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Robotic simultaneous resection for colorectal liver metastasis: Feasibility for all types of liver resection

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Introduction : Laparoscopic approach is increasingly utilized in simultaneous colorectal and liver resection (SCLR) for colorectal cancer with liver metastasis. However, this approach is technically challenging, hence not widely adopted. The robotic surgical system could potentially overcome this problem. Thus, we aim to describe the feasibility and outcomes of robotic SCLR for colorectal carcinoma with liver metastasis using the da Vinci Surgical System.

Methods : The medical records of 12 patients who underwent robotic SCLR for colorectal cancer with liver metastasis between January 2010 and September 2018 were prospectively reviewed.

Results : : Liver resections included 2 right hepatectomy, 1 left hepatectomy, 1 left lateral sectionectomy, one segmentectomy of S3 and wedge resection (segment 7), 1 caudate lobectomy, 1 associated liver partition and portal vein ligation for staged hepatectomy, and 5 wedge resections (segments 4,5,6,7, and 8). Colorectal procedures included 7 Low anterior resection, 2 anterior resection, 2 right hemicolectomy, and 1 left hemicolectomy. The mean operative time was 449+205.1 minutes, blood loss of 274.3+210.0 ml, and length of hospital stay was 12+6.6 days. No conversion to laparotomy. Liver resection-related complications included two liver abscesses (Clavien-Dindo classification, one grade II and one grade III) and one ascites (grade I), whereas colorectal resection-related complications included one anastomosis leak (grade III) and one superficial wound infections (grade II). There was no reported 30 days mortality. Overall survival and disease-free survival was 75.2 and 47.1 months, respectively.

Conclusions : Robotic SCLR for colorectal neoplasm with liver metastasis can be performed safely even in cases requiring major liver resections.

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