Editorial

Insights in laparoscopic surgery of mucinous cystic neoplasm of the liver

Giovanni Vennarecci, Nicola Guglielmo, Giuseppe Maria Ettorre

Division of Surgical Oncology and Organ Transplantation, San Camillo Hospital, POIT, Rome, Italy

Correspondence to: Giovanni Vennarecci. Division of Surgical Oncology and Liver Transplantation, San Camillo Hospital, POIT, Rome, Italy. Email: gvennarecci@scamilloforlanini.rm.it.

Comment on: Smerieri N, Fiorentini G, Ratti F, *et al.* Laparoscopic left hepatectomy for mucinous cystic neoplasm of the liver. Surg Endosc 2018;32:1068-9.

Received: 30 March 2018; Accepted: 29 April 2018; Published: 09 May 2018.

doi: 10.21037/ls.2018.04.12

View this article at: http://dx.doi.org/10.21037/ls.2018.04.12

The case report (with video) by Smerieri *et al.* (1) of *Surgical Endoscopy*, concerning the laparoscopic surgical treatment of a hepatic mucinous cystic neoplasm (MCN-H), it lends itself to numerous interesting reflections. The first thought goes to the difficult laparoscopic procedure performed for a large and recurrent mucinous cystic neoplasm (MCN) that highlights the high degree of laparoscopic skills reached by the authors. The most important technical aspects of this surgical procedure that should be stressed are the use of the inflow control by Pringle maneuver that allowed the removal of the neoplasm with contained blood loss despite its large size and the cavitron ultrasonic surgical aspirator (CUSA) that allowed to accurately identify the internal liver anatomy distorted by the voluminous neoplasia. These are two essential technical conditions for safe laparoscopic liver surgery (LLS). It is worth mentioning that a previous laparotomy is not a contraindication to a laparoscopic approach which should be attempted in selected cases. LLS has had a low rate of adoption and a slow but progressive development and has reached, in very few and specific centers in the hands of very highly specialized surgeons, a great potential for treatment of liver diseases with undoubted and proven advantages (2,3). A large number of publications, although these are non-randomized and retrospective studies, have highlighted the benefits of minimally invasive LLS compared with open liver resection, including less pain, decreased mortality rates, reduced length of hospital stay, reduced blood loss, comparable oncologic outcomes and better cosmetic results (4,5). The hope is that LLS will be available to more patients in the future and the liver surgeons will continue their efforts to improve the quality of evidence in association with enhanced training and improvements in the technology applied to LLS to facilitate wider adoption by hepatobiliary surgery centers.

Regarding the MCN of the liver, the World Health Organization (WHO) has distincted two entities of mucin-producing bile duct tumors: MCN-H and mucin-producing intraductal papillary neoplasm of the bile duct (M-IPNB) (6). MCN-H, a rare tumor with a reported incidence of <5% of all cystic liver tumors, and has no communication with the bile ducts (5). Several authors have reported improved prognosis with complete resection of MCN-H (7,8).

Furthermore, it must be stressed the fact that preoperative diagnosis is very difficult and often confuses the MCN with other hepatic cystic lesions, which, however, provide for other surgical treatments. Echinococcus cyst, hepatocellular carcinoma with necrosis or cyst metastases have to be addressed as differential diagnoses. In the face of a cystic lesion which does not have radiological features typical of simple hepatic cysts or of parasitic cysts, it is necessary to have a high rate of clinical suspicion and radical surgery must be pursued to avoid sub-optimal treatments. The presence of an intra-hepatic cystic lesion, with internal chambers and septa, in a middle-aged woman located in the left lobe easily directs the suspicion of a MCN-H (9). In this situation the treatment is always surgical even if the cystic lesion is small and asymptomatic and the surgical approach is nowadays laparoscopic and therefore entrusted

to centers and surgeons who have this high rate of technical experience. The removal of the cyst must be complete to avoid unavoidable local recurrences and can be achieved with anatomical and non-anatomical formal hepatic resections or, better, it can be more simply enucleated with a hepatic surgery (1,10,11). In the latter case, the fundamental technical aspect is that the cyst is enucleated intact without microperforations of its wall with liquid leakage and even less incompletely resected leaving small cystic wall portions in contact with the cut surface of the liver.

The case in particular immediately highlights the fact that mucinous neoplasms, locally malignant and that never metastasize outside the liver, if they are treated in an incomplete form tend to relapse locally and universally. It should also be pointed out that MCN of the liver are very rare and the rate of experience for a correct radiological classification and subsequent appropriate surgical management may not be present even in hepatic surgery centers with extensive experience.

