Management of Hepatic Metastases

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Surgical treatment of liver metastases has actually been practiced since the 1950s and is now an accepted therapy for selected patients. This presentation discusses the rationale for surgical treatment, the natural history of untreated disease, results of liver resection, determinants of prognosis, and a preferred approach to patient care.

Rationale for Surgical Treatment

The natural history of untreated metastatic liver disease is poor. Median survival is less than two years, and survival for five years after diagnosis is exceedingly rare. However, prolonged survival is possible after liver resection, with 25% to 35% five-year survival. Even so, controversy persists concerning the actual efficacy of liver resection. Critics contend that the data are inconclusive due to the use of retrospective analyses and historical control groups, and a prospective, randomized trial has never been conducted to demonstrate efficacy of liver resection for metastatic disease. However, the current evidence suggesting efficacy is now so strong that it would be difficult to conduct a randomized trial due to ethical considerations. Furthermore, such a trial would be impractical, since over 400 patients might be required to achieve a statistically significant result.

Natural History of Untreated Metastatic Liver Disease

The prognosis for patients with untreated disease is most closely associated with the extent of liver involvement. Residual liver function also correlates with survival, since death is usually due to liver failure. Poor survival is portended by the presence of symptoms such as pain and weight loss, liver enzyme abnormalities and synthetic dysfunction, and a poor patient performance status at the time of diagnosis. Healthy patients with adequate hepatic reserve and minimal liver involvement are most likely to be longer-term survivors without treatment. Not surprisingly, these same patients are the best candidates for surgical treatment.

Results of Liver Resection

Since the goal of surgical treatment is to prolong survival, patient survival data are the best measure of success. Disease-free survival data are inherently inaccurate due to the difficulties with detection of disease and variability of follow-up. Thus, this discussion is limited to patient survival data.

Two large multicenter studies have been reported. Nordlinger et al reported data from a French Association of Surgery study, which analyzed 1,118 patients who underwent potentially curative liver resection at 85 centers from 1959 to 1991. Actuarial survival was 84% at one year, 40% at three years, and 25% at five years. Hughes et al compiled data from 859 patients treated at 24 centers from 1948 to 1985 in which actuarial five-year patient survival was 33% (excluding perioperative deaths). Five institutions have reported experiences with 100 or more patients with 25% to 37% actuarial five-year survival and 26- to 34-month median survival. In most centers, operative mortality is less than 5%. Long-term follow-up from the Mayo Clinic series of 280 patients treated from 1960 to 1987 showed a 20% probability of survival 10 years after potentially curative resection. Surprisingly, results with repeat liver resection mirror those for initial liver resection. Repeat resections, when possible, seem to "reset the clock"; a 3.4-year median survival and a 30% five-year survival was reported in a series of 21 patients treated at the Mayo Clinic.

Determinants of Prognosis

The most important determinant of prognosis is tumor amenable to complete removal by a potentially curative resection. There is no difference in survival between patients treated with incomplete removal of tumor (debulking) and patients not treated at all. Many patient and primary tumor features, metastatic disease features, and intervention factors have been examined in order to determine which patients should and should not undergo liver resection. Perihepatic lymph node involvement portends a poor prognosis and is considered by many to be a contraindication for resection. Locally recurrent disease or extrahepatic metastases are also associated with poor survival and are relative contraindications for resection. Other factors less significantly associated with adverse prognosis are the presence of symptoms, large tumor size and multiplicity, satellite configuration of metastases, extensive liver involvement, a high preresection serum carcinoembryonic antigen (CEA) level, presence of nondiploid tumors, a requirement for perioperative blood transfusion, and a margin of resection less than 1 cm. Although these and other putative prognostic determinants have been identified, the significance of each varies greatly among studies. Furthermore, the actual differences in survival associated with these determinants are often so small that the presence of a factor has little influence on clinical decisions.

Preferred Approach to Patient Care

The promising results with liver resection warrant close follow-up of all patients with a history of primary colonic and rectal carcinoma, and all patients with metastatic disease should be evaluated for liver resection. Evaluation should include a complete physical examination, blood tests including a CEA level, colonoscopy or proctoscopy with barium enema to rule out locally recurrent or metachronous disease, a chest computed tomography (CT) scan to rule out pulmonary metastases, and an abdominal/pelvic CT scan to rule out extrahepatic and locally recurrent disease. Operation should be considered if there is no evidence for unrectsectability and if expectant morbidity and mortality are low. The operation should include a thorough abdominal exploration to rule out locally recurrent and extrahepatic metastases. Several regional hepatic lymph nodes should be excised and examined by frozen section before proceeding with liver resection. Intraoperative ultrasound is helpful in planning the resection and detecting unrecognized metastatic lesions in 10% to 15% of patients. An anatomically appropriate resection should be performed with an attempt to obtain at least a 1-cm margin of parenchyma surrounding each lesion. Inflow occlusion and total vascular isolation are helpful aids for the resection of large tumors, multiple tumors, and tumors close to major vascular structures such as the vena cava. For metastases presenting at the time of diagnosis of the primary tumor, liver resection may be performed during the primary tumor procedure if the procedure is uncomplicated, exposure is satisfactory, and both procedures can be done safely.

References


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