

Surgical Management of Hepatic Metastases of Colorectal Cancer



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KEYWORDS

- Colorectal cancer • Hepatic resection • Colorectal liver metastasis
- Hepatic arterial infusion

KEY POINTS

- Of the 136,000 patients diagnosed with colorectal cancer, 50% will develop metastases and most of these will be liver metastases, making colorectal liver metastases (CRLM) a significant public health problem.
- For the 20% of patients with resectable CRLM, hepatic resection is safe and effective, with an operative mortality of 1%, overall 5-year survival of 50% to 60%, and a 20% cure rate.
- Factors related to primary and metastatic tumors individually and in clinical risk-scoring schemes are the best prognostic factors; however, it is difficult to define patient groups with resectable, liver-limited CRLM that should be excluded from surgery.
- Systemic chemotherapy for metastatic colorectal cancer has improved; however, trials of adjuvant and/or neoadjuvant therapy around the time of hepatic resection have shown improvement in progression-free survival, but not overall survival.
- Conversion to complete resection with systemic and/or hepatic arterial infusion chemotherapy is a reasonable goal for patients with unresectable CRLM because outcomes are similar to those in patients with initially resectable disease.

INTRODUCTION, EPIDEMIOLOGY, AND NATURAL HISTORY

More than 90% of cancer-related mortality is due to metastatic disease and not from the primary tumors from which these arise.¹ Death from colorectal cancer is no different and, therefore, identification of optimal diagnostic, predictive, surgical, and perioperative modalities to prevent death from colorectal liver metastases is of paramount importance. Colorectal cancer is the third most common cancer in men and the

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second most common in women worldwide.² Approximately 96,000 patients will be diagnosed with colon cancer and 40,000 with rectal cancer in 2014³; unfortunately, 50,000 will die of their disease. Of the 136,000 patients diagnosed with colon and rectal cancer, 50% will develop metastases and a large proportion of these will be liver metastases.⁴ Unresectable disease is the norm in these cases, but among the estimated 20% who are able to achieve complete resection there is an associated overall 5-year survival of 50% to 60%.⁴ In fact, liver resection is the only treatment associated with long-term survival in patients with colorectal liver metastases (CRLM).^{5,6} Furthermore, if patients are selected well, up to 20% are cured after hepatectomy for CRLM (Fig. 1).⁷ This review describes the important aspects related to the surgical care of patients with CRLM.

Cattell performed what was probably the first hepatic resection for metastasis from the rectum in 1939, and reported that the patient was alive 12 months later. Early on, George Pack of Memorial Hospital in New York wrote that liver resection for CRLM was indicated when the primary tumor was controlled and a long interval had occurred between resection of the primary and discovery of the metastatic lesion. Interestingly Dr Quattlebaum, an early proponent of hepatic resection, proposed metastasectomy for “any and all” lesions unless the patient was deemed “incurable,” a proposal that is still relevant, although incompletely defined, to the present day. Review of natural history data from the comprehensive monograph *Solid Liver Tumors* by Foster and Berman,⁸ published in 1977, indicated that the mean survival for unresected CRLM ranged from 5 to 9 months in multiple series and that no survivors were noted at 5 years.⁸ In a series of more than 1000 patients reported in 1990, median survival was 6.9 months for unresectable CRLM and 14.9 months for resectable disease that was not resected. However, if disease was resected with negative margins, the median survival was 30 months with a 38% 5-year survival.⁹ It has become clear that without surgical management, median survival is measured in months and 5-year survival is rare. In the modern era, patients with resected CRLM now have an associated 5-year overall survival (OS) of 50% to 60% and a long-term cure rate of approximately 20% (Table 1).^{10,11} Systemic chemotherapy for metastatic colorectal

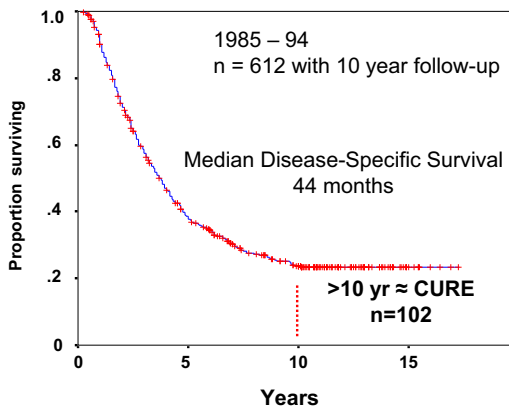


Fig. 1. Resection of colorectal liver metastases (CRLM) is safe and curative. Displayed is the 10-year follow-up on patients who underwent resection of CRLM from 1985 to 1994 at Memorial Sloan Kettering. There were 102 actual 10-year survivors, and 97% of the 102 were disease free at the last follow-up. (Adapted from Tomlinson JS, De Jarnagin WR, Matteo RP, et al. Actual 10-year survival after resection of colorectal liver metastases defines cure. *J Clin Oncol* 2007;25:4575–80; with permission.)

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