Resection of retrohepatic inferior vena cava without reconstruction for hepatic alveolar echinococcosis

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To the Editor: Echinococcus multilocularis (E. multilocularis), which can cause alveolar echinococcosis (AE), mainly involve the liver.[1] AE diagnosis mainly depends on epidemiological evidence, clinical presentation, serology test results, and radiological examinations.[2] Surgery is a main treatment method.[3] We describe a case with complicated AE who underwent resection of retrohepatic inferior vena cava (RHIVC) without reconstruction. The study was approved by the ethics review board of the First Affiliated Hospital of Xinjiang Medical University.

The patient was a 40-year-old woman who was admitted due to upper left abdominal pain. Her hemoglobin was 112 g/L and albumin was 36.8 g/L. There was no portal hypertension. Serological tests were positive for three Echinococcus granulosus (E. granulosus) antigens and one E. multilocularis antigen. Computed tomography showed a large lesion in the right and caudate lobe and a small lesion located in the left lobe. The lesion of the right lobe invaded the right hepatic vein, the root of the middle hepatic vein, the right portal vein, and the inferior vena cava (Figure 1A–C). Preoperative inferior vena cava angiography showed that the posterior inferior vena cava was completely blocked and multiple collateral circulation had been established [Figure 1D]. The preoperative indocyanine green retention rate at 15 minutes (ICG R 15 min) of this patient was 4%, which was within normal range. A volumetric liver computed tomography scan showed a left hemiliver volume (segments I-II–III–IV) of 605 cm³ (54%) and a total liver volume of 1121 cm³. The patient’s body weight was 55 kg. After assessment by a multidisciplinary team, hepatolobectomy combined with RHIVC resection was performed. Artificial blood vessel was prepared for this patient if inferior vena cava vascular replacement is needed.

A large vesicular lesion with a size of about 8 cm × 8 cm was observed in the right lobe of the liver. The right hepatic vein was involved. AE located in caudate lobe with an upward extension involving the root of middle hepatic vein, with a prominent downward extension involving right adrenal gland and the inferior vena cava. Collateral circulation was observed in retroperitoneum, on top of the kidney. AE lesions were also observed in the left lobe with size of about 4 cm × 4 cm. Before liver resection, we closed the inferior vena cava above the left renal vein for 5 min and found that the hemodynamic situation was stable, without intestinal congestion. Thus, RHIVC was completely blocked and the collateral circulation was adequate. The invaded RHIVC without reconstruction was performed. The lesion in left lobe was cut off. Then the right portal vein and hepatic artery were selectively blocked. Hepatic parenchyma was dissected. Lesions were cut until the root of middle hepatic vein. The lateral wall of middle hepatic vein was reconstructed and repaired. In total, the surgery lasted for 5 h. No severe postoperative complications occurred.

There is collateral circulation in patients with AE.[4] In this case, we observed that the AE lesions completely blocked the RHIVC; however, due to the sufficient collateral circulation, our team successfully removed the RHIVC without reconstruction.

It is necessary to carry out inferior vena cava angiography preoperatively to fully understand the degree of collateral circulation establishment. In our case, the collateral circulation was mainly concentrated in the peritoneum, above the right renal, whereas the AE had involved the right adrenal gland. Protection of functional liver during operation is important. In this case, we resected the lesions on the middle hepatic vein and repaired the middle hepatic vein. The excision of the RHIVC without reconstruction might be a safe and feasible way for AE patients with adequate collateral circulation.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

None.

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