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A Complex Post-Transplant Puzzle: Successful Intervention in Chronic Allograft Dysfunction with Portal Biliopathy and Portal Vein Thrombosis

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ABSTRACT

We report a case of a 38-year-old female who presented with gastrointestinal symptoms eight years after a deceased donor liver transplantation performed for autoimmune hepatitis. She was found to have chronic allograft dysfunction complicated by portal biliopathy, portal vein thrombosis, ascites, and anemia. Her management involved percutaneous transhepatic biliary drainage (PTBD), terlipressin infusion, blood product transfusions, and optimization of immunosuppressive therapy. This case highlights the complex nature of long-term complications following liver transplantation and emphasizes the importance of multidisciplinary management in such cases..

1. INTRODUCTION

When medical therapy fails or problems like acute liver failure, decompensated cirrhosis, or hepatocellular carcinoma occur, liver transplantation is generally accepted as the final treatment for patients with end-stage liver disorders, including autoimmune hepatitis. Significant improvements in perioperative care, immunosuppressive medications, and surgical procedures over the past few decades have increased patient and transplant survival rates. For instance, recipients of autoimmune hepatitis transplants have reported five-year patient and graft survival rates of 80–90% and 72–74%, respectively. Patients are still susceptible to a variety of late problems that could jeopardize results, even with current advancements. Chronic allograft dysfunction, vascular complications including hepatic artery or portal vein thrombosis, biliary strictures, and systemic problems like renal dysfunction, diabetes mellitus, and hypertension are only a few examples of the several late complications that can arise following liver transplantation. A particularly difficult disease is chronic allograft dysfunction, which is characterized as a progressive or ongoing decline in graft function that cannot be attributed to technical issues or acute rejection. Numerous underlying causes, such as biliary strictures, chronic rejection, recurrent disease (such autoimmune hepatitis), or vascular anomalies, might cause it. Portal biliopathy is a rare but dangerous consequence, especially when linked to portal vein thrombosis. It is characterized by biliary blockage and dilatation as a result of persistent portal vein obstruction and cavernous metamorphosis. A multidisciplinary strategy combining hepatologists, transplant surgeons, interventional radiologists, and other specialists is frequently necessary to handle these late problems since they are complicated. For instance, although less frequent than hepatic artery thrombosis, portal vein thrombosis can cause serious complications such as variceal hemorrhage, ascites, and portal hypertension. While interventional methods like percutaneous transhepatic biliary drainage (PTBD) are critical for addressing biliary obstruction, imaging modalities like contrast-enhanced CT and MR angiography are critical for diagnosis. We describe a

case here that exemplifies many of these difficulties: a patient who, years after receiving a liver transplant for autoimmune hepatitis, acquired portal biliopathy, portal vein thrombosis, and ascites. In order to maximize results, this combination of complications—which is uncommon, particularly so soon after transplantation—highlights the significance of careful long-term surveillance and a coordinated, multidisciplinary management approach. In this instance, effective treatment required continuing medication to treat immunosuppression, coagulopathy, and other systemic consequences in addition to interventional radiology for biliary decompression.

2. CASE PRESENTATION

A 38-year-old female with a known history of deceased donor liver transplantation in 2017 for autoimmune hepatitis presented to our hepatology department with complaints of loose stools. She was admitted for evaluation and management.

Clinical Findings on Admission:

- Conscious, oriented, and afebrile.
- Blood pressure: 99/54 mmHg
- Pulse rate: 71 beats per minute
- Oxygen saturation: 99%
- Respiratory rate: 20 breaths per minute

Laboratory Investigations:

- Hemoglobin: 9.3 g/dL
- White blood cell count: 1650/mm³
- Platelet count: 24,000/mm³
- INR: 1.63
- Random blood sugar: 250 mg/dL
- Renal function: Urea 25 mg/dL, Creatinine 0.7 mg/dL
- Serum electrolytes: Sodium 132 mEq/L, Potassium 4.0 mEq/L
- Liver function tests:
- Total bilirubin: 6.8 mg/dL
- Direct bilirubin: 5.3 mg/dL
- AST: 85 U/L
- ALT: 49 U/L
- ALP: 82 U/L
- GGT: 55 U/L
- Total protein: 6.3 g/dL

Imaging Studies:

- Hepatic Doppler and contrast-enhanced CT revealed:
- Chronic parenchymal disease in the transplanted liver with fibrosis.
- Dilated intrahepatic biliary radicals consistent with portal biliopathy.
- Splenomegaly.
- Thrombosis of the main portal vein and splenomesenteric junction.
- Portal-systemic collaterals.
- Ascites with nodular peritoneal enhancement.
- Incisional and umbilical hernia.

Ascitic Fluid Analysis:

- 4 liters of ascitic fluid were drained under sterile conditions.
- Albumin concentration: 0.7 g/dL

- Total cell count: 61 cells/cumm, predominantly neutrophils.

Hospital Course and Management

The patient was initiated on supportive care, intravenous antibiotics, and liver-protective measures. She received blood product transfusions including one unit of fresh frozen plasma, one unit of single donor platelets, and cryoprecipitate for coagulopathy correction.
Due to persistent ascites and biliary obstruction, a percutaneous transhepatic biliary drainage (PTBD) procedure was performed successfully on 04.06.2025. Post-procedure, the patient's coagulation profile and clinical status were closely monitored.
During her hospital stay, the patient experienced one episode of hematemesis for which terlipressin infusion was initiated along with salt-restricted diet and supportive therapy.

In view of continued vaginal bleeding secondary to hormonal causes, gynecological consultation was obtained and medical management with hormonal agents was initiated. Mirena (IUD) insertion was planned for long-term control of bleeding.

The patient was maintained on optimized immunosuppressive therapy, which included:

- Tacrolimus (Pangraf 0.25 mg) 0-0-0.5

- Everolimus (Certican 0.5 mg) 0-0-0-1

- Prednisolone (Wysolone 10 mg) 1-0-0

- Multivitamins (Polvite SM) 1-0-0

Additional medications included:

- Sodium Chloride + Sodium Picosulfate solution for bowel regulation.

- Cefixime (Taximo 200 mg) for infection prophylaxis.

The patient was discharged in stable condition on 11.06.2025 with advice for regular follow-up, monitoring of tacrolimus and everolimus levels, and hepatobiliary Doppler evaluation.

3. DISCUSSION

This case highlights several important late complications of liver transplantation. Chronic allograft dysfunction may result from multiple factors, including recurrent autoimmune disease, chronic rejection, and vascular abnormalities such as portal vein thrombosis. Portal biliopathy refers to biliary obstruction and dilatation due to chronic portal vein obstruction and cavernous transformation of the portal vein, which was seen in our patient.

PTBD remains a safe and effective option for biliary decompression in such cases, as demonstrated here. Immunosuppression was carefully optimized to control allograft function while minimizing side effects. The development of ascites, coagulopathy, and bleeding episodes required additional multidisciplinary care.

Only a limited number of such cases have been reported in literature, particularly involving the coexistence of portal biliopathy, portal vein thrombosis, and ascites so late post-transplant. This case emphasizes the importance of vigilant long-term monitoring and multidisciplinary management in transplant recipients.

4. CONCLUSION

Late complications following liver transplantation such as portal biliopathy and portal vein thrombosis present significant management challenges. A multidisciplinary approach involving hepatology, interventional radiology, gynecology, and intensive care can lead to favorable outcomes. PTBD can serve as an effective option for biliary decompression. Continued long-term follow-up and monitoring of immunosuppressive therapy are essential for preventing further deterioration.

Patient Consent

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

Conflicts of Interest:None declared.

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