Moreover, benign liver lesions are commonly observed in young females. It has been reported that females <40 years of age constituted 80% of patients with benign liver tumors and the cosmetics results are important concerns for females after surgery (12). These aspects taken together are a reason to consider LLS for benign hepatic tumors or low-grade potential liver malignancy. The number of laparoscopic liver resections (LLR) being performed has been increasing, together with improvements in surgical techniques and surgical instruments. The second International Consensus Conference on LLS held in 2014 indicated that laparoscopic approaches have demonstrated superiority in selected patients compared with open procedures, particularly for minor liver resections (13). The third International Consensus Conference on LLS held in 2017 (14) reported that operative trends for benign disease is increasing and has lower intraoperative blood loss, frequency of complications, postoperative analgesic requirements, time to oral intake and shorter hospital stay without considering the cosmetic advantages which are obvious.

To date there is no doubt that benign liver tumors are a good indication for LLS. This is also supported by the Southampton Guidelines (14) which affirm with a good level of evidence that the LLS when performed by experienced laparoscopic liver surgeons offers significant benefits and should be considered standard practice for such lesions. Moreover, this indication can be reasonably extended also to MCN-H which being low-grade malignancy may be removed by LLS providing a good prognosis.

Acknowledgments

Funding: None.

Footnote

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

Conflicts of Interest: The authors have completed the ICMJE uniform disclosure form (available at http://dx.doi.org/10.21037/ls.2018.04.12). 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.

References

1. Smerieri N, Fiorentini G, Ratti F, et al. Laparoscopic left hepatectomy for mucinous cystic neoplasm of the liver. Surg Endosc 2018;32:1068-9.
2. Hibi T, Cherqui D, Geller DA, et al. Expanding indications and regional diversity in laparoscopic liver resection unveiled by the International Survey on Technical Aspects of Laparoscopic Liver Resection (INSTALL) study. Surg Endosc 2016;30:2975-83.
3. Berardi G, Van Cleven S, Fretland ÅA, et al. Evolution of Laparoscopic Liver Surgery from Innovation to Implementation to Mastery: Perioperative and Oncologic Outcomes of 2,238 Patients from 4 European Specialized Centers. J Am Coll Surg 2017;225:639-49.
4. Lee JJ, Conneely JB, Smoot RL, et al. Laparoscopic versus

open liver resection for hepatocellular carcinoma at a North-American Centre: a 2-to-1 matched pair analysis. HPB (Oxford) 2015;17:304-10.
5. Takahara T, Wakabayashi G, Beppu T, et al. Long-term and perioperative outcomes of laparoscopic versus open liver resection for hepatocellular carcinoma with propensity score matching: a multi-institutional Japanese study. J Hepatobiliary Pancreat Sci 2015;22:721-7.
6. Bosman FT, Carneiro F, Hruban RH, et al. WHO Classification of Tumours of the Digestive System. 4th edition. Lyon: WHO, 2010.
7. Kubota K, Nakanuma Y, Kondo F, et al. Clinicopathological features and prognosis of mucin-producing bile duct tumor and mucinous cystic tumor of the liver: a multi-institutional study by the Japan Biliary Association. J Hepatobiliary Pancreat Sci 2014;21:176-85.
8. Zen Y, Pedica F, Patcha VR, et al. Mucinous cystic neoplasms of the liver: a clinicopathological study and comparison with intraductal papillary neoplasms of the bile duct. Mod Pathol 2011;24:1079-89.
9. Wahba R, Kleinert R, Dieplinger G, et al. Mucinous cystic neoplasm or non-parasitic liver cyst? - A challenging diagnosis. Hepatogastroenterology 2013;60:585-9.
10. Obara S, Nomi T, Yamato I, et al. Laparoscopic resection of a hepatic mucinous cystic neoplasm: A case report. Int J Surg Case Rep 2016;24:18-21.
11. Kim JH. Pure Laparoscopic Transhepatic Enucleation of a Mucinous Cystic Neoplasm Abutting the Major Hepatic Veins at the Hepatocaval Confluence (with Video). J Gastrointest Surg 2018;22:557.
12. Dokmak S, Raut V, Aussilhou B, et al. Laparoscopic left lateral resection is the gold standard for benign liver lesions: a case-control study. HPB (Oxford) 2014;16:183-7.
13. Wakabayashi G, Cherqui D, Geller DA, et al. Recommendations for laparoscopic liver resection: a report from the second international consensus conference held in Morioka. Ann Surg 2015;261:619-29.
14. Abu Hilal M, Aldrighetti L, Dagher I, et al. The Southampton Consensus Guidelines for Laparoscopic Liver Surgery: From Indication to Implementation. Ann Surg. 2017. [Epub ahead of print].

doi: 10.21037/ls.2018.04.12
Cite this article as: Vennarecci G, Guglielmo N, Ettorre GM. Insights in laparoscopic surgery of mucinous cystic neoplasm of the liver. Laparosc Surg 2018;2:24.

