A Case of Curative-intent Hepatectomy for Colon Cancer Metastatic to the Scapula and Liver

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Abstract. *Colon cancer is the second leading cause of cancer death in the United States. Patients with colon cancer metastatic to liver and bone are deemed non-curable and have a poor prognosis. We present a case of recurrent colon cancer with synchronous hepatic and bony metastases treated with radiation, chemotherapy, and curative-intent hepatectomy. The patient is alive and free of disease recurrence, off chemotherapy, more than 2 years post-hepatectomy.*

Colorectal cancer is the third most common cancer as well and the third most common cause of cancer death in men and women, respectively (1). Colorectal cancer commonly metastasizes to regional lymph nodes, liver, bone, lung and brain. Oncosurgical strategies have demonstrated increased survival in patients with unresectable colorectal liver metastases (CLM). Cure can be achieved in approximately 20% of patients with initially unresectable CLM resected after downsizing chemotherapy (2-4). In addition to increased survival, oncosurgical approaches have a real potential for disease eradication (3). Effective chemotherapy and advances in surgical techniques now allow the contemplation of surgical resection of synchronous hepatic metastases and other extrahepatic metastases such as lung, distant lymph node, and peritoneal metastases. These approaches are limited to a select patient population and can be associated with 5-year overall survival rates exceeding 30% (4-6). However, hepatectomy outcomes in patients with synchronous hepatic and bony metastases have not been reported. We report a case of synchronous scapular and hepatic metastases treated successfully with a combination of radiation therapy to the bony metastasis, followed by prolonged systemic chemotherapy, and curative-intent hepatectomy.

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Case Report

A 50 year old man was diagnosed with sigmoid colon cancer during a routine colonoscopy. The patient underwent sigmoid colectomy with pathology showing a T3N0M0 moderately differentiated adenocarcinoma. Pre-operative computed tomography (CT) did not show any evidence of metastatic disease. The patient was followed by observation. Four years post-resection, he presented with left scapular pain. Serological testing confirmed an elevated CEA of 57 ng/ml, and a CT scan confirmed a left scapular metastasis and a large left hepatic metastasis (Figure 1). A PET/CT confirmed an increase FDG uptake at these sites without any evidence of other distant metastases. A CT guided biopsy of the left scapular metastases confirmed adenocarcinoma, consistent with a metastatic colon cancer. The patient was treated with radiation therapy 3 Gy/fraction ×10 fractions (30 Gy). He was subsequently started on systemic chemotherapy with 5-FU, leucovorin, oxaliplatin (FOLFOX) and bevacizumab. After 12 cycles of chemotherapy (6 months), oxaliplatin was discontinued for grade 2 neuropathy. He was maintained on 5-FU/LV and bevacizumab for another 67 cycles, for a total of 3 years of systemic chemotherapy. During this period of time, he derived an excellent radiographic response with a major reduction in hepatic metastasis and no further evidence of active bony metastatic disease (Figure 2). Given his excellent and sustained response, the patient was considered for laparoscopic left hepatic resection. After a 2-month break from chemotherapy, a repeat PET/CT showed no active disease outside his known hepatic metastasis. He underwent an uncomplicated left hepatectomy with pathology confirming 3.5×3.0×2.8 cm moderately differentiated colonic adenocarcinoma with a 1cm negative radial margin. He continues on follow-up, more than 2 years from hepatectomy, without evidence of radiographic or serological disease recurrence.

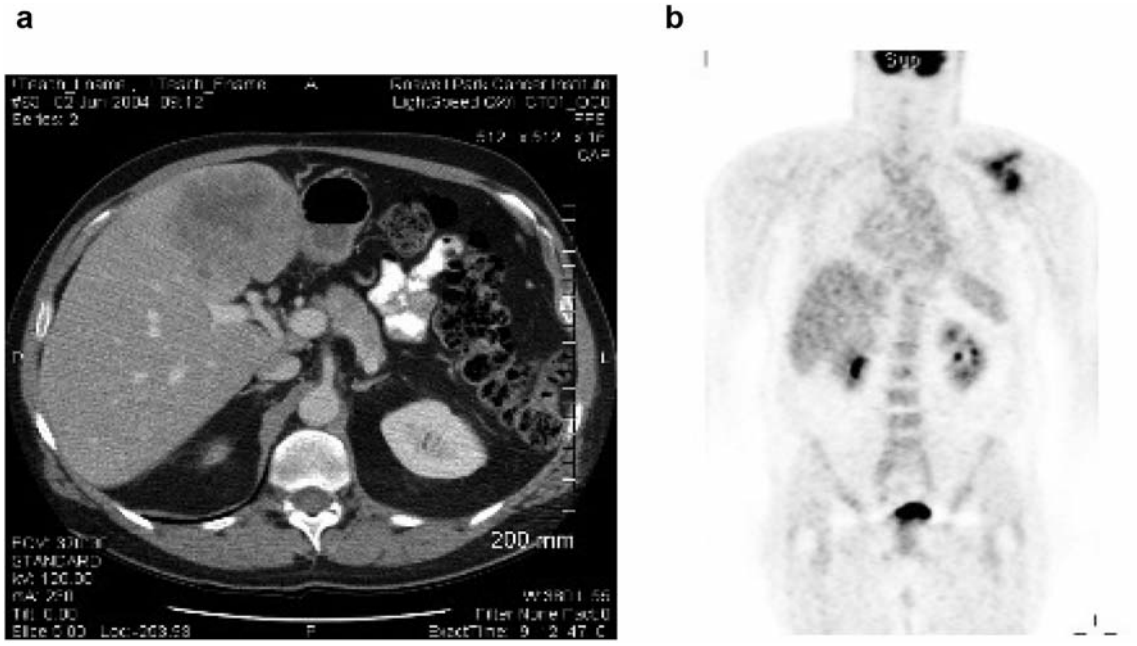

Figure 1. *CT (a) and PET (b) scans showing a large left hepatic lobe mass and a left scapular metastasis before chemotherapy.*

