Simultaneous Dual Hepatic Vascular Embolization (DHVE) for Massive Hepatectomy

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ABSTRACT

Background. Simultaneous dual hepatic vein embolization (DHVE) has been proposed for safe right-side massive hepatectomy, (Kobayashi et al. in *Surgery* 167:917–923, 2020, Heil J, Schadde E. in *Langenbecks Arch Surg* 2020, Narita et al. in *Ann Surg* 256:e7–8, 2012) and has demonstrated comparable results to associating liver partition and portal vein ligation for staged hepatectomy (ALPPS) (Chan et al. in *Transl Gastroenterol Hepatol* 5:37, 2020) in terms of liver hypertrophy. In this video, we describe our DHVE techniques to perform a safe right trisectionectomy.

Methods. A 40-year-old man with unresectable intrahepatic cholangiocarcinoma with multiple intrahepatic metastases and vena cava invasion received 20 cycles of gemcitabine plus cisplatin, resulting in remarkable shrinkage of the tumor. Conversion surgery was planned to achieve no evidence of disease status. The future liver remnant (FLR) after right trisectionectomy was 363 ml (29.6% of the whole liver) and simultaneous DHVE was performed. The right portal vein embolization was performed via a transhepatic approach, while the right and middle hepatic veins were accessed via a transjugular approach and self-expandable mesh devices were deployed. Remarkable atrophy of the

right lobe and hypertrophy of the left lobe was observed 2 weeks after the procedure. Volumetry showed the FLR increased to 485 ml (40.2% of the whole liver). Three weeks after DHVE, right trisectionectomy with combined resection of the vena cava was performed.

Results. The operation time was 311 min, and the blood loss was 420 ml. Pathological examination revealed complete resection of liver tumors, and the volumetry on postoperative day 7 revealed an increased remnant liver volume of 874 ml. He was discharged on postoperative day 10 without any complications.

Conclusion. Simultaneous DHVE could be an effective procedure to increase FLR with safety for massive hepatectomy.

DISCLOSURE The authors declare no conflict of interest.

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