



Hepatic hemangiomas of the liver: when operate and with which vascular exclusion

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Comment on: Zhang W, Wang J, Li C, *et al.* Infrahepatic inferior vena cava clamping with Pringle maneuvers for laparoscopic extracapsular enucleation of giant liver hemangiomas. *Surg Endosc* 2017. [Epub ahead of print].

Received: 02 January 2018; Accepted: 25 January 2018; Published: 30 January 2018.

doi: 10.21037/ales.2018.01.06

View this article at: <http://dx.doi.org/10.21037/ales.2018.01.06>

Ranging in estimated prevalence between 3% and 20% cavernous hemangioma is the most common benign hepatic tumor (1). A recent publication have established the correct parameters to define giant an hemangioma of the liver (2).

When a cavernous hemangioma grows in size and become symptomatic or has other right indications (1), the best curative treatment becomes surgery.

The two techniques most commonly used are anatomical liver resection and extracapsular enucleation. The extracapsular enucleation is considered the best choice because it permits to spare liver parenchyma (3).

As in other types of surgery, the laparoscopic approach offers faster postoperative recovery, shorter hospital stay and fewer overall complications than open surgery and hence it should be preferred.

However it has to be considered that control of bleeding is technically more difficult in laparoscopic surgery than in open.

For these reasons it is obvious that one of the critical aspect of liver surgery is the hepatic vascular occlusion in order to minimize blood loss.

A literature review published in 2014 on the techniques used to minimize blood loss during hepatectomy concluded that the best strategies, according to literature, are low central venous pressure and total hepatic inflow occlusion (4).

In a Cochrane systematic review of 2016 various methods to decrease blood loss during liver surgery were analyzed. The review reached no valid results due to the paucity of data, showing how the debate is still open on this topic (5).

A recent study focus on the treatment of giant liver

hemangiomas with a diameter >10 cm treated with extracapsular enucleation. Two groups of patients were classified based on the maneuver used for hepatic vascular occlusion: inferior vena cava clamping and Pringle maneuver and Pringle maneuver alone (6).

In 2008 the group of Zhou, published a manuscript comparing the Pringle maneuver with the selective hepatic vascular exclusion (SHVE) during liver surgery. This article assessed the superiority of the SHVE in terms of lower number of complications on the total hepatic vascular exclusion (including the inferior vena cava) and on the Pringle maneuver (7). This article indicated the clamping of the inferior vena cava as a possible cause of hemodynamic disturbance.

In 2010 the group of Xia published an article titled “*Surgical treatment of giant liver hemangiomas: enucleation with continuous occlusion of proper hepatic artery and intermittent Pringle maneuver*”. This article showed how adding the continues occlusion of the proper hepatic artery to the Pringle Maneuver results in better outcomes in terms of blood loss (8).

A randomized clinical trial published in 2012 compared the infrahepatic inferior vena cava clamping with low central venous pressure in complex liver resections using the Pringle maneuver. The article showed the superiority of the infrahepatic clamping of inferior vena cava on the low central venous pressure (9).

It exists a variety of methods to limit blood loss during liver surgery. They include, for example, cardiopulmonary interventions (such as hypoventilation), low central venous

pressure given by drugs, different methods of parenchymal transection, use of autologous blood donation and different methods of vascular occlusion (10).

Typically, an article will focus on one or two of this methods comparing one with another (this also due to the fact that a surgeon mostly uses one of two of this variety of methods). For this reason it is extremely complicated clearly establishing which one is the best technique in this field; hence it shows how any contribute is precious to reach a sufficient number of data to solve the problem. Until a consensus will be reached, the best recommendation should be to use the most familiar technique in relations to the local expertise and equipments, in order to achieve zero mortality and the lower morbidity.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Annals of Laparoscopic and Endoscopic Surgery*. The article did not undergo external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2018.01.06>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/ales.2018.01.06

Cite this article as: Mannino M, Toro A, Palumbo V, Di Carlo I. Hepatic hemangiomas of the liver: when operate and with which vascular exclusion. *Ann Laparosc Endosc Surg* 2018;3:9.