

Is Tumor Detachment from Vascular Structures Equivalent to R0 Resection in Surgery for Colorectal Liver Metastases? An Observational Cohort

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Abstract

Background. R0 resection is the standard for colorectal liver metastases (CLMs). Adequacy of R1 resections is debated. Detachment of CLMs from vessels has been proposed to prioritize parenchyma sparing and increase resectability, but outcomes are still to be elucidated. The present study aimed to clarify the outcomes of R1 surgery (margin ≥ 1 mm) in patients with CLMs, distinguishing standard R1 resection (parenchymal margin, R1Par) and R1 resection with detachment of CLMs from major intra- hepatic vessels (R1Vasc).

Methods. All patients undergoing first resection between 2004 and June 2013 were prospectively considered. R0, R1Par, and R1Vasc were compared in per-patient and per-resection area analyses.

Results. The study included 627 resection areas in 226 consecutive patients. Fifty-one (8.1 %) resections in 46 (20.4 %) patients were R1Vasc, and 177 (28.2 %) resections in 107 (47.3 %) patients were R1Par. Thirty-two (5.1%) surgical margin recurrences occurred in 28 (12.4 %) patients. Local recurrence risk was similar between the R0 and R1Vasc groups (per-patient analysis 5.3 vs. 4.3 %; per-resection area analysis 1.5 vs. 3.9 %, $p = \text{n.s.}$) but increased in the R1Par group (19.6 and 13.6 %, $p < 0.05$ for both). The R1Par group had a higher rate of hepatic-only recurrences (49.5 vs. 36.1%, $p = 0.042$). On multivariate analysis, R1Par was an independent negative prognostic factor of overall survival ($p = 0.034$, median follow-up 33 months); conversely R1Vasc versus R0 had no significant differences.

Conclusions. R1Par resection is not adequate for CLMs. R1Vasc surgery achieves outcomes equivalent to R0 resection. CLM detachment from intrahepatic vessels can be pursued to increase patient resectability and resection safety (parenchymal sparing).