

Single Case

# Synchronous Resection of Colon Adenocarcinoma and Bisegmentectomy of Liver Metastases

Eduardo Esteban Montalvo-Javé<sup>a, d</sup> Billy Jiménez Bobadilla<sup>c</sup>  
Mariana Espejel Deloiza<sup>a</sup> Irving Hugo Aguilar Preciado<sup>a</sup>  
Luis Fernando Negrete Cervantes<sup>a</sup> Héctor Diliz-Pérez<sup>b</sup>

<sup>a</sup>Clínica de Cirugía Hepato-Pancreato-Biliar, Servicio de Cirugía General, Hospital General de México, "Dr. Eduardo Liceaga", Mexico City, Mexico; <sup>b</sup>Servicio de Cirugía de Trasplantes, Hospital General de México, "Dr. Eduardo Liceaga", Mexico City, Mexico; <sup>c</sup>Servicio de Coloproctología, Hospital General de México, "Dr. Eduardo Liceaga", Mexico City, Mexico; <sup>d</sup>Departamento de Cirugía, Facultad de Medicina, UNAM, Mexico City, Mexico

## Keywords

Colon adenocarcinoma · Liver metastases · Resection

## Abstract

Colorectal cancer is one of the main neoplasms worldwide; at the time of diagnosis about 25% of cases already have an advanced stage with the presence of metastases. A 58-year-old female presented with nausea, vomiting, and black stools and diffuse abdominal pain associated with 7% weight loss. She was referred to our hospital with signs of digestive tract bleeding and anemic syndrome. Panendoscopy revealed body and fundus gastropathy and presence of *Helicobacter pylori*, and colonoscopy showed a neoplastic lesion at the ascending colon level. A synchronous resection was performed in a single surgical time of colorectal cancer and liver metastases with a duration of 4 h and bleeding of 900 mL. The oral feeding started 24 h after surgery, presenting gas channeling at 24 h and evacuations at 48 h. The total intrahospital stay was 5 days. Synchronous resection of hepatic metastases in colorectal cancer is still rarely performed, despite the fact that in recent years the number of cases has increased because of better surgical techniques. Synchronous

resection of colorectal cancer and liver metastases can be performed safely, without increasing transoperative mortality when performed in specialized centers with a multidisciplinary team; however, it is essential to emphasize the importance of negative surgical margins (R0) of the primary tumor and later to be complemented with adjuvant treatment with chemotherapy.

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## Introduction

Colorectal cancer reported 136,000 new cases in 2014 and caused more than 50,000 deaths during the same year in the United States, being one of the main neoplasms worldwide, mainly in developed countries. It is estimated that at the time of diagnosis, about 25% of patients already have advanced stages, with the presence of metastases, with liver metastases being the most frequent [1, 2].

Colorectal cancer is a complex disease that involves various alterations at the chromosomal level which determines the response to chemotherapy, requiring individualized management in each patient [3, 4].

Metastases in colorectal cancer, as well as in gastrointestinal malignant neoplasms, disseminate by blood to the portal circulation; thus, the liver is the first site of invasion in colorectal cancer.

When liver metastases are greater than 2 mm, they begin to have circulatory supply from the hepatic artery [4].

The 5-year survival rate in patients with colorectal cancer, with the presence of metastasis and without receiving treatment, is as low as 13% in the United States [5].

Therefore, we present the following case in which synchronous resection was performed in a single surgical time for colorectal cancer and liver metastases at the “Hospital General de México.”

## Case Report

We report the case of a 58-year-old female with a personal history of diabetes mellitus diagnosed 8 years prior, treated with metformin and glibenclamide, a surgical history of two cesarean sections, without complications, and a family history of diabetes mellitus, arterial hypertension, and cholangiocarcinoma. She was referred to our hospital in November 2015 presenting nausea, vomiting, black stools, and diffuse and sporadic epigastric pain; she also lost 4 kg in 4 months, from 65 to 61 kg, which means a total of 7% weight loss, and showed signs of digestive tract bleeding and anemic syndrome. Serological studies, prior to hospital arrival, showed hemoglobin of 8.4 g/dL.

Initial laboratory results included leukocytes 8,260  $\mu$ /L, hemoglobin 10.56 g/dL, platelets 222,000  $\mu$ /L, gamma glutamyl transpeptidase 22  $\mu$ /L, lactate dehydrogenase 207  $\mu$ /L, alkaline phosphatase 71  $\mu$ /L, AST 15  $\mu$ /L, ALT 13  $\mu$ /L, prothrombin time 6.7 s, serum albumin 3.5 g/dL, glucose 185 mg/dL, urea 26.9 mg/dL, creatinine 0.5 mg/dL, and serum carcinoembryonic antigen was elevated to 114.56 UI.

The approach protocol started with panendoscopy, showing body and fundus gastropathy and presence of *Helicobacter pylori*. Four months later, a colonoscopy was performed which revealed a right colonic tumor.

