Second Look Proactive Surgery for Colon Cancer with Peritoneal Carcinomatosis

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Abstract: Second look surgery in patients with colorectal cancer has always been, a controversial subject. The surgical literature suggests benefit in a re operation, where a limited extent of cancer is discovered and then resected with negative surgical margins. This paper seeks to identify the clinical factors that predispose to the recurrence of a primary colorectal cancer and the benefit of a second look surgery. It represents the attitude of a new treatment strategy in cases that the patient develops peritoneal metastasis at the initial operation and after an adjuvant treatment with systemic chemotherapy. We also discuss the intra-operative criteria, especially after the initial operation, in order to propose a therapeutic algorithm in the management of advanced colorectal disease.

Keywords: Peritoneal carcinomatosis colorectal cancer HIPEC.

INTRODUCTION

Second look surgery in colorectal cancer patients who develop progression of disease after the surgical removal of the primary malignancy, has been extensively explored in the surgical literature [1, 2].

This paper presents a case-report of a patient who develops peritoneal carcinomatosis from a transverse colon cancer. We discuss a new strategy with intra-peritoneal second-look surgery, combined with peritonectomy procedures and hyperthermic chemotherapy.

CASE-REPORT

A 60 years old man, eleven months ago, had an extended right colectomy and resection of the great omentum, for a transverse colon cancer T_4 N_1 M_0.

The Pathology Report

Colon adenocarcinoma, 3/21 positive lymph nodes with microscopic implants in the great omentum. No K-ras or B-ref mutations.

He receives 6 cycles of systemic chemotherapy with XELOX (oxaliplatin + capecitabine).

Post-Chemotherapy CT Scan

No evidence of the disease.

We decided to perform a second-look proactive surgery, in order to discover possible peritoneal implants, concerning this patient as a high-risk patient, due to the histology report of the first operation (T4).

During the second look operation, peritoneal implants were found in the abdominal wall, lymph nodes positive at the ligament of treitz, peritoneal implants also in the liver capsule, pelvis and in the upper ileum.

The peritoneal cancer index was 11. PCI is the peritoned cancer index as described by Sugarbaker. It is a scoring system which combines hymerical score of lesion size (L5-0 to L5-3) and tumor localization (region 0-13) Figure **1** [3]. We performed a complete cytoreductive surgery (CCso) with peritonectomy procedures, small bowel segmental resection with extended symphysiolysis, and then we performed 90 minutes of HIPEC with intraperitoneal Mitomycin + Doxorubicin and I.V bolus 5FU + Leucovorin (Bi-directional treatment), with open abdomen in 42.5 ^{o}C of temperature.

The operative time was 6 hours and the patient recovered well and was discharged on the 18th postoperative day.

DISCUSSION

Despite much discussion and multiple studies, the current indications for second-look surgery in colorectal cancer after removal of the primary malignancy, remains controversial.

Symptomatic and asymptomatic second-look surgery in patients with colorectal cancer must be considered as an important option in patient

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ISSN: 1929-2260 / E-ISSN: 1929-2279/12

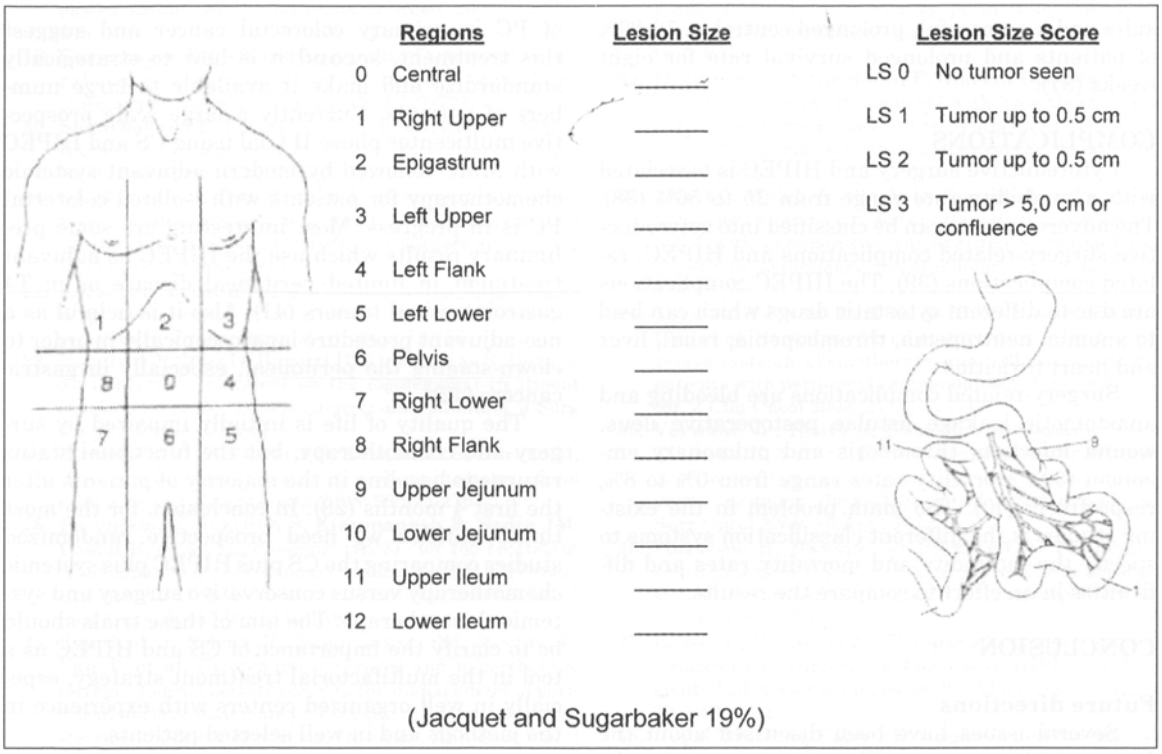

Figure 1: Peritoneal Cancer Index.

