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Risk Factors Associated With Surgical Morbidities Of Laparoscopic Living Liver Donors

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Background : Although laparoscopic living donor program has been safely established in leading centers, donor morbidities have not been sufficiently discussed. This study analyzed incidence and risk factors for surgical morbidities of laparoscopic living donors.

Methods : Laparoscopic living donors operated during May 2013 to June 2022 were reviewed. Donors' complications were reviewed, and factors related to bile leakage and biliary stricture were analyzed using multivariable logistic regression method.

Results : A total of 636 donors underwent laparoscopic living donor hepatectomy. Open conversion rate was 1.6%. Thirty-day complication rate was 16.8%. (n=107) Grade IIIa and IIIb complication occurred in 4.4% (n=28) and 1.9% (n=12), respectively. The most common complication was bleeding (n=38, 6.0%). Fourteen donors (2.2%) required reoperation. Portal vein stricture, bile leakage and biliary stricture occurred in 0.6% (n=4), 3.3% (n=21), and 1.6% (n=10) of cases. Readmission rate and reoperation rate was 5.2% (n=33) and 2.2% (n=14), respectively. Risk factors related to bile leakage were two hepatic arteries in liver graft (OR=13.836, CI=4.092-46.789, P<0.001), division-free margin <5mm from main duct (OR=2.624, CI=1.030-6.686, P=0.043) and estimated blood loss during operation (OR=1.002, CI=1.001-1.003, P=0.008) while Pringle maneuver (OR=0.300, CI=0.110-0.817, P=0.018) was protective for leakage. Regarding biliary stricture, only bile leakage was the only significant factor (OR=11.902, CI=2.773-51.083, P=0.001).

Conclusions : Laparoscopic living donor showed excellent safety for majority of the donors and critical complications were resolved with proper management. To minimize bile leakage, cautious surgical manipulation should be made on donors with complex hilar anatomy.

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