An abdominal CT scan followed, which revealed the following: liver with hypodense tumor, with regular edges, in segment V, 24 × 22 × 16 mm, and longitudinal thickening of 82 mm with a reduction of 100% of the intestinal lumen (Fig. 1a). PET CT showed a nodular lesion of 25 × 21 mm in segment V with maximum SUV of 17.1, a poorly defined lesion in segment VI of 11 mm in diameter, and maximum SUV of 6; ascending colon of 45 cm<sup>3</sup> with maximum SUV of 51.4 (Fig. 1b).

An open surgical procedure was performed in May 2016 with right hemicolectomy with ileorectal mechanical anastomosis and hepatic bisegmentectomy V and VI (Fig. 2). The duration of the surgical procedure was 4 h, with a 6 h anesthetic time, and total estimated bleeding was 900 mL. The oral feeding started 24 h after the procedure, presenting intestinal gas release at 24 h and evacuations at 48 h. Total intrahospital stay was 5 days, presenting right axillary vein thrombosis due to placement of central venous catheter guided by interventional radiology.

The histological diagnosis was moderately differentiated adenocarcinoma, intestinal type, with cecum, ascending colon, and appendicular involvement; free surgical margins (R0), nodules 2/11; hepatic lesions with neoplastic cells (Fig. 3).

The postoperative stay was uneventful while the patient received chemotherapy with capecitabine and oxaliplatin. The patient showed carcinoembryonic antigen 3.93 UI without tumor activity by CT. ECOG was 0 and IK was 1000 during the follow-up time of 9 months.

## Discussion

Synchronous resection of hepatic metastases in colorectal cancer is still rarely performed, despite the fact that in recent years the number of cases has increased because of better surgical techniques available and better training in liver surgery together with the actual unresectability criteria of hepatic metastases in colorectal cancer.

Currently there are only two contraindications to perform this procedure, summarized as: inability to perform surgical resection R0 and inability to maintain a liver remnant that ensures adequate physiological capacity [6].

The presence of hepatic metastases in colorectal cancer is considered clinical stage IV; survival in these patients without undergoing surgical treatment ranges from 20 to 24 months, compared with a 5-year survival in patients undergoing surgical treatment that reaches up to 58% [5].

The time and order in which surgical treatment of colorectal cancer and liver metastases should be performed is still a matter of controversy; however, different studies have shown that performing a synchronous resection, in which the resection of colorectal cancer and metastases are performed with a time difference of no more than 3 months [5], is a procedure that can be performed safely in specialized centers.

Benefits of performing a synchronous resection are the possibility of performing both resections in a single surgical time, a single major surgery, and this translates into faster recovery and the possibility of returning to daily activities in a shorter period of time, but the most important point is that it will diminish the time between surgical treatment and the start of chemotherapy, resulting in a better and faster oncological treatment.

The number of procedures of this type that are carried out worldwide is limited, since it requires a multidisciplinary team.

Therefore, we conclude, synchronous resection of colorectal cancer and liver metastases can be performed safely, without increasing operative mortality, when performed in spe-

cialized centers with a multidisciplinary team; it is essential to emphasize the importance of negative surgical margins (R0) of the primary tumor and later to be complemented with adjuvant treatment with chemotherapy.

### Statement of Ethics

The authors have no ethical conflicts to disclose. Written informed consent was obtained from the patient for publication of the present case report and any relevant images.

### Disclosure Statement

The authors have no conflicts of interest to declare.

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### Author Contributions

*Eduardo E. Montalvo-Javé*: acquisition, analysis, interpretation of data for the work, revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

*Billy Jiménez Bobadilla*: acquisition, analysis, interpretation of data for the work and revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

*Mariana Espejel Deloiza*: acquisition, analysis, interpretation of data for the work and revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

*Irving Hugo Aguilar Preciado*: acquisition, analysis, interpretation of data for the work and revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

