

REVIEW ARTICLE

The role of liver resections for metastases from lung carcinoma

GIORGIO ERCOLANI, MATTEO RAVAIOLI, GIAN LUCA GRAZI, MATTEO CESCONE, GIOVANNI VAROTTI, MASSIMO DEL GAUDIO, GAETANO VETRONE, MATTEO ZANELLO, ALFONSO PRINCIPE & ANTONIO DANIELE PINNA

Department of Surgery and Transplantation, University of Bologna, S. Orsola Hospital, Bologna, Italy

Abstract

Liver resections are usually considered the treatment of choice for colorectal and neuroendocrine metastases. Recently, the morbidity and mortality rates for liver surgery have dramatically decreased. Therefore, hepatic resection has been applied in selected cases of non-colorectal, non-neuroendocrine hepatic metastases. We report our experience with three cases of liver metastases from lung carcinoma and review the literature, to evaluate the role of liver surgery for this indication.

Key Words: *Liver neoplasms, neoplasm metastasis, hepatectomy, lung neoplasm, prognosis*

Introduction

Liver resection is the treatment of choice for isolated colorectal (CR) hepatic metastases, and since chemotherapy provides responses in a minority of cases with no chance of cure, aggressive surgery has been advocated even for advanced CR hepatic metastases with satisfying results [1–3]. In the case of neuroendocrine metastatic tumors, an aggressive surgical approach is considered the treatment of choice (including liver transplantation), and even debulking surgery may improve survival [4,5].

The role of liver resection for non-colorectal, non-neuroendocrine hepatic metastases is still a matter of discussion. Few authors have recently reported satisfying results after liver resections for non-colorectal, non-neuroendocrine metastases [6–9].

We report the clinical data and outcome of three cases of partial hepatectomy for lung metastases and review the data in the literature.

Patients and methods

From November 1990 to March 2003, 144 patients with non-colorectal, non-neuroendocrine hepatic metastases were admitted to the Department of Surgery and Transplantation, University of Bologna.

A curative liver resection was performed in 85 cases (59%).

Among these 85 cases, 3 (3.5%) patients were operated on for liver metastases from lung carcinoma. Selective diagnostic work-up for these patients included the evaluation of liver function, ultrasonography, chest X-ray, abdomen spiral CT scan (total body scintigraphy to exclude other localizations) and PET (positron emission tomography) scan in the last case. The presence of extrahepatic disease at the preoperative evaluation was considered an absolute contraindication to surgery.

Results

The patients' features and outcomes are reported in Table I. The three patients were 63, 52 and 60 years old, respectively. Two were male and one female. In the first case, liver metastasis was synchronous with lung carcinoma. In the other two cases, pulmonary lobectomy was performed 24 and 18 months before diagnosis of hepatic metastases, respectively. All operations were carried out in <5 hours and intraoperative blood transfusion volumes were 600 ml and 500 ml in the first and third case, respectively. No blood transfusion was required in the second case.

Table I. The patients' features and outcomes.

Patient	Pathology of the primary tumor	Date of operation	Number of liver metastases	Diameter of the largest liver metastases (cm)	Type of hepatic resection	Follow-up
R.R.	Bronchial adenocarcinoma	July 1988	1	2	Segmentectomy, (segment V)	Died after 1 year from recurrence
C.M.	Bronchial adenocarcinoma	July 1991	1	5	Segmentectomy, (segment VI)	Died after 3 years from recurrence
D.A.	Bronchial adenocarcinoma	October 2004	2	6	Right hepatectomy	Alive without recurrence

Postoperative hospital stay was 12, 7, and 10 days, respectively, and none of the patients experienced major postoperative complications. In all three cases, adjuvant chemotherapy was administered.

Discussion

The role of liver resection for non-colorectal, non-neuroendocrine hepatic metastases is still quite controversial. However, while available data indicate a poor survival in patients with unresectable metastases, a 5-year survival rate between 20% and 37% can be expected after curative liver resection in selected cases [6–9].

Refinements in perioperative care and surgical techniques have significantly improved the safety of liver surgery, and operative mortality has decreased to around 1% in tertiary referring centers [2,3]. For these reasons, in the last 10 years liver resection has been proposed not only for colorectal and neuroendocrine metastases, but also for metastatic tumor from other sites.

It has been reported that patients with single lesions are the best candidates for surgery and have the greatest chance of long-term survival. In addition, patients with a long disease-free interval after resection of primary tumor can be expected to have better prognosis compared with patients with a short disease-free interval [7,9]. In this series, we selected patients with one or two nodules. The patient with synchronous metastases was operated on at the beginning of our experience.

Liver resections for lung metastases are very rare and few cases are reported in the literature, usually together with the entire series of non-colorectal, non-neuroendocrine hepatic metastases. In the largest reported experience with three cases, the outcome was not shown [8] as well as in other series. On the contrary, some cases of long-term survival have been reported [6,8,10]. In our experience postoperative morbidity and mortality were absent. There was one

patient who survived 3 years and one is still alive. It is not possible to give definitive conclusions on the role of surgery for hepatic metastases from lung cancer. However, whenever extrahepatic disease is excluded, in selected cases with one or two nodules, and when disease-free interval resection of primary tumor is longer than 1 year, acceptable results can be achieved, and surgery should be given as a therapeutic option at least until new effective chemotherapeutic agents are developed.

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