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**Resection for extrahepatic recurrence after adult living donor liver transplantation for hepatocellular carcinoma**

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**Purpose:** A few studies have been reported on extrahepatic metastasis after living donor liver transplantation (LDLT) for hepatocellular carcinoma (HCC). We investigated clinical outcomes of patients with extrahepatic recurrence (EHR) of HCC after LT.

**Methods:** We retrospectively reviewed 396 patients who underwent LT for HCC from March 2005 to December 2015. 98 patients (24.7%) were diagnosed with HCC recurrence. Clinicopathological data of patients with EHR were analyzed for overall survival (OS) rate and prognostic factors.

**Results:** After a median follow-up of 25.3 months, 71 patients (71.7%) initially presented with EHR. The sites of EHR were lung (n=33), bone (n=10), lymph nodes (n=8), adrenal gland (n=2), and others (n=18). Median time to EHR was 23.9 months. Forty-six patients (64.7%) underwent curative resection for EHR. The 1, 3, 5-year overall survival rate from the time of LDLT in patients with resection for EHR were 90.8%, 59%, and 40.9%, while those in patients without resection for EHR were 56%, 4.7%, and 0% ( $p < 0.05$ ). In multivariate analysis of risk factor for OS, resection for EHR and interval time to EHR were favorable factors (hazard ratio [HR] 0.254, 95% confidence interval [CI] 0.131–0.495;  $p = 0.001$  and HR 0.950, 95% CI 0.919–0.982;  $p = 0.002$ , respectively). Alpha-fetoprotein (AFP) >200 ng/ml at the diagnosis of EHR and the presence of portal vein invasion of HCC in explant liver were unfavorable factors (HR 3.087, 95% CI 1.612–5.911;  $p = 0.001$  and HR 3.041, 95% CI 1.586–5.832;  $p = 0.001$ , respectively).

**Conclusion:** Resection for EHR after LDLT can be performed with curative intent in selected cases considering involving site. Resection and longer interval periods to EHR are independently favorable prognostic factors for OS. However, AFP >200 ng/ml at EHR and the presence of portal vein invasion of explant liver at LDLT were significantly associated with poorer outcomes.