JOURNAL OF INONU LIVER TRANSPLANTATION INSTITUTE

DOI: 10.14744/jilti.2024.95967
J Inonu Liver Transpl Inst 2024;2(1):28–30

Case Report

Major Liver Resection for Advanced Alveolar Echinococcosis: An alternative to Liver Transplantation

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Abstract

Alveolar Echinococcosis (AE) is a zoonotic infestation with aggressive behavior1. Most patients are asymptomatic in the early period, and therefore they are often detected incidentally during radiological examinations performed for other reasons.[1] AE is considered a tumor-like disease because the disease grows in the liver by invading the surrounding tissue and metastasizes to distant organs in some patients.[2] Therefore, resection is recommended in surgical treatment according to oncological principles, that is, with clean surgical margins.[3] The present report aims to present our approach to a patient diagnosed with alveolar echinococcosis, which occupied the right lobe of the liver and included the part of the left hepatic vein flowing into the IVC, was prepared for liver transplantation and was saved from liver transplantation by liver resection.

Keywords: Alveolar Echinococcosis, hepatectomy, liver transplantation, resection

Please cite this article as "Koc C, Akbulut S, Isik B, Kutlu R, Yilmaz S. Major Liver Resection for Advanced Alveolar Echinococcosis: An alternative to Liver Transplantation. J Inonu Liver Transpl Inst 2024;2(1):28–30".

Alveolar Echinococcosis (AE) is a zoonotic invasion that progresses slowly, has aggressive behavior, and is difficult to treat due to its tendency to infiltrate tissue. Most patients are asymptomatic in the early stages, and therefore they are often detected incidentally during radiological examinations performed for other reasons.[1] AE considered a tumor-like disease because the disease grows in the liver by invading surrounding tissue and occasionally, metastasizes to distant organs.[2] The disease is usually fatal due to complications caused by metastatic lesions or liver failure caused by the primary lesion. For this reason, resection with clean surgical margins is recommended in surgical treatment according to oncological principles.[3] Depending on the localization of the disease in the liver, one or more of the options of non-anatomical hepatectomy, segmentectomy, partial hepatectomy and liver transplantation can be performed.[3] We present a patient who was planned for liver transplantation with a diagnosis of AE, was taken into surgery after donor preparation, underwent resection (ICG test for parenchymal adequacy), and did not need liver transplantation with vascular reconstruction in the remnant liver tissue.

Case Report

A 33-year-old male patient weighing 76 kg was admitted to our center with complaints of abdominal swelling and jaundice. Contrast-enhanced abdominal and thoraxic tomography revealed an alveolar echinococcus compatible

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Submitted Date: 17.05.2024 **Revised Date:** 31.05.2024 **Accepted Date:** 31.05.2024 **Available Online Date:** 13.06.2024

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lesion (200 mm x 110 mm x 100 mm) (Fig. 1a, b), which completely included the right and middle hepatic veins of the liver, partially surrounded the left hepatic vein without invading and had no extrahepatic spread. At the multidisciplinary council, it was decided to radiologically embolize the right portal vein to increase the size of the left lobe of the liver and to take the patient into surgery for resection three weeks later, after the living liver donor candidate was prepared (for emergency liver transplantation). In the CT scan taken 3 weeks after selective right portal vein embolization performed by interventional radiology (Fig. 2), the left lobe liver volume increased from 570 grams to 660 grams, and there was a 15.9% volume increase. ICG extraction test was performed (Fig. 3) and the R-value was below 15 and the PDR value was above 18. During parenchymal transection, the left hepatic vein was observed to be in close contact with the lesion. Two vascular clamps were placed on the part of the left hepatic vein opening to the inferior vena cava and on the part remaining within the intact parenchyma, and the surrounding left hepatic vein was removed en bloc together with the tumoral-like lesion. Then, left hepatic vein reconstruction was performed using a polyethylene terephthalate (Dacron) vascular graft (Fig. 3). Perioperative doppler ultrasonography confirmed that reconstructed left hepatic vein flow was normal. The patient was given low molecular weight heparin in the early postoperative period. When the patient was discharged, albendazole (15 mg/kg/day) and coumadin (INR: 1.5-2 for 6 months) were prescribed. The patient was given albendazole treatment for 2 years and it was confirmed by radiological instruments that there was no disease recurrence (Fig. 4).

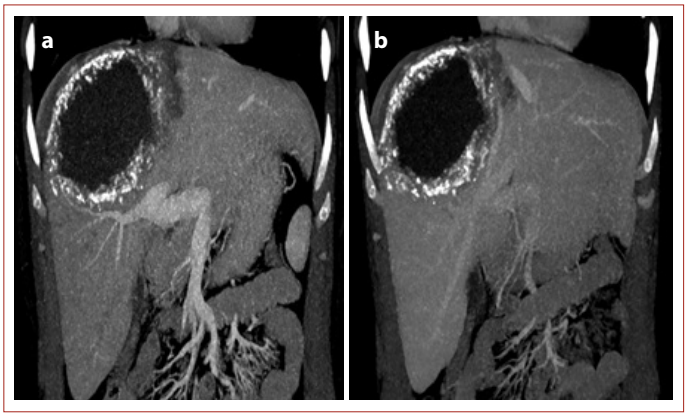

Figure 1. (a, b) Preoperative dynamic CT image of.

