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Hepatic Congestion-Linked Intrahepatic Biliary Strictures in Right Liver Grafts

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Introduction: Graft hepatic congestion (GHC) occurring during living donor liver transplantation (LDLT) can increase pressure and impede blood supply to the bile ducts, potentially leading to intrahepatic biliary strictures (IHBS). However, there is a lack of research on the association between these two factors.

Methods: This retrospective cohort study examined patients who underwent LDLT from January 2011 to December 2018. The analysis utilized medical records from a single institution. Out of 721 liver transplant patients, 623 were selected, excluding cases with left grafts, early postoperative mortality within 1 week, or multiple bile duct anastomoses. Post-transplant graft status was assessed through routine CT scans on the 7th day. Biliary stricture, indicated by abnormal liver function tests without rejection evidence, was confirmed via cholangiography. The study investigated the potential relationship between GHC and IHBS development, along with its impact on patient survival, employing multivariable proportional odds logistic regression and Cox's proportional hazard analysis.

Results: GHC was observed in 235 patients (37.7%), primarily in right anterior section (29.4%), right posterior section (2.1%), and right both anterior/posterior sections (6.3%). Biliary strictures occurred in 167 patients (26.8%), with anastomotic strictures (15.1%) and IHBS (11.7%). IHBS cases were found in right anterior (5.3%), right posterior (1.0%), and both right anterior/posterior branches (5.5%). A statistically significant relationship was observed between the presence of GHC and IHBS, as well as between the occurrence locations of these two factors in the graft ($p < .001$, $p = .002$ respectively). Furthermore, significant difference in patient survival based on IHBS location; lowest 10-year survival (~60%) when IHBS in both right anterior/posterior branches ($p = .05$).

Conclusion: This study revealed an association between GHC and subsequent development of IHBS, indicating that prevention of graft congestion during LDLT may reduce the incidence of IHBS.