



Laparoscopic S7 Segmentectomy using the inter-Laennec approach for hepatocellular carcinoma near the right hepatic vein

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1. Abstract

1.1. Background

Laparoscopic anatomical Segmentectomy 7 is technically demanding [1]. We previously reported a new strategy called “inter-Laennec approach” for exposing the right hepatic vein (RHV) in laparoscopic anatomical right posterior sectionectomy [2]. In this article, we apply the inter-Laennec approach for laparoscopic anatomical Segmentectomy 7 for hepatocellular carcinoma (HCC) close to the RHV. The Laennec's capsule is the membrane that covers not only the entire surface of the liver but also the intrahepatic parenchyma surrounding the hepatic veins [3]. The Laennec's capsule structure is composed of two layers surrounding the RHV: one is derived from the proper membrane (hepatic Laennec's capsule) and the other from the pericardium (cardiac Laennec's capsule) [4]. The inter-Laennec approach is a strategy to expose the RHV by entering the space between the two layers (Fig. 1).

1.2. Methods

A 48-year-old female with a 49 mm HCC close to the RHV and V7s, was placed in left semi-prone position. After mobilization of the right lobe and isolation of the extrahepatic S7 Glissonean pedicle, we transected the inferior vena cava ligament (IVC-ligament) to enter the inter-Laennec space. The RHV and confluences of V7s were exposed by cranio-caudal parenchymal dissection along the inter-Laennec space.

1.3. Results

Operative time and estimated blood loss were 467 min and 311 mL, respectively. The inter-Laennec approach was helpful in dividing four V7s at their confluences to obtain an ample surgical margin. Histological findings revealed preserved hepatic Laennec's capsule covering the dissected surface (Fig. 2).

1.4. Conclusion

Inter-Laennec approach facilitates safe exposure of the RHV in laparoscopic anatomical Segmentectomy 7.

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Conflicts of interest

Drs. Gozo Kiguchi, Atsushi Sugioka, Yutaro Kato, and Ichiro Uyama have no conflicts of interest or financial ties to disclose.

Authors' contribution

GK and AS conceived the new approach used in this study and GK performed the surgery. GK and AS wrote the manuscript. All the authors

Abbreviations: Segmentectomy 7, S7 Segmentectomy; RHV, right hepatic vein; HCC, hepatocellular carcinoma; V7s, tributaries of the right hepatic veins draining segment 7; IVC-ligament, inferior vena cava ligament.

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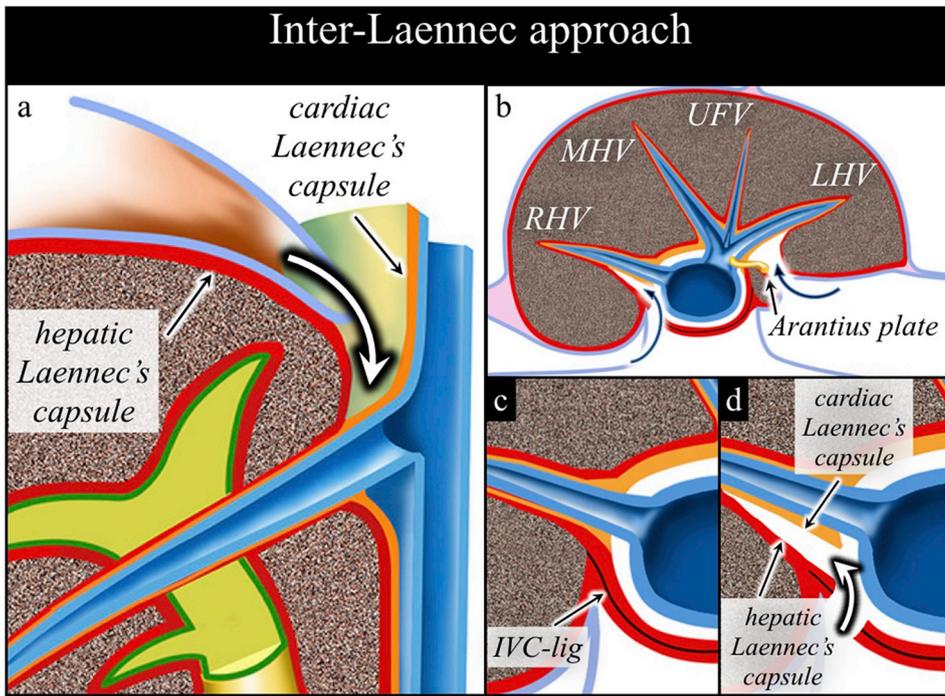