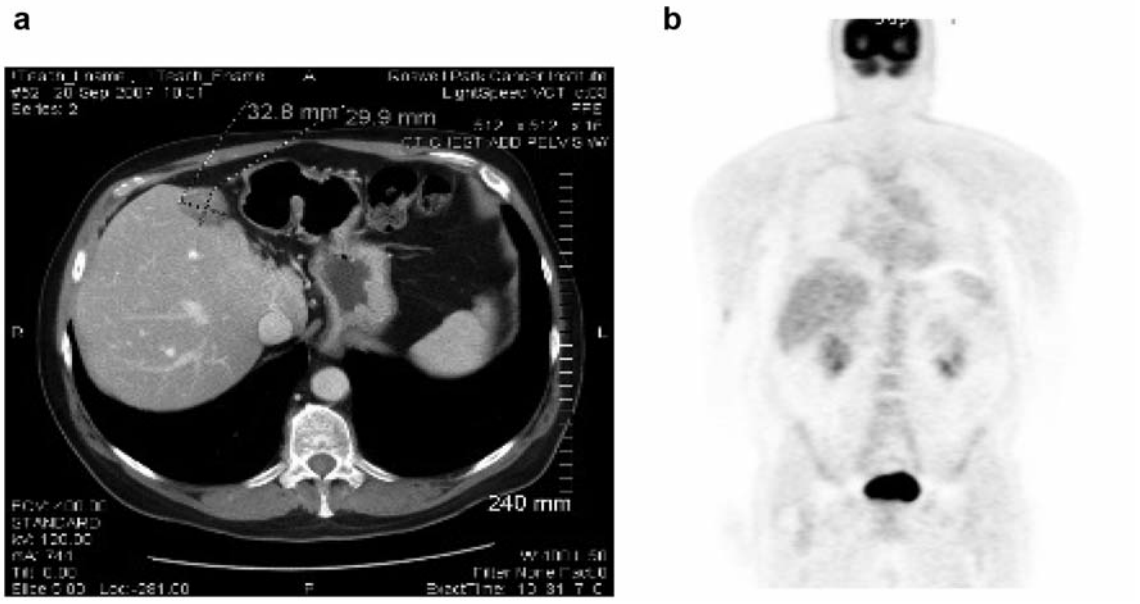

Figure 2. *CT (a) and PET (b) scans showing shrinkage of liver mass and resolution of left scapular metastasis after chemotherapy and prior to hepatectomy.*

Discussion

Metastatic colorectal cancer often involves the liver, lungs, distant lymph nodes, and peritoneum. Metastatic disease to the bone is less common, involving 4-6% of patients with metastases (5, 7). Bony metastases usually occur in the setting of extensive metastases and are typically associated with a median survival of 6-7 months (6). Given the poor prognosis associated with bony metastasis, curative intent approaches in this setting are typically contraindicated and a palliative approach is the rule.

Major advances in the systemic treatments of metastatic colorectal cancer and refinements in hepatic resection strategies have recently expanded the criteria for resectability

in patients with CLM to include patients with resectable extrahepatic metastases. In selected patients with resected hepatic and pulmonary metastases, a 5-year overall survival exceeding 30% has been reported (8-14). Hepatectomy of CLM has also been described in the setting of resection of distant lymph node metastases (15), and peritoneal metastases (16). However, overall survival in these two settings has been limited, making hepatectomy controversial. Hepatic resection in the setting of any bony metastases has not been advocated, especially in light of the poor prognosis associated with metastatic bony disease. In this report, we describe a case of left hepatectomy in the setting of a known left scapular metastasis that was treated with radiation therapy. The patient continues to be in remission, more than 2 years after hepatic resection. In our case, we proceeded with palliative radiation to an isolated bony metastasis, followed by systemic chemotherapy. We initially avoided hepatectomy. However, as the patient remained without evidence of any active bony disease and without evidence of new distant metastases for more than 3 years, we proceeded with a curative-intent left hepatectomy. It is possible that prolonged systemic chemotherapy following initial focal radiation has "sterilized" his known bony metastases, leading to the observed prolonged remission – now more than two years post-hepatectomy. It is also possible that the patient continues to harbor micro-metastatic disease that will declare itself as distant relapse or as local scapular progression within the coming few years. Irrespective, one can argue that laparoscopic hepatectomy, in this case, has so far resulted in a meaningful, chemotherapy-free, 2-year+ disease-free survival. It is important to note that this case does not support the routine integration of hepatectomy in patients with a synchronous isolated bony metastasis. However, it does suggest that patients with a solitary bony metastasis with a durable complete skeletal metastasis response to radiation therapy and prolonged controlled hepatic metastases may derive a benefit from a comprehensive multidisciplinary approach involving radiation, chemotherapy, and surgery.

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