Successful Liver Transplantation from a Deceased Donor With Gilbert's Syndrome

To the Editor,

Gilbert's syndrome is a relatively common, benign liver condition without any structural liver disease, functional impairment, and/or hemolysis.[1] The prevalence of Gilbert's syndrome in the general population is approximately 6%[2] and is characterized by intermittent mild jaundice due to unconjugated hyperbilirubinemia due to reduced uridine diphosphate-glucuronyltransferase 1A1 (UGT1A1) activity. The unconjugated hyperbilirubinemia may worsen with physical stress, surgical procedures, prolonged fasting, and/or poor diet. It may not be easy to diagnose Gilbert's syndrome in a deceased (cadaveric) multiorgan donor due to the short time available at the time of donation and the long turnaround time of the confirmatory test.

The recipient was a 43-year-old gentleman with ethanol-related chronic liver disease with decompensation in the form of recurrent ascites, episodes of hepatic encephalopathy needing hospitalization, urinary tract infections, and one episode of upper gastrointestinal bleeding, controlled with endotherapy. The recipient was Child-Turcotte-Pugh class B with the peak and transplant Model for End-stage Liver Disease (MELD) scores of 23 and 18, respectively. The donor was a 47-year-old gentleman with a body mass index (BMI) of 32.7 and no comorbidities. He was brain-dead due to traumatic brain injury. His liver function showed predominantly unconjugated hyperbilirubinemia and mild transaminitis. The ultrasonography (USG) demonstrated hepatomegaly with mild fatty infiltration.

Since the jaundice was driven predominantly by unconjugated hyperbilirubinemia, the differential diagnoses were:

1. Hemolytic anemia, however, the peripheral smear did not show features of hemolysis
2. Blood transfusion-related, although the donor had not received any blood transfusions
3. Large hematoma causing unconjugated hyperbilirubinemia, although none was found in imaging

A possibility of Gilbert's syndrome was considered, and a blood sample was sent for UGT1A1 mutation testing. The turnaround time for this genetic test at our institute is 2 weeks. A percutaneous liver biopsy was done due to these findings, which showed 8%–10% microsteatosis, and <5% macrosteatosis with no fibrosis (Figure 1). With these findings the liver was considered "marginal," and the same was discussed with the patient and family and their high-risk consent was obtained. The donor's liver and kidneys were procured uneventfully. The liver was grossly normal and had an accessory right hepatic artery, which was anastomosed to the gastroduodenal artery on the bench.

The recipient underwent an uneventful orthotopic deceased donor liver transplant with 6-h and 45-min cold and warm ischemia times, respectively, with no intraoperative blood transfusions. His postoperative recovery was also uneventful. His immunosuppression protocol was 10 mg/kg steroids intraoperatively followed by tapering doses of steroids, tacrolimus, and mycophenolate mofetil for maintenance. His liver function tests improved to normal by postoperative day 7. He developed a multidrug resistant Klebsiella Pneumonia which responded well to the antibiotics. He was discharged on postoperative day 12 and is well at an 18-week follow-up visit with normal liver function test. The donor's genetic test detected pathogenic mutation in two alleles at UGT1A1*28A(TA)7TAA with low enzyme activity and in UGT1A1*1A(TA)6TAA with normal enzyme activity. UGT1A1 Exon mutations for p.G71R & p.Y486D were normal. We plan to follow-up with the patient as per our unit's standard protocol and ignore any isolated unconjugated hyperbilirubinemia and evaluate other abnormalities of the liver function tests for graft dysfunction.

A liver transplant is the standard of care for the treatment of decompensated chronic liver disease. However, the demand-supply is wide and increasing in India. The criteria for donor selection may be expanded in selected situations. Unexplained hyperbilirubinemia in a potential cadaveric liver donor may lead to rejection of the organ by the transplant team.[3] Furthermore, because brain-dead donors at the time of organ donation are typically on ventilators and have numerous issues in intensive care units, the transplant team may find it difficult to diagnose Gilbert's syndrome.

In the present case, the recipient and his family consented to higher risk by accepting this marginal liver, without a definite diagnosis of Gilbert's syndrome because of a favorable biopsy. These diagnostic and logistic challenges are common in transplants due to limited time for testing, and therefore one's clinical judgment and experience are useful. To the best of our knowledge, this is the first case report of a deceased donor liver transplant using a graft with Gilbert's syndrome, although LDLT in similar situations is reported in scientific and local media with

Abbreviations: BMI: body mass index; MELD: Model for End-stage Liver Disease; USG: ultrasonography; UGT1A1: uridine diphosphate-glucuronyltransferase 1A1

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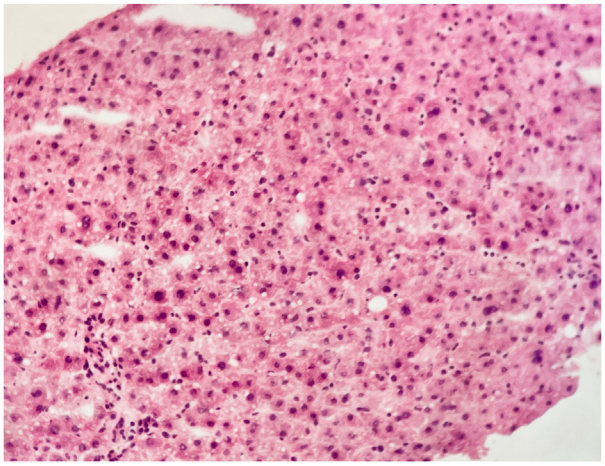

Figure 1 The frozen section shows donor liver tissue with 8%–10% microsteatosis. Less than 5% macrosteatosis, no significant lobular inflammation, and absent fibrosis. Hematoxylin and eosin (400x).

good outcomes.[4,5] Although Gilbert's syndrome is transferred by the donated liver to the recipient, it does not cause functional impairment and can be ignored.[6,7] This case demonstrates the safety of using a liver from a donor with Gilbert syndrome, which may help expand the donor pool.

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DECLARATION OF COMPETING INTEREST

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