

COMMENTARY

Selection for hepatic resection: expert consensus conferenceMyrddin Rees¹, Dominique Elias², Felipe J. F. Coimbra³ & Susan L. Orloff⁴¹Basingstoke and North Hampshire Foundation Trust, Basingstoke, UK, ²Institute Gustave Roussy, Villejuif, France, ³Hospital AC Camargo, Sao Paulo, Brazil, and ⁴Oregon Health & Science University, Portland, OR, USA

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This consensus conference is timely, as the past decade has witnessed an explosion of patients deemed suitable for resection of colorectal metastases to the liver (CRLM). This is reflected in an increased complexity of surgical procedures in patients with more advanced disease. During the pioneering era of Fortner¹ and Adson² amongst others, less than 10% of patients with CRLMs isolated to the liver were deemed operable. The introduction of more effective chemotherapy, together with improved radiological detection, has triggered a stepwise increase in eligible patients such that up to 50% of patients with isolated CRLMs may now undergo hepatic resection with excellent outcomes.³ The effectiveness of this strategy was demonstrated in the recent paper by Swan *et al.*⁴ who reported over a 21-year period a 16% improvement in 5-year survival in spite of operating on nine times more patients.

The contribution of chemotherapy in downsizing and converting patients deemed inoperable into an operable situation is well understood. The vital role of improved accuracy of radiology in detecting lesions and charting the extent of disease is less widely acknowledged. It is however the key element underpinning this section of the guidelines on selection of patients for surgery of their liver metastases. Why is radiology so pivotal? It is now established that if chemotherapy is used alone, regressed tumour nodules will most often recur after a variable time interval, even in patients who have responded extremely well. In contrast, the incidence of local recurrence from individual lesions that are removed surgically is rare. Accurate detection and the optimal timing of scans are therefore vital in our quest for recurrence-free survival.

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A detected lesion removed is a problem solved. Failure to detect all the lesions predisposes to treatment failure. It is therefore necessary for us all to understand the aims of what has become a multidisciplinary mode of therapy.

It is imperative that our best ability of CRLM detection within the liver, namely cross-sectional imaging via computed tomography (CT) or magnetic resonance imaging (MRI) with liver-specific multiphase contrast protocols, is undertaken prior to any therapeutic intervention;⁵ the problem of 'disappearing lesions' serves to emphasize this point. In the majority of cases when known lesions have disappeared the surgeon can use the original radiological road map to dictate the pattern of resection, sometimes supplemented by intra-operative ablation techniques such as radiofrequency or microwave thermal ablation.

The staging of patients deemed suitable for resection must of course include identifying any sites of extrahepatic disease (EHD). Because the lung is one of the common sites of extrahepatic metastases in patients with CRLM, dedicated CT of the chest should be performed at the time of the initial CT for screening the liver. The role for positron emission tomography (PET)-CT remains less certain, especially in patients with limited spread to the liver and in whom there was no evidence of nodal spread from the primary tumour. While hard evidence is still lacking, it would seem intuitive to employ PET-CT in selected cases with more advanced tumour load with, for example, heavy initial nodal involvement and borderline resectability of the liver.

Perhaps the more controversial aspect of these guidelines is the concept that extrahepatic disease does not automatically preclude liver resection. There is now circumstantial evidence that patients with limited extrahepatic spread may be considered for resection of the liver together with subsequent resection of EHD such as pulmonary metastases or portal nodes. This concept is not new⁶ but has been reinforced by more recent data from Cresswell *et al.*⁷ that patients with synchronous presentation of liver and lung or portal node metastases who underwent sequential resection had a

25.5% and 29% 5-year survival, respectively. This more aggressive approach is further encouraged in patients who demonstrate a response to chemotherapy. For limited peritoneal carcinomatosis complete cytoreductive surgery together with the option of hyperthermic intraperitoneal chemotherapy^{8,9} offers yet another therapeutic option to our armamentarium, albeit not in the context of liver resection.

Liver resection for CRLM has come of age with more and more of our patients offered hope of long-term survival as a treatment goal. Achieving this goal is now dependant on a coordinated multidisciplinary approach to define and tailor the treatment pathway for each individual patient. In spite of our advances, one is reminded of the philosophical words of Marty Adson that 'our technological ingenuity does not surpass the biologic behaviour of the underlying cancer'.¹⁰ Marty, perhaps you will now allow us to celebrate these guidelines¹¹ as the first chink that perhaps we can, after all, alter the inevitability of the behaviour of colorectal liver metastases.

Conflicts of interest

None declared.

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Correction added on 11 December 2012, after first online publication: Author correspondence details added along with reference 11 on page 2 of the text and in the reference list.