Fig. 1. a-d. Schema of the concept of the inter-Laennec approach. a: Inter-Laennec approach is a new strategy to expose the hepatic vein by entering the space between the two layers of Laennec's capsule: one derived from the proper membrane (hepatic Laennec's capsule) and the other from the pericardium (cardiac Laennec's capsule). Cranio-caudal parenchymal dissection is required to maintain the inter-Laennec space. b-d: Transection of the IVC-ligament is helpful for entry into the inter-Laennec space around the confluence of the RHV. (Abbreviations: RHV: right hepatic vein; MHV: middle hepatic vein; UFV: umbilical fissure vein; IVC-lig/ligament: inferior vena cava ligament).

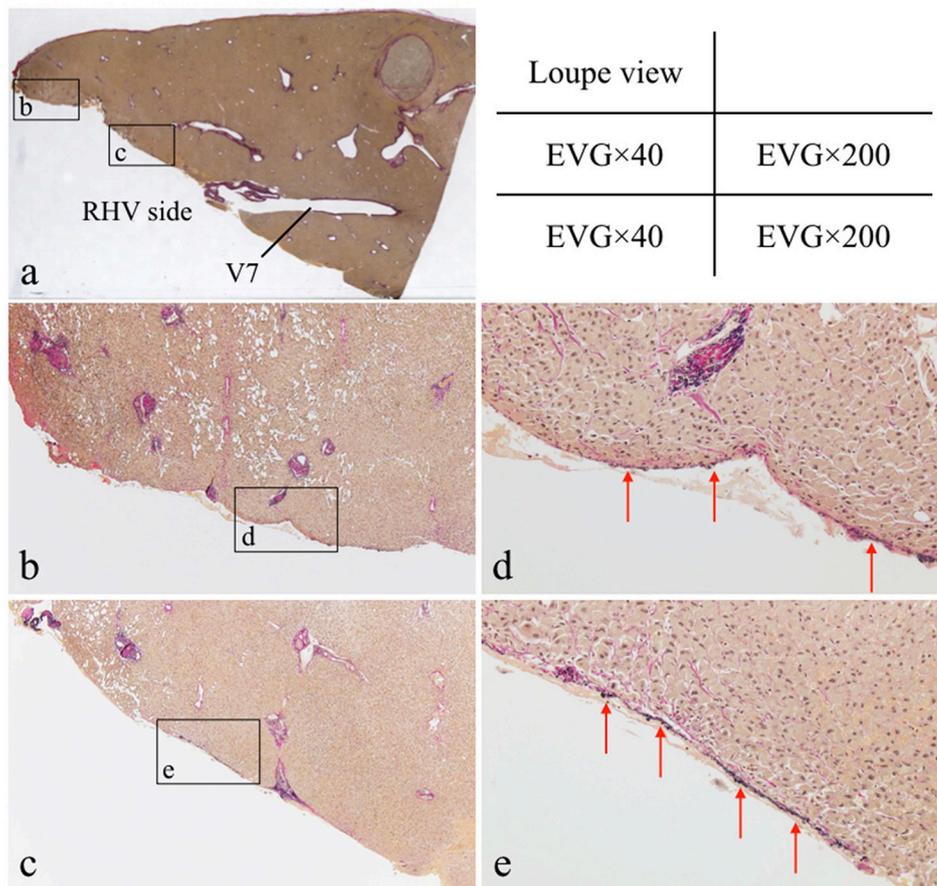


Fig. 2. a–e. Histology of the elastic lamina on the dissected surface of the intrahepatic liver parenchyma around the RHV (Elastica van Gieson stain). a: Loupe view displays the orientation of the histology. b and c: Low magnification views of the small squares in a. Dark and thin layers are found partially along the liver surface. EVG x 40. d and e: Higher magnification views of Elastica van Gieson-stained fibers (dark purple). Elastic lamina certainly remains on the dissected surface (arrows in d and e). EVG x 400. (Abbreviations: EVG: Elastica van Gieson stain; RHV: right hepatic vein; V7: tributary of the right hepatic vein draining segment 7).

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.suronc.2019.10.008>.

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