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Hypothermic Perfusion Hepatectomy for Unresectable Liver Cancer: A Single-Center Experience

Young-In YOON, Sung-Gyu LEE*

Division of Hepatobiliary Surgery and Liver Transplantation, Asan Medical Center, Korea

Introduction : Despite technical advancements in liver surgery, resection of liver tumors that involve the hepatic veins adjacent to the vena cava or hepatic hilum remains technically challenging. We present our surgical techniques and the long-term outcome of 5 patients with conventionally unresectable tumors.

Methods : Between September 1999 and March 2016, we encountered 5 patients with conventionally unresectable tumors that were successfully treated by "ex-situ liver resection" and "in-situ & ante -situm hypothermic liver perfusion" under total vascular exclusion and venovenous bypass.

Results : These approaches allowed complete tumor removal with vascular reconstruction under a bloodless operation field, while minimizing hepatic ischemic injury and preserving liver function. No perioperative mortalities occurred and postoperative complications were minimal. The postoperative survival periods were limited due to the advanced malignancies in our patients, but the survival benefit was encouraging. The median postoperative survival time was 29.1 months, with the longest survival period being nearly 10 years. Furthermore, these approaches improved the quality of life and provided our patients with an opportunity for additional treatment.

Conclusions : Hypothermic perfusion hepatectomy is a realistic option for achieving surgical cure or significantly improved survival and quality of life in patients with tumors deemed unresectable using conventional normothermic hepatectomy. These approaches can overcome the limitations of the liver's restricted normothermic ischemia tolerance or inaccessible tumor locations.

Corresponding Author. : **Sung-Gyu LEE** (sglee2@amc.seoul.kr)