Peritoneal Metastases from Colorectal Cancer

Treatment Principles and Perspectives

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KEYWORDS

• Peritoneal metastases • Carcinomatosis • Colorectal cancer • HIPEC

KEY POINTS

- Peritoneal metastases are a common site of recurrence of colorectal cancer.
- Diagnosis is difficult and often made at an advanced stage.
- A better understanding of the prognostic factors and of the risk factors made new therapeutic approaches possible.

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer worldwide,[1] and up to 20% of the patients have synchronous distant dissemination at diagnosis,[2] among whom 4% exhibit isolated peritoneal spread.[3] In the modern era, about three-quarters of the patients presenting with CRC are treated with a curative intent, and 5-year survival rates range from 71.2% to 90.1%.[2] Unfortunately, despite a curative colorectal resection, many patients with initial stage II or III disease will develop local or distant recurrence.[4–7] The peritoneum is the third most common site of recurrence after the liver and lung,[4] with peritoneal metastasis (CRPM) occurring in about 8% to 20% of cases.[6] CRPM is most of the time diagnosed at a very advanced stage because no symptoms are fully specific, and is associated with a poor survival. However, the prognosis of patients with CRPM has been widely improved with the development of a new therapeutic approach consisting of a complete cytoreductive surgery (CRS) of the peritoneal disease followed with hyperthermic intraperitoneal chemotherapy (HIPEC).

Disclosure: The authors have nothing to disclose.
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Surg Oncol Clin N Am 27 (2018) 563–583
https://doi.org/10.1016/j.soc.2018.02.011
surgonc.theclinics.com

COLORECTAL PERITONEAL METASTASES: INCIDENCE, DIAGNOSIS, PROGNOSIS

Incidence

Besides the hematogenous and lymphatic dissemination, colorectal tumor cells can spread directly into the peritoneum via the transcoelomic route and cause CRPM. Occurring either synchronously or metachronously to the primary tumor, CRPM is diagnosed in 8% to 20% of the patients with CRC.[8] In a recent Swedish registry, which analyzed 11,124 patients with CRC treated between 1995 and 2007, CRPM was diagnosed in 8.3%.[3] In another recent analysis of 5671 patients operated on for CRC,[6] and followed up at least 5 years, 1042 (18%) developed metastases, which were located in the peritoneum in 197 patients (19%), presenting as the unique metastatic site in up to 40% of those cases. This point is important to be underlined because, in these patients, a potential curative treatment must be discussed.

Diagnosis

Clinical presentation

Given that no symptoms are fully specific of CRPM, serious symptoms progressively arise leading to diagnosis at a very advanced stage.[9] Two main events can lead to suspicion of CPRM: the presence of an ascites occurring in 28% to 30% of patients with synchronous CRPM and/or a small bowel obstruction, which concerns 8% to 20% of the patients at the time of diagnosis.[8]

Imaging

The accuracy of imaging is quite disappointing in the diagnosis of CRPM.

Computed tomography The sensitivity of computed tomography (CT) scan of the abdomen and pelvis for the diagnosis of CRPM is 90% for peritoneal implants larger than 5 cm but drops to less than 25% for lesions smaller than 5 mm[10] (**Fig. 1**). Many factors other than size influence the sensitivity of CT in CRPM diagnosis: the aspect of the peritoneal lesions (nodular or beach), their location (on the outskirts of solid organ or in the center of bowel loops), and the experience of the radiologist.[11] However, it has been recently reported (in 48 patients operated on CRPM from different origins) that preoperative evaluation of the small bowel could be done with high sensitivity (92%) and specificity (96%) using CT-enteroclysis.[12]

PET PET scan with ^{18}Fluorodeoxyglucose (^{18}FDG) is equally sensitive for the positive diagnosis of peritoneal metastasis (PM) ranging from 57% to 86.4%[13] and seems quite superior for the detection of PM located in the mesentery and the small bowel

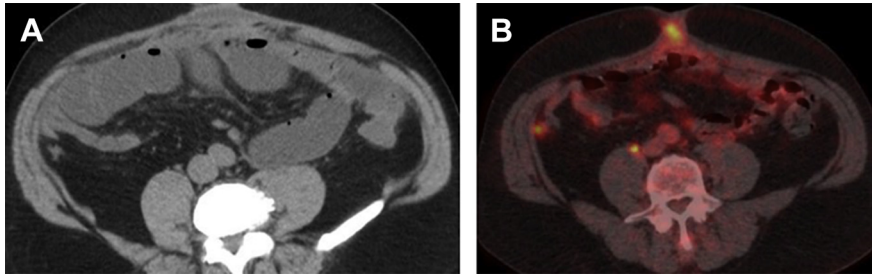

Fig. 1. (*A*) CT scan showing small bowel obstruction due to CRPM, (*B*) PET scan showing multiple peritoneal localizations.