

Liver Resection For A Solitary Huge Hepatocellular Carcinoma ($\geq 10\text{cm}$): A Large-scale Multicenter Observational Study

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Background : To investigate the association of tumor morphology with long-term survival outcomes after liver resection for a solitary huge hepatocellular carcinoma (HCC) of $\geq 10\text{cm}$.

Methods : Patients undergoing curative liver resection for a solitary huge HCC were identified from a multicenter database. Preoperative imaging findings were used to define spherical- or ellipsoidal-shaped lesions with smooth edges as balloon-shaped HCCs (BS-HCCs); out-of-shape lesions or lesions of any shape with matt edges were defined as non-balloon-shaped HCCs (NBS-HCCs). The two groups of patients with BS-HCCs and NBS-HCCs were matched in a 1:1 ratio using propensity score matching (PSM). Clinicopathologic characteristics, long-term overall survival (OS) and recurrence-free survival (RFS) were assessed.

Results : Among patients with a solitary huge HCC, 74 pairs of patients with BS-HCC and NBS-HCC were matched. Tumor pathological features including proportions of microvascular invasion, satellite nodules, and incomplete tumor encapsulation in the BS-HCC group were lower than the NBS-HCC group. At a median follow-up of 50.7 months, median OS and RFS of all patients with a solitary huge HCC after PSM were 27.8 and 10.1 months, respectively. The BS-HCC group had better median OS and RFS than the NBS-HCC group (31.9 vs. 21.0 months, $P=0.01$; and 19.7 vs. 6.4 months, $P=0.015$). Multivariate analyses identified BS-HCC as independently associated with better OS (HR 0.637, $P=0.026$) and RFS (HR 0.657, $P=0.025$).

Conclusions : For a solitary huge HCC, preoperative imaging on tumor morphology was associated with prognosis following resection. In particular, patients with BS-HCCs had better long-term survival following liver resection versus patients with NBS-HCCs.

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