Tips in management of bleeding during laparoscopic hepatectomy

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Laparoscopic hepatectomy was explored to remove the lesions located in the left or anterior hepatic segment. However since 10 years ago, the indication was dramatically expanded regardless of benign or malignant lesions, size and location of the tumor by enthusiastic HBP surgeons in every institution in the world. There have been two main obstacles. One of the obstacles to overcome for safe surgery was control of the bleeding during dissection to mobilize of the liver and hepatic transection, another is oncologic safety.

Prevention of major bleeding from hepatic artery, portal or hepatic vein is crucial for successful outcome for the laparoscopic major hepatectomy. Bleeding from the portal vein or hepatic artery can be controlled by hepatic vascular inflow occlusion (Pringle maneuver) whether for open or laparoscopic approach. The duration or interval of the clamping was established very well. Intermittent clamping, 15 minutes clamping and 5 minutes reperfusion, is very safe up to 322 minutes for the patient who has normal liver function,[1,2] and it is applicable to cirrhotic liver.[3]

However, bleeding from the major hepatic vein tearing may be disastrous during laparoscopy, while it can be controlled by compression with sponge gauze and suture repair during open hepatectomy. While it can be controlled by traction longitudinally closed with shutting the opened hole by, and the bleeding hole can be sutured. If there is bleeding unable to control within minutes, it should not be reserved to convert to open surgery for safety of the patient.

References

1. Sakamotu Y, Makuuchi M, Takayama T, Minagawa M, Kita Yoshiaki, Pringle's maneuver lasting 322 min. Hepatogastroenterology 1999;46:457-458
2. Koo Jeong Kang, Jae Hwi Jang, Tae Jin Lim, Yuna Kang, Kwan Kyu Park, In Seon Lee, Pierre-Alain Clavien: Optimal cycle of intermittent portal triad clamping during liver resecttion in the murine liver. Liver Translplantation 10;6:794-801, June 2004
3. Jang JH, Kang KJ, Lee IS, Graf R, Clavien PA. Ischemic preconditioning and intermittent clamping confer protection against ischemic injury in the cirrhotic mouse liver

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