



Extended Right Hepatectomy to Inferior Vena Cava Under Total Vascular Exclusion, Venovenous Bypass and In Situ Hypothermic Perfusion of the Future Liver Remnant

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ABSTRACT

Background. Venous obstruction at the hepatic veins–inferior vena cava confluence can be particularly challenging to manage if an associated liver resection is needed. Total vascular exclusion (TVE) with venovenous bypass (VVB) and hypothermic in situ perfusion (HP) of the future liver remnant can be used in these conditions.^{1,2}

Methods. The patient was a 58-year-old with a voluminous adrenal cancer invading the kidney, the right liver and the retrohepatic inferior vena cava with intraluminal thrombus extending up to the hepatic veins confluence. A right hepatectomy, extended to segment 1, the right kidney, and the retrohepatic inferior vena cava was planned.

Results. The parenchymal liver transection was performed under a TVE, VVB, and HP of the left liver to decrease blood losses and risk of postoperative liver failure. Vena cava reconstruction was achieved by a ringed Gore-Tex prosthesis with reimplantation of the left renal vein. Total duration of venovenous bypass and liver vascular exclusion were 2 h 40 min and 2 h 10 min, respectively. The patient was discharged on postoperative day 17.

Conclusions. Total vascular exclusion with venovenous bypass and in-situ liver hypothermic perfusion increases the safety of major liver resection requiring complex vascular reconstruction.^{1,2} TVE under VVB and HP of the future liver remnant is used at our institution when: (1) TVE will last more than 30 min; (2) vascular reconstruction is needed; (3) in the presence of venous obstruction; (4) in the presence of

injured liver parenchyma; and (5) in the presence of cardiovascular comorbidities.

Keywords Venovenous bypass · In situ liver hypothermic perfusion · Total vascular exclusion · Adrenal carcinoma · Inferior vena cava · Right hepatectomy

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