival than other prima-
ry malignancies because they respond better to medical therapy.

A major dilemma for the general surgeon is to make the deci-
sion and give the indication to submit a patient with advanced neo-
plasia to palliative surgery in an emergency setting since operating
on a patient with peritoneal carcinosis complicated by intestinal
occlusion/ischemia/perforation is not a risk-free act. Surgery aims
to resolve the clinical pathological condition including the symp-
toms, but this aim is not always achievable in patients in the termi-
nal stage of the disease. The patient with peritoneal carcinosis has
a short life expectancy of several months or weeks and often he/she
is not a candidate for surgery because of underlying malnutrition
or comorbidities. Patients with terminal illnesses sometimes prefer
to avoid invasive operative treatment at the end of life. But some
frail patients, on the contrary, may want to relieve their clinical
case even if for a limited time, not accepting to give up hope
of getting better. The two paths to choose are either genuine acute
treatment or supportive care.

First, the patient must be informed of the likelihood that a true
resolution of his or her symptoms will not last long and sometimes
cannot be guaranteed; the risk/benefit ratio is high and the patient
may have more complications than solved problems.

The data collection for new studies and the establishment of a
guideline on the management of emergencies in patients with peri-
toneal carcinosis would help to facilitate the choice of the diagno-
sis-therapeutic course to be followed and the discussion of the clin-
case regarding the palliative intervention in line with the goal of
care and the patient's preferences.

Currently, the first approach to the patient is non-operative treat-
ment (TNO). Mini-invasive or non-operative treatments include
SNG placement, intravenous hydration or parenteral nutrition, anti-
secretory drugs, corticosteroids, painkillers and antiemetics, endo-
sic or operative PEG, stent placement for ab extrinsic compres-
sion of the intestinal lumen.

Surgery is generally indicated when there is failure of TNO or
worsening of the clinical condition.

The most frequently performed surgical procedures are: i) ostomy
(ileo-ileal, colo-ileo, jejunostomy; 18%); ii) intestinal bypass
ileo-ilio, ilo-co-lo; 21%); iii) intestinal resections
(19%); iv) lysis of adhesions; v) PEG or dijunostomy; vi) non-oper-
ative exploratory laparotomy (14% for the so-called ‘frozen
abdomen, that is, extensive adhesion syndrome’).

The type of surgery does not appear to have an association with
the mortality rate, except for non-therapeutic laparotomy.

The identification of a list of surgical options and the applica-
tion of a standard QOL measurement method are necessary to
ensure that the patient receives the care he or she desires and
avoids invasive treatment that runs counter to the goals outlined. It
is undeniable that there are prognostic factors to be taken into
account before indicating surgery even if palliative, including age,
performance status, nutritional status, as well as the type of neo-
plasm. It is known that mortality is increased in states of malnu-
trition and hypoalbuminemia.

At present, there are not enough studies in the literature to define
a common guideline on how to behave when faced with intestinal
occlusion in peritoneal carcinosis because all the studies that have
been carried out have a very high risk of bias because they are very
heterogeneous, due to the variety of neoplasms that are responsible
for these conditions and their different clinical course, due to the
variability of prognosis depending on age, the characteristics of the
neoplasm, the patient’s basic comorbidities, etc.

Several studies have demonstrated the benefit of palliative surgery in the resolution of intestinal occlusions from advanced neo-
plasia or peritoneal carcinomatosis nodules mainly for the resolution of the occlusive picture with associated feeding tolerance, removal of SNG, resolution of nausea and vomiting and abdominal distension. The complication rate, recurrence rate, and the need for a second hospi-
talization remain very high.

The outcomes of interest in the studies that have been performed
concern are: i) overall survival; ii) postoperative mortality (at 30
days between 6-32 %) and its main causes (occlusion due to unre-
solved surgery (37 %), postoperative complications (16 %), sepsis
(25 %), UTR or pneumonia (3.5 %), hemorrhage (3.5 %), IRA (3.5
%) ; ii) postoperative complications (specifically, wound infection
rate (10%), wound dehiscence and abscesses (7.5%), paralytic ileus
and gastroparesis (11%), enterocutaneous fistulae (21%), anasto-
motic leaks (37.5%), evisceration (37.5%), intestinal perforation
(29%), dvt, tep, hemorrhage, gastrointestinal bleeding, myocardial
infarction, sepsis (8.1%)); iii) need for hospitalization in intensive
care and its duration; iv) need for mechanical ventilation and hemo-
dynamic support in the postoperative period; v) need for further
interventions and procedures; vi) pain control; vii) control of nausea
and/or vomiting; viii) feeding tolerance; ix) incidence of re-operation (6-47%); xi) length of hospital stay; xii) NEED for re-hospitalisation (56%); xiii) quality of life. Possible positive scenarios are: i) absence of ascites, which is
prognostically negative when over 3000ml; ii) absence of palpable
abdominal masses; iii) return of normal postoperative bowel function.

Average survival after surgery ranges from 109 to 191 days vs
33-78 days for TNO. A quarter of the patients die during their hos-
pital stay; in patients with negative prognostic factors, the percent-
age is as high as 61%.

It is clear from this brief report that there is a current need for
guidelines for the treatment of these patients, in light of the improve-
ments made in the treatment of advanced neoplastic diseases with
the use of innovative chemotherapeutics, personalized therapies, the
latest generation of monoclonal antibodies, the possibility of surgi-
cal cytoreduction and intraoperative chemotherapy such as in
HIPEC and PIPAC, which give the patient months and months of
life ahead. On the other hand, the likelihood of developing clinical
conditions requiring emergency surgery is and will continue to grow.

**Scenarios worthy of scientific definition in position paper: what to do?**

There are two different scenarios that could arise: the unknown
and the known peritoneal carcinosis in an emergency case. In other
words, a new discovered case of peritoneal metastasis encountered
incidentally during emergency surgery for another cause or the
known case of a patient with an advanced neoplastic history but a
complication occurs.

A bowel occlusion or perforation could occur in a complicated
colic cancer, in a complicated gastric cancer or another abdominal
malignancy in need of urgent intervention, with synchronous peri-
toneal carcinosis; another option could be an undiagnosed primary
abdominal malignancy with peritoneal carcinomatosis in need of
urgent intervention.

In particularly, detection of pseudomixoma peritonei during
emergency surgery for acute appendicitis.
All these cases are worthy of scientific evaluation to define exactly which is the best therapeutic path for the patient. The purpose of the paper is to discuss the role of surgery in these various scenarios.

References