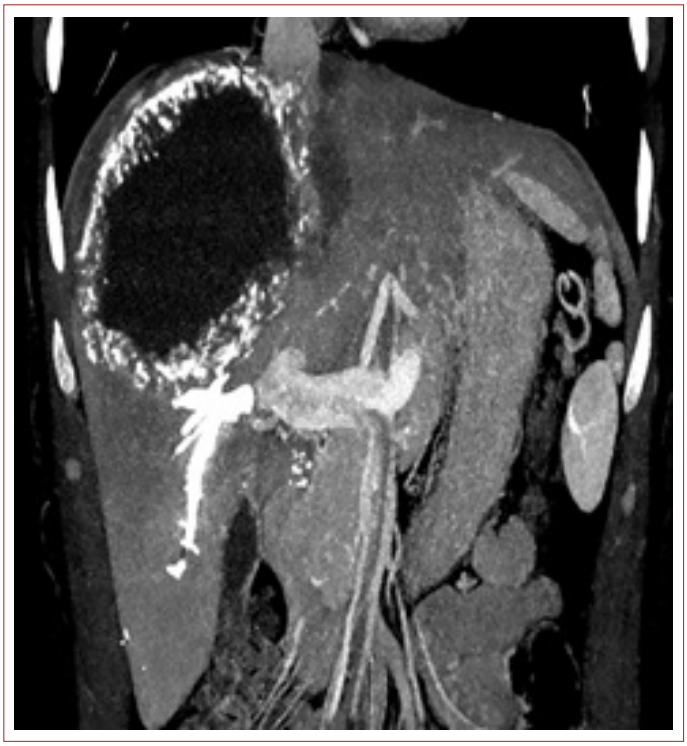

Figure 2. Dynamic CT image of the liver after embolization of the portal vein.

Discussion

If AE cannot be resected with a clean surgical margin and without causing hepatic failure due to a zoonotic infection, hilar involvement, or involvement of both liver lobes, the only treatment option is LT.[5] Liver transplantation was planned for our patient. Hepatic AE occupied the right lobe of the liver and invaded the left hepatic vein where it com-

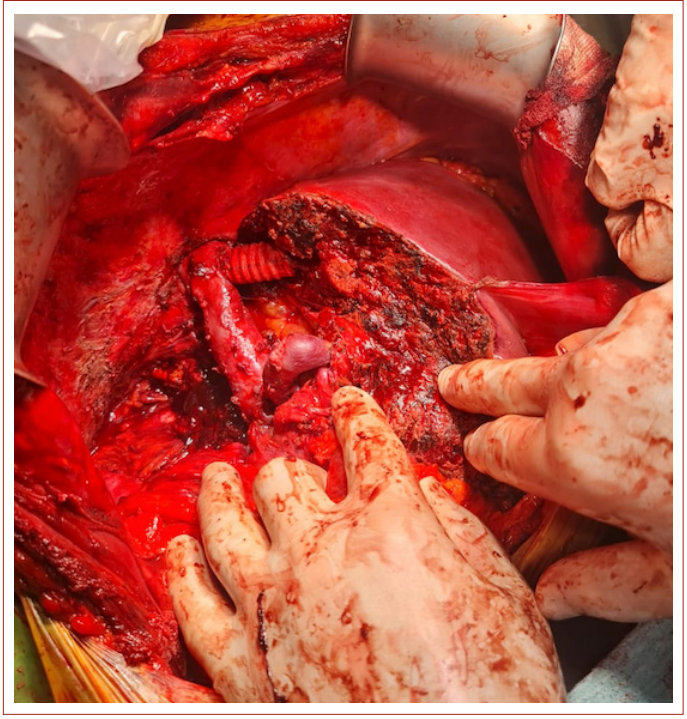

Figure 3. Reconstructed image of the left hepatic vein with synthetic graft.

Figure 4. Dynamic CT image of the reconstructed left hepatic vein at 6 months.

mences with the VCI. There was no lesion in the left lobe of the liver parenchyma. Hepatic vein flow was achieved by right hepatectomy and partial left HV resection and reconstruction with a synthetic vascular graft. We were able to resect the lesion and therefore, we did not perform liver transplantation for the patient. As a medical treatment for AE patients, benzimidazole derivatives such as mebendazole and albendazole have a 55-97% success rate due to their parasitostatic rather than parasiticidal effect.[4]

In conclusion, the surgical treatment of AE disease varies depending on the stage of the disease, the number and size of the lesions, the relationship of the lesion with the hilar structures and inferior vena cava, and ultimately the experience of the center. In treatment, resection with clean surgical margins, long-term anthelmintic treatment, and close follow-up are essential.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship Contributions: Concept – C.K., S.Y., S.A.,B.I.; Design – C.K., S.Y., S.A.,B.I.; Supervision – C.K., S.Y., S.A.,B.I.; Materials C.K., S.Y., S.A.,B.I.; Data collection &/or processing – C.K., S.Y., S.A.,B.I.; Analysis and/or interpretation – C.K., S.Y., S.A. ; Literature search – C.K., S.Y., S.A. ; Writing – C.K., S.Y., S.A.; Critical review – C.K., S.Y., S.A.,

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