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LETTER TO THE EDITOR

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Surgical treatment of chylous ascites following partial living-related liver transplantation

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Sir: Chylous ascites is an uncommon clinical entity that causes major mechanical, nutritional, and immunological complications. The most common causes of chylous ascites include malignancies, inflammation, liver cirrhosis, blunt abdominal trauma in adults, and congenital malformation of abdominal lymphatics in children [3]. Chylous ascites is a rare postoperative complication. The occurrence of chylous ascites after surgery is due to extensive retroperitoneal and mesenteric dissection [4]. Only one case has been reported in the literature, and it was treated conservatively following liver transplantation [5]. We observed a case of chylous ascites in the post-transplantation period and discuss the surgical treatment we used for it.

A 4-year-old child was referred to our center with symptoms of obstructive jaundice and pruritus that began when the child was 6 months of age. A liver biopsy was performed that revealed secondary changes in the intrahepatic bile ducts, resulting in developmental abnormality or Byler's disease that rapidly developed into cirrhosis.

At this stage, we decided to perform a liver transplantation. The 36-year-old mother of the patient was willing to donate part of her liver to her child. On 9 April 1996, a partial living-related orthotopic liver transplantation was performed. The liver of the recipient was cirrhotic, the spleen was enlarged, and there was minimal ascites in the peritoneal cavity as well as multiple lymph nodes in the intestinal mesentery. Segments 2, 3, and a 2-cm strip of segment 4 of the left lobe of the liver were transplanted orthotopically. For biliary drainage, a Roux-en-Y hepaticojejunostomy was performed. A drain was left in the subhepatic space and another one in the pelvic space. A biliary stent was placed in the common bile duct. Postoperatively, there was no biliary leak from any of the drains. On the 4th postoperative day, the pelvic drain was removed and, on day 5, the subhepatic drain. The biliary stent was removed on the 11th postoperative day. After transplantation, liver enzymes and bilirubin dropped to normal levels. On postoperative day 5, oral intake commenced and, on postoperative day 11, the patient was discharged.

The patient was readmitted on the 13th postoperative day due to deterioration in the child's general condition and seizures, a history of which was not known before. Cranial computerized tomography and magnetic resonance imaging were normal, and no electrolyte imbalance was present. Both intra-abdominal ascites and abdominal tenderness were observed during the physical examination. Abdominal ultrasonography revealed intra-abdominal massive ascites. A drain was inserted in the abdominal cavity under the guidance of ultrasonography. The ascitic fluid was milky-white in appearance and odorless, and it separated into two layers in a test tube. An analysis of the ascitic fluid revealed the following: WBC 1200/mm^3, ALT 40 U/l, glucose 72% mg, protein 3.4% g, cholesterol 170% mg, and triglycerides 984% mg (simultaneous serum triglyceride was 90% mg). The cholesterol/triglyceride ratio was 0.091. Specific gravity was 1.032, and pH was 8.2. A Gram stain of the ascitic fluid showed lymphocytes, a small number of leukocytes, but no microorganisms. No bacterial growth was observed in the cultures of the fluid. Fat globules were identified on staining with Sudan III.

All of these findings supported our diagnosis of chylous ascites. With the insertion of a catheter, 800 mL of chylous ascitic fluid was drained, but severe abdominal tenderness persisted. The general condition of the patient and the physical findings necessitated a surgical exploration on the 14th postoperative day. The only abnormal finding at surgery was chylous ascites. We observed leakage from the open end of a lymphatic vessel located at the root of the mesentery near the jejunojejunal anastomoses, and a suture ligature was placed to prevent further leakage. On postoperative days 1, 2, and 3, 377 mL, 450 mL, and 155 mL of ascitic fluid was drained, respectively. On postoperative day 4, the drainage ceased and control ultrasonography revealed no residual intra-abdominal fluid, so the catheter was withdrawn. On postoperative day 6, the patient was discharged, and no rejection episodes were observed until that time. A follow-up examination in the 4th postoperative month revealed normal liver function and no evidence of ascites.

Surgical procedures applied at the root of either the mesentery or the retroperitoneum may lead to lymphatic injury [4]. Fistulae between the abdominal lymphatics and intra-abdominal space result in chylous ascites. During the fasting state, the lymph flow through