

# Successful Reversal of Acute-on-Chronic Liver Failure and Cirrhosis by Combined Chinese-Western Medicine: A 5-Year Follow-up and a Cautionary Tale of Fatal Relapse After Antiviral Withdrawal

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## Case Report

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# Abstract

## Background

Acute-on-chronic liver failure (ACLF) in patients with chronic hepatitis B and cirrhosis carries an extremely high short-term mortality rate. We report a case of successful reversal of end-stage liver failure and cirrhosis by combined Chinese-Western medicine, followed by a fatal relapse after self-discontinuation of antiviral therapy.

## Case Presentation

A 36-year-old male with a 9-year history of hepatitis B was admitted to a tertiary liver disease hospital in Beijing on November 10, 2007, with decompensated cirrhosis, massive ascites, and infection. Despite medical management, his condition deteriorated, with laboratory tests on December 17, 2007, showing a prothrombin activity (PTA) of 28.7%, an INR of 2.585, and a total bilirubin of 136.5  $\mu\text{mol/L}$ , indicating irreversible end-stage liver failure with classic bile-enzyme separation. The family was informed that no curative treatment was available, and the patient was discharged against medical advice on December 19, 2007. Combined Chinese-Western medicine treatment was initiated at our institute on the same day. After 8 days of treatment, PTA rapidly increased to 46.3%, and INR decreased to 1.77. Liver function and coagulation profiles gradually normalized over the following months. By 2012, all laboratory parameters, including PTA (100%) and INR (1.01), had returned to normal, with resolution of splenomegaly and imaging evidence of cirrhosis reversal. The patient remained clinically stable for 5 years. In late 2012, the patient self-discontinued lamivudine for 3 months, leading to ACLF relapse. Due to delays in receiving standardized emergency care at two consecutive hospitals without artificial liver support technology, the patient ultimately died.

## Conclusion

This case demonstrates the remarkable potential of combined Chinese-Western medicine in reversing end-stage liver failure and cirrhosis. It also serves as a critical warning: antiviral therapy must not be self-discontinued, and ACLF relapse requires immediate access to standardized emergency care with artificial liver support.

## 1. Introduction

Acute-on-chronic liver failure (ACLF) is a severe clinical syndrome characterized by acute deterioration of liver function in patients with chronic liver disease, often precipitated by viral reactivation, infection, or other triggers. In patients with chronic hepatitis B and cirrhosis, ACLF carries an extremely high short-term mortality rate, and liver transplantation is often the only definitive treatment [1, 2]. Current guidelines emphasize the importance of lifelong antiviral therapy to prevent viral reactivation and disease progression [3, 4].

Here, we report a case of ACLF deemed incurable at a tertiary liver disease hospital in Beijing, which was successfully reversed by combined Chinese-Western medicine. The patient remained clinically stable for 5 years with imaging evidence of cirrhosis reversal. However, a fatal relapse occurred after self-discontinuation of antiviral therapy, underscoring the paramount importance of adherence to antiviral treatment.

This case is part of a long-term clinical observation series on refractory diseases at Beijing Pingshantang Institute of Refractory Diseases. Each case is reported independently because it represents a distinct disease entity, treatment course, and long-term follow-up. The series aims to share these rare and independent observations with the global medical community.

## 2. Case Presentation

A 36-year-old male with a 9-year history of chronic hepatitis B was admitted to a tertiary liver disease hospital in Beijing on November 10, 2007, with complaints of fatigue, abdominal distension, and lower limb edema for 5 months. Physical examination revealed jaundice, hepatomegaly, massive ascites, and splenomegaly.

### **Pre-treatment assessment (November-December 2007):**

Upon admission on November 9, 2007, initial laboratory tests showed anemia (hemoglobin 89 g/L) and thrombocytopenia (platelets  $89 \times 10^9/L$ ). Abdominal ultrasound revealed a shrunken liver with coarse echotexture, splenomegaly, massive ascites, and a possible portal vein thrombus.

Despite medical management at the tertiary hospital, the patient's condition continued to deteriorate. Serial laboratory tests demonstrated a classic "bile-enzyme separation" pattern: aminotransferases decreased (ALT from 57.4 to 38.5 U/L; AST from 128.3 to 85.2 U/L) while total bilirubin sharply increased (from 68.8 to 136.5  $\mu\text{mol/L}$ ). Notably, by December 17, 2007, the patient's coagulation function had progressively worsened, with prothrombin time (PT) 24.4 s, prothrombin activity (PTA) 28.7%, and INR 2.585, indicating irreversible end-stage liver failure. The family was informed that no curative treatment was available, and the patient was discharged against medical advice on December 19, 2007.

