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Chylous ascitis post primary living donor liver transplantation managed by dietary modification

Introduction

Chylous ascites is an intraperitoneal collection of milky fluid caused by blocked or disrupted lymph flow through chyle-transporting vessels. It is a rare complication of surgical intervention, and the most common causes are abdominal malignancy and abdominal aortic surgery. Chylous ascites after liver transplantation (LT) is an extremely rare complication, the reported incidence of chylous ascites after LT varies from 0.6% to 4.7%. Here we report the successful use of dietary modification to treat a case of chylous ascites after living donor liver transplantation (LDLT),

Case report

A four-month old female baby was brought to the hospital with complaints of jaundice for three weeks along with passage of clay colored stools and dark urine. The birth weight of the child was 2.8 kg. There was no history of fever, bleeding or any abnormal movements, or poor weight gain. The child was investigated at her local hospital and was noticed with cholestatic jaundice with bilirubin of 7.4 (total), 5.2 (direct). USG abdomen done revealed triangular cord sign, HIDA done was non-excretory with good uptake. At the time of presentation to this health care facility at age of 4 months her weight was 4.5 kg (< 5th percentile) and height 59 cm (< 5th percentile). Examination revealed icterus with 6 cm hepatomegaly and 3 cm splenomegaly with no free fluid in the abdomen. Her total serum bilirubin was 8.9 mg/dL with direct fraction of 5.2 mg/dL, ALT was 210 IU/mL, AST 200 IU/mL, GGT 290. Liver biopsy showed bile duct proliferation, bile plugs along with findings of biliary cirrhosis. In view of cirrhotic changes seen on biopsy, Kasai portoenterostomy was deferred and the parents were counseled for a primary liver transplant. She was monitored monthly for growth and development. She was started on calorie dense nasogastric feeds for optimizing her growth along with other medical measures for cholestasis. At age of 7 months she underwent a primary living donor liver transplantation (LDLT), at weight of 6.0 kg (< 5th percentile) and height of 62 cm (<5th percentile) due to growth failure and deteriorating liver functions. Her mother was the donor. Reduction of the graft (left lateral segment) was done along the superolateral and inferolateral surfaces from 204 grams to 182 grams. The surgery was uneventful and the patient was transferred to the intensive care unit, where she remained hemodynamically stable, and was extubated on the second postoperative day and started on enteral feeds on 6th day postoperative. Immunosuppressive regimen was initiated in the intra and post-operative period. The immediate graft function was excellent with rapidly improving liver function tests. After 48 hours of feeds her drain became cloudy and milky (**Figure 1**). Drain triglyceride sent were 438mg/dL. Diagnosis of chylous ascitis was made and she was started on fat free diet with supplementation of medium chain triglyceride, adequate proteins were added (1.0 g/kg) along with multivitamins. After 8 days her drain color started improving with reduction in the drain amount, drain triglyceride done on day 8 was 350 mg/dL. Drain triglycerides were monitored; there was significant reduction in drain output and triglyceride contents with the dietary modification (**Figure 2**). The drain was removed on post-operative day 30; at the time

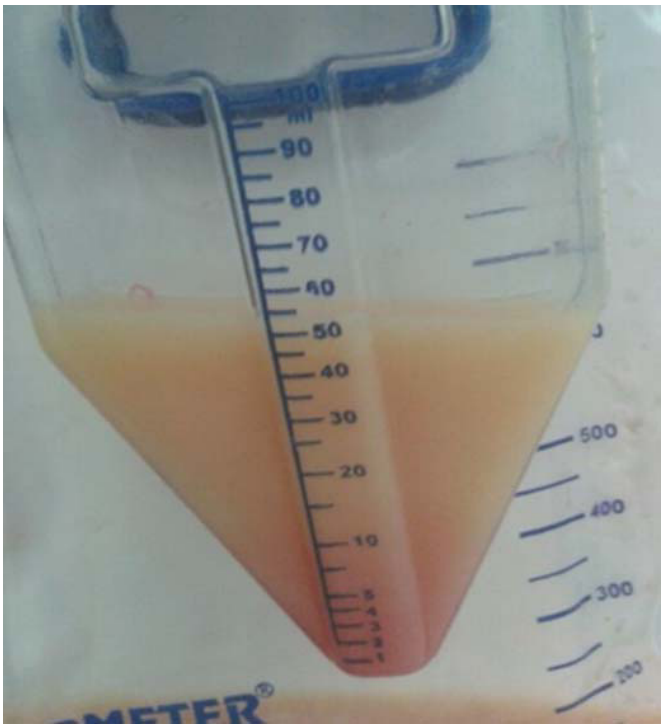

Figure 1: Chylous drain

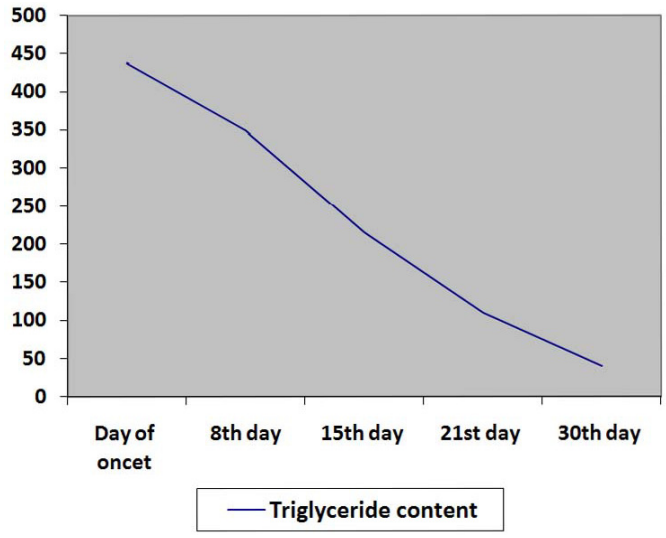

Figure 2: Triglyceride levels in ascitic fluid after dietary intervention

of removal the drain triglyceride was 40 mg/dL. The patient was discharged on POD 34 with completely normalized liver function tests.

Discussion

Chylous ascites is an intraperitoneal collection of milky fluid caused by blocked or disrupted lymph flow through chyle-transporting vessels. The pathogenesis of its formation

is related to lymphatic system failure, which can occur after trauma or because of an obstruction or congenital factors. Chylous ascites after liver transplantation (LT) is an extremely rare complication, the reported incidence of chylous ascites after LT varies from 0.6% to 4.7% [1-4]. Small-for-size grafts are associated with persistent elevation of the portal vein pressure after LDLT, and portal hypertension is one of the causes of chylous ascites in this group of patients, as may be in our patient as well.[1]

The management of chylous ascites includes serial paracentesis for removal of fluid, dietary control with low to fat free diet with addition of medium chain triglycerides; total parenteral nutrition; somatostatin; and rarely surgical intervention. An enteral dietary intervention to decrease lymph flow in the major lymphatic tracts and to facilitate the closure of chylous fistulas involves a diet that is rich in protein and low in fat and long chain triglycerides. Fasting combined with TPN dramatically decreases lymph flow in the thoracic duct from 220 mL/(kg/h) to 1 mL/(kg/h), thus helping in the management of chylous ascites. The exact mechanisms underlying the actions of somatostatin are not understood, although it has been shown to decrease the intestinal absorption of fats, lower triglyceride concentrations in the thoracic duct, and attenuate lymph flow in the major channels. It also decreases gastrointestinal secretions and motor activity in the gastrointestinal tract.[2]

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