management and constitutes the major rationale for meticulous follow-up management strategies [1-6].

There have been efforts to define the indications for second-look surgery. Sugarbaker and colleagues determined that serial carcino-embryonic antigen assays at 3 month intervals, after a colon or rectal cancer resection, would detect occult recurrent disease approximately 6 months prior to clinical signs and symptoms [7-9]. Also, reliable data regarding the possible benefits of second-look surgery in colorectal cancer patients comes from the prospective evaluation of this strategy, reported in 1985. As a result of all those efforts to use postoperative monitoring of CEA in high risk patients for recurrence of colon and rectal cancer, a standard of practice has evolved in patients surgically treated for colorectal cancer. Patients should be considered for reoperation, in case of a progressive rise in the CEA blood test. In that case, radiologic tests should be performed to show that the elevated CEA count occurs in the absence of systemic disease or unresectable disease in the abdomen or pelvis [1, 7, 8].

Surgical technologies for managing local recurrence and peritoneal seeding within the abdomen and pelvis have become available. Visceral resections, peritonectomy procedures and hyperthermic intraperitoneal chemotherapy offers treatment options that may be successful in as many as 50% of patients with carcinomatosis. The more limited the extent of carcinomatosis the larger the benefit from definitive treatment. New data strongly supports the surgical removal of all regional lymph nodes, so that all possible sites for lymphatic dissemination from colon or rectal cancer are considered. Countless lymphatic channels must be transected because cancer cells may be lost into the abdominal or pelvic space. A logical conclusion is that local recurrence, is more frequent in patients with colorectal cancer and lymph node metastases [9-11].

The patients who are at high risk for implantation of cancer seedlings either as local regional recurrence or peritoneal carcinomatosis can be identified through a careful evaluation of the clinical presentation of the primary cancer and a study of the pathology report. The high-risk patients include mucinous T_3 and all T_4 cancers, cancers with adjacent organ involvement, cancers with limited peritoneal seeding, cancers with ovarian involvement, cancers with positive peritoneal cytology, and cancers that are ruptured intra-operatively. Also, patients who have a perforation through the primary tumor are known to have a high incidence of locoregional cancer recurrence [12, 13].

Implementation of a new second-look treatment strategy includes three groups of patients:

(1) Patients at high risk for recurrence by surgical and pathologic findings.

(2) Patients in the follow-up with signs and symptoms or signs that suggest disease progression, and

(3) Patients that show progressive rise in CEA.

The proportion of patients that might benefit from this strategy is 50% in high risk groups [14, 15]. In patients at high risk for locoregional recurrence, the intervention should occur within 1 year of the primary cancer resection. This time limitation is an attempt to identify patients with disease recurrence that have a limited progression within the abdomen and pelvis. For patients with peritoneal carcinomatosis we seek to identify patients with a PCI<10, since a low peritoneal carcinomatosis index is one of the most important requirements for success in cytoreductive surgery and hyperthermic intra-peritoneal chemotherapy [14, 15].

Requirements regarding the pre-operative evaluation of patients considered for revised second-look surgery include: CT scan of chest, abdomen and pelvis, PET scan, and colonoscopy to look for second primary tumors. Also inspection of the suture line for local recurrence. Patients with a progressive rise in CEA or symptomatic or radiologic evidence of disease progression should be considered for a second-look surgery. Patients with a negative second-look should not have a simple “open and close” laparotomy. These patients are considered at high risk for recurrent disease. In order to protect them from locoregional progression after their full re-exploration, they should have a greater and lesser omentectomy, oophorectomy and hyperthermic intra-peritoneal chemotherapy (HIPEC). Possibly, that limited surgery plus HIPEC will improve the prognosis in patients with a negative second look and add little to the expected low morbidity and mortality. Patients with a positive second look should have CRS which would involve peritonectomy procedures – as needed – and visceral resections plus HIPEC [16-18].

Accumulated data shows that early intervention results in a high likelihood of being converted from a second-look positive group to a long term survivor [15]. CRS including peritonectomies + HIPEC and also improved techniques for management of limited liver metastasis should be applied, in order to eradicate abdominal and pelvic recurrence [19].

Patients at high risk for loss of local control, may benefit in terms of quality of life and improved survival, by proactive early intervention, rather that palliative surgery after symptoms of locoregional disease have occurred.

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Received on 10-09-2012 Accepted on 08-10-2012 Published on 31-12-2012

DOI: http://dx.doi.org/10.6000/1929-2279.2012.01.02.9