### **Treatment and Clinical Reversal:**

On December 19, 2007, the patient was directly admitted to our care, and combined Chinese-Western medicine treatment was immediately initiated. After 8 days of treatment (December 27, 2007), laboratory tests showed a rapid improvement: PTA increased to 46.3%, INR decreased to 1.77, and APTT decreased to 64.0 s. Total bilirubin decreased to 109.0  $\mu\text{mol/L}$ , and ALT decreased to 19.0 U/L. Over the following months, liver function and coagulation profiles continued to improve. By May 5, 2008, total bilirubin had decreased to 44.3  $\mu\text{mol/L}$ , albumin had increased to 36.9 g/L, and cholinesterase had normalized to 7865 U/L. HBV DNA became undetectable ( $< 1 \times 10^3$  copies/ml) by October 17, 2008. The patient's condition remained stable, and by October 16, 2012, all laboratory parameters had returned to normal.

(PTA 100%, INR 1.01, hemoglobin 168 g/L, platelets  $163 \times 10^9/L$ ), with resolution of splenomegaly. Imaging studies (MRI) demonstrated a remarkable reversal of cirrhosis. The patient maintained a normal life for 5 years.

#### **Cautionary Tale:**

In late 2012, the patient self-discontinued lamivudine for 3 months, leading to ACLF relapse. Despite seeking emergency care, treatment was delayed at two consecutive hospitals, neither of which was equipped with artificial liver support technology. The patient ultimately died due to multiple organ failure.

Written informed consent for publication was obtained from the patient's legal representatives (wife and brother). All clinical data have been thoroughly anonymized.

### **3. Discussion**

#### **3.1 Reversal of End-Stage Liver Failure and Cirrhosis**

This case demonstrates the remarkable potential of combined Chinese-Western medicine in reversing ACLF and cirrhosis. The rapid improvement in coagulation function (PTA from 28.7% to 46.3% within 8 days) and the subsequent normalization of liver function and effective suppression of HBV DNA suggest a comprehensive restoration of hepatic synthetic and metabolic functions. Furthermore, imaging evidence of cirrhosis reversal indicates a structural improvement that challenges the conventional view that cirrhosis is irreversible [5, 6].

#### **3.2 The Critical Importance of Antiviral Adherence**

The fatal outcome following self-discontinuation of lamivudine serves as a critical warning. Antiviral therapy is essential for suppressing viral replication and preventing disease progression. Self-discontinuation can lead to viral reactivation, ACLF relapse, and potentially fatal outcomes [3, 4]. This case underscores the absolute necessity of lifelong adherence to antiviral therapy in patients with chronic hepatitis B.

#### **3.3 The Need for Standardized Emergency Care**

The patient's death was also compounded by delays in receiving standardized emergency care at two consecutive hospitals lacking artificial liver support technology. This highlights the importance of timely referral to specialized centers with adequate resources for managing ACLF.

#### **3.4 Limitations**

This is a single-case report, and the findings require validation in larger, prospective studies. The mechanisms underlying the reversal of cirrhosis and the effective suppression of HBV DNA warrant further investigation.

## 4. Conclusion

This case demonstrates that combined Chinese-Western medicine can successfully reverse end-stage liver failure and cirrhosis in patients with chronic hepatitis B. However, the fatal relapse after antiviral withdrawal underscores the paramount importance of lifelong antiviral adherence and the necessity of standardized emergency care. Further studies are warranted to validate these findings and explore the underlying mechanisms.

## Declarations

### Ethics Statement

This study is a retrospective case report conducted in accordance with the Declaration of Helsinki. Written informed consent for publication was obtained from the patient's legal representatives. All clinical data have been thoroughly anonymized to protect patient privacy. The patient was previously treated at Beijing You'an Hospital, and this is mentioned with the family's permission. The Chinese herbal medicines used are derived from traditional Chinese medicinal materials that have been used for thousands of years. All physical therapies use medical devices approved by the National Medical Products Administration.

### Use of AI-assisted tools

The authors used AI-assisted tools for language editing and translation only. All clinical data, analysis, and conclusions are the original work of the authors.

## Conflicts of Interest

The author declares no conflicts of interest.

## Data Availability Statement

The clinical data supporting this case report are stored in the medical records archive of Beijing Pingshantang Institute of Refractory Diseases. Due to patient privacy and intellectual property considerations, the raw data are not publicly available but can be made available to qualified researchers upon reasonable request, subject to ethical approval.

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