

Outcome Of Associating Liver Partition And Portal Vein Ligation For Staged Hepatectomy (ALPPS): Laparoscopic And Open Surgical Approach

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Background : Various methods have been proposed to induce insufficient future remnant liver (FRL) hypertrophy prior to major liver resection. Associating liver partition and portal vein ligation for staged hepatectomy (ALPPS) has recently received attention as a viable treatment regimen for traditionally unresectable liver tumors. This study aimed to investigate the feasibility of a laparoscopic surgical approach compared to an open surgical approach for patients requiring ALPPS treatment for liver tumor resection.

Methods : From March 2016 to December 2021, Patients who underwent ALPPS surgery for primary tumor of liver were selected. The increase in FRL volume and postoperative outcomes were evaluated after liver resection. Among these patients, the results of laparoscopic surgery and open surgery were compared and analyzed.

Results : Fourteen patients were included. Of these, 13 were diagnosed with Hepatocellular carcinoma and 1 with adenoma. The interval between the two-stage ALPPS received by patients was 8 days. Liver hypertrophy induced for liver resection was 100% among our patients after the one-stage ALPPS. After the initial step, the median future remnant liver (FRL) increased by 53.6%. After the two-stage ALPPS, two (14%) patients had serious postoperative complications and the 90-day mortality rate was 0%. Hepatic failure Class B were observed in one patient which did not progress during hospitalization. We presented a case in which 8 patients performed a laparoscopic approach and 6 patients performed an open approach. The liver hypertrophy response did not differ between the groups, but the operation time, blood loss and time between stages of patients undergoing laparoscopic approach was significantly better than those receiving open approach. (P = 0.04; P=0.05 and P < 0.01)

Conclusions : ALPPS appears to be an attractive approach to curative resection of conventionally-unresectable liver tumors. In particular, our study has shown that laparoscopic ALPPS is feasible for patients compares favorably to open ALPPS. As the laparoscopic ALPPS has not yet been established and validated by many studies, further studies are needed to approach the efficacy and safety of ALPPS.

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