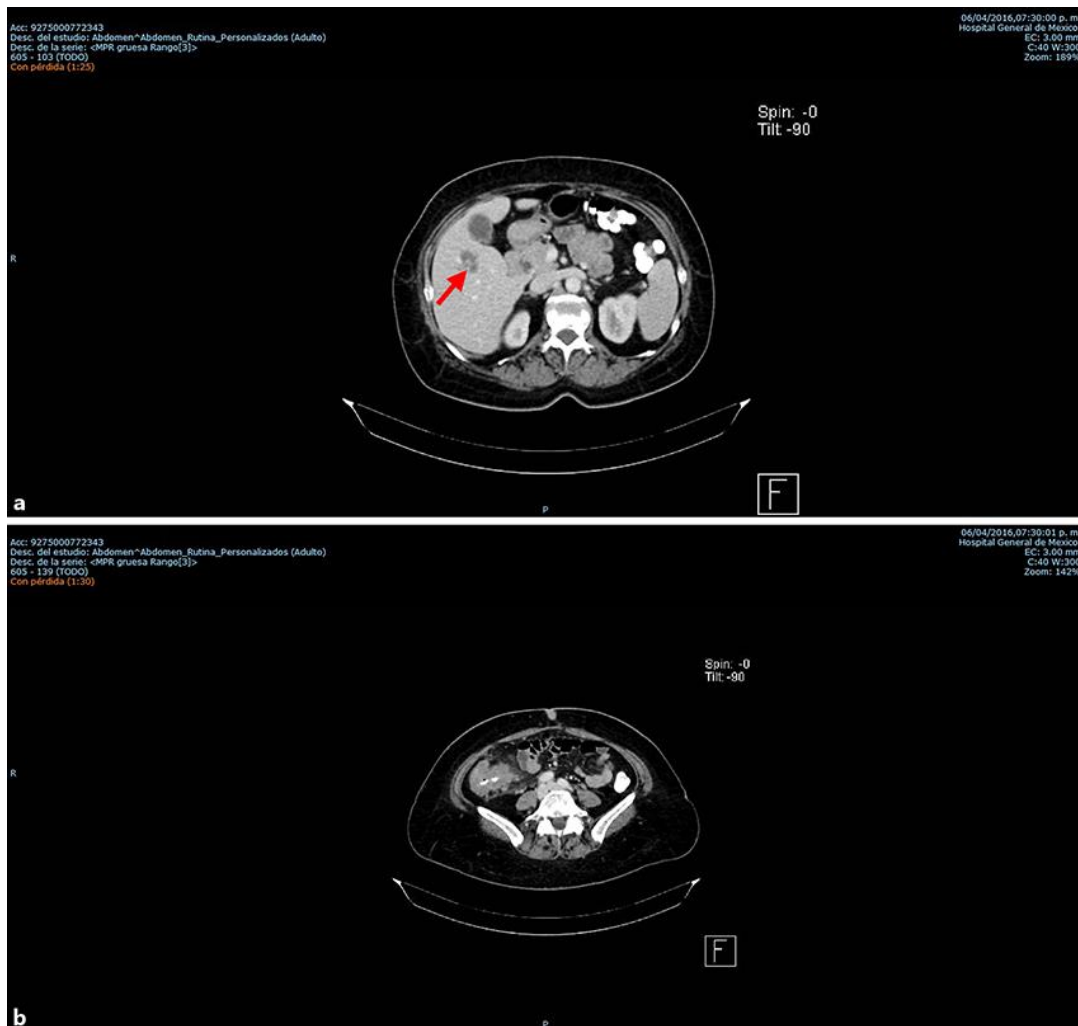
*Luis Fernando Negrete Cervantes*: acquisition, analysis, interpretation of data for the work and revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that

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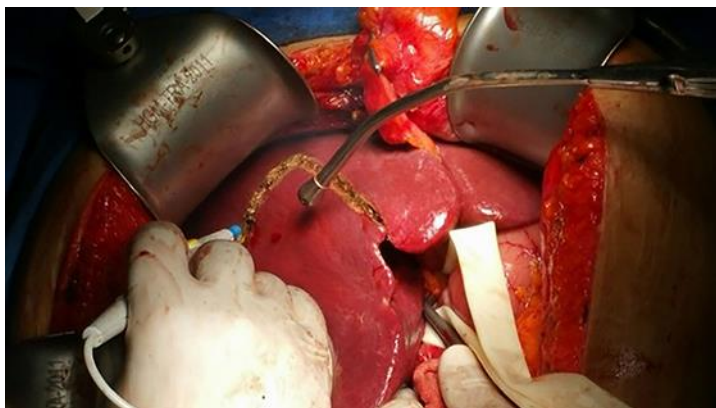
*Héctor Diliz-Perez*: acquisition, analysis, interpretation of data for the work and revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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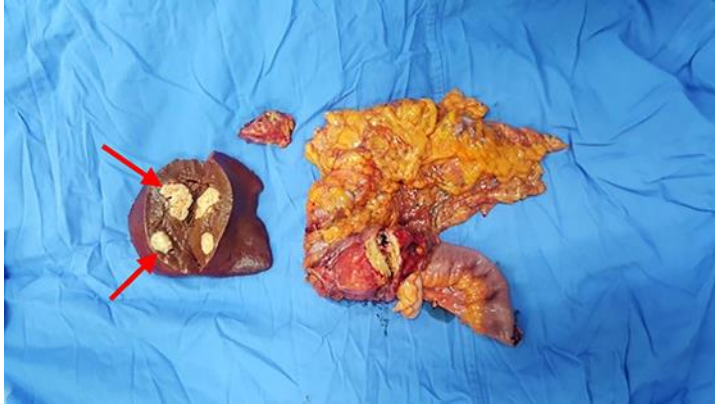
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**Fig. 1.** a CT: Hepatic metastases (red arrow). b Colorectal cancer at the ascending colon.



**Fig. 2.** Hepatic resection, segments V and VI.



**Fig. 3.** Hepatic segments V and VI and the ascending and transverse colon.