



Response to: Effective and Safe Living Donor Hepatectomy Under Intermittent Inflow Occlusion and Outflow Pressure Control

Ahmad Mohamed Sultan¹ · Ahmed Shehta¹ · Tarek Salah¹ · Mohamed Elshoubary¹ · Omar Fathy¹ · Mohamed Abdel Wahab¹

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To the Editors,

We interestingly read the Letter to the Editor entitled “Effective and safe living donor hepatectomy under intermittent inflow occlusion and outflow pressure control?” by Dr. Ikegami et al. regarding the recent study from our group entitled “Clamp-crush technique versus harmonic scalpel for hepatic parenchymal transection in living donor hepatectomy: a randomized controlled trial” that was published in respected Journal of Gastrointestinal Surgery.¹ We would like to thank the authors for their time and efforts in assessing our manuscript.

Cavitron ultrasonic suction aspirator (CUSA) is routinely used nowadays by most liver transplantation centers for safe hepatic parenchymal transection. Alternatively, Gurusamy et al. in a Cochrane database systematic review concluded that clamp-crush technique is advocated in hepatic parenchymal transection because it avoids the use of special equipment, and recent techniques do not seem to offer any benefit in decreasing the morbidity or transfusion requirements.² In our center, CUSA is not available and we adopted the use of the harmonic scalpel for hepatic parenchymatous transection since 2004. We tried to investigate the comparative outcomes of classical clamp-crush technique and harmonic scalpel technique in living-donor hepatectomy.

We randomly assigned 72 living donors undergoing living-donor right hemi-hepatectomy into two groups according to hepatic parenchymatous transection technique, harmonic scal-

pel versus clamp-crush techniques. Both techniques were utilized under the same peri-operative and anesthetic strategies to avoid possible confounders. We did not experience any intra-operative adverse events that enforced us to exclude any of our patients.

We found that the classic clamp-crush technique was associated with longer operation time, especially hepatectomy duration; however, the operation was steadier without serious accidental bleeding events. Also, liver trauma was less evidenced by faster postoperative recovery of liver functions. If we added the cost of the energy device which is of interest in low income countries, we could conclude that clamp-crush technique is not inferior to harmonic scalpel technique and is better for our surgical practice.

Dr. Ikegami et al. raised another issue regarding their center’s strategy to decrease blood loss during donor hepatectomy. They utilized combinations of total hepatic inflow and inferior vena cava occlusion and the use of CUSA during hepatic parenchymatous transection. The authors made a strong correlation between decreased blood loss and the development of postoperative complications like portal vein thrombosis and biliary leakage. If we go to the literature, we find that this issue is very controversial. Simillis et al. and Moggia et al. in two Cochrane database systematic reviews found great paucity of the available data. They concluded that the available data provided low-quality evidence to favor certain strategy to decrease blood loss during hepatic resection.^{3, 4} In our opinion, the application of Pringle’s maneuver in living-donor hepatectomy is a good strategy but it is reserved for emergency conditions and not applied as a routine practice. We also utilize hanging maneuver which helps to guide the transection plane and decreases the blood loss from accidentally injured veins by pulling the hanging catheter forwards. On the other hand, we find that IVC clamping is a very aggressive procedure for living-donor hepatectomy. The concept

✉ Ahmed Shehta
ahmedshehta@mans.edu.eg; dr_ahmedshehta@yahoo.com

¹ Department of Surgery, Liver Transplantation Unit, Gastrointestinal Surgery Center, College of Medicine, Mansoura University, Mansoura, Egypt

of vascular exclusion is oncologically beneficial in the setting of liver resection for hepatic malignancies, as referenced in Ikegami et al.'s letter,⁵ and for recipient hepatectomy in the case of hepatic malignancy. We regret the routine use of vascular exclusion for living-donor hepatectomy. It is muchly complicating the procedure, especially with the availability of CUSA for hepatic parenchymatous transection. However, we congratulate the authors for their peri-operative outcomes under these operative and anesthetic strategies.

Finally, we would like to thank the respected authors for providing this valuable discussion on a very controversial issue. However, we believe that the best hepatic parenchymatous transection technique is the technique tailored according to the surgeon's familiarity and the available instrumental setup.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

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