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Anatomical Risk Factors For Portal Vein Complications Following Right Hepatectomy In Living Donors: Analysis Of Results From 4720 Cases

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Background : Although various complications after donor hepatectomy have been reported, there have been no large studies on postoperative portal vein (PV) complication. This study evaluated the incidence, risk factors, and clinical outcomes of PV complication after right lobe donor hepatectomy (RLDH).

Methods : Single-center retrospective analysis of 4720 consecutive donors who underwent RLDH, between July 1997 and 2020 December. Computed tomographic angiographies of the donor were 2-dimensionally reconstructed, and the portal vein was classified according to angle between main and left PV.

Results : The incidence of PV complication after RLDH was 1.9 % (n = 88), including PV thrombosis (n = 9) and PV stenosis (n = 79). Donors with PV complication had had a significantly higher peak Alanine Aminotransferase (p=0.023) than donors without PV complication, but had similar peak total bilirubin (p=0.055), peak INR (p=0.395) and hospital stay (P=0.117). Multivariate analysis identified angle between main and left PV less than 60 degrees as a significant independent risk factor for PV complication (odds ratio 6.250; $p < 0.001$). In addition, variant PV, No fixation of falciform ligament, and BMI >30 were independent risk factor for PV complication ($p < 0.001$, $p < 0.001$, and $p = 0.002$, respectively).

Conclusions : Acute angulation between main and left PV or variant PV has a higher tendency to occur PV complication after RLDH. For those donors require meticulous surgical techniques during operation and periodic image studies after operation.

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