



ORIGINAL ARTICLE – COLORECTAL CANCER

RAPID-Type Auxiliary Liver Transplantation for Unresectable Colorectal Liver Metastases: A First-Stage Surgical Video

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ABSTRACT

Background. The Resection and Partial Liver Transplantation with Delayed Total Hepatectomy (RAPID) procedure for unresectable colorectal liver metastases (uCRLM) has renewed interest by increasing, in selected cases, patients' long-term survival.¹ Initially described using deceased donor graft,² this technique evolved to living donors,³ tackling organ-shortage issues, allowing better scheduling, and reducing liver failure risk.

Methods. A 50-year-old patient presented 18 months earlier with a colic adenocarcinoma with synchronous uCRLM. Metastatic disease was limited to the liver, thanks to neo-adjuvant chemotherapies. The primary tumor was resected (pT3N2aM1), and staging liver hilum lymph node sampling was performed (no invasion). No contraindications were identified for either the donor or the recipient regarding a RAPID procedure. We present our technique, refined progressively through our experience.⁴

Results. Abdominal exploration confirmed liver-only disease. The liver parenchyma was transected along an adapted Cantlie line. The left portal vein (PV), bile duct, hepatic common trunk, and left hepatic artery (HA) were sectioned, finalizing the left hepatectomy. A graft was implanted using a piggyback anastomosis technique for outflow restoration. The recipient's right PV was ligated, and the PV bifurcation was resected before performing an end-to-end

anastomosis between both PVs and HAs stumps. Hepatico-cojejunostomy was the final step of graft implantation. The right hepatic pedicle was looped and the right parenchymal transection was covered with a silicone sheet. The graft-to-recipient body weight ratio (GRWR) was 0.32%, and the postoperative course was uncomplicated, with normal liver function observed immediately. The graft volume doubled (GRWR = 1.04%), which allowed for a right remnant hepatectomy to be performed within 15 days. The patient recurred after 14 months and survived for 37 months.

Conclusion. The RAPID procedure is a promising tool in the transplant oncology arsenal but is reserved for selected cases. Further refinement in patient selection could extend survival.

SUPPLEMENTARY INFORMATION The online version contains supplementary material available at <https://doi.org/10.1245/s10434-024-16791-8>.

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