

E23

Laparoscopic anatomical versus non-anatomical liver resection for hepatocellular carcinoma in the posterosuperior segments: A propensity score matched analysis

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Background : Since laparoscopic anatomical resection (LAR) for tumors, especially located in the posterosuperior (PS) segments of the liver remains difficult, laparoscopic non-anatomical resection (LNAR) are generally preferred. To compare the clinical outcomes between LAR and LNAR for hepatocellular carcinoma (HCC) located in the PS segments.

Methods : We retrospectively reviewed the data for 1029 patients who underwent hepatectomy for HCC between 2004 and 2018. Of 167 patients who underwent laparoscopic hepatectomy for HCC in PS segments, 64 underwent LNAR and 103 underwent LAR. Patient were matched one-to-one using propensity score matching (46:46).

Results : LNAR was associated with significantly shorter operation time ($P=0.001$), lower estimated blood loss ($P=0.001$), lower transfusion rate ($P=0.006$) and shorter hospital stay ($P=0.012$) than LAR. The respective 1-, 3-, and 5-year overall survival rates (LAR: 95.3, 87.1, and 77.8%; LNAR: 96.7, 91.6, and 85.0%; $P=0.262$) and recurrence-free survival rates (LAR: 75.7, 70.3, and 68.9%; LNAR: 81.8, 58.3, and 55.3%; $P=0.897$) were similar. The intrahepatic recurrence rate was significantly higher in LNAR group than in LAR group (78.6% vs. 57.1%, $P=0.023$), but the post-recurrence treatments differed significantly between the two groups ($P=0.016$); the re-resection rate was much greater in the LNAR group (45.0% vs. 0%) group. The respective 1-, 3-, and 5-year post-recurrence survival rates were similar in the LAR and LNAR groups ($P=0.212$). After recurrence, survival in re-resection group was significantly greater than not ($P = 0.026$).

Conclusions : LNAR is safe and feasible for HCC located in PS segments, and provided acceptable oncologic outcomes that are comparable to those of LAR. LNAR can be considered for patient with tumor located in PS segment when LAR is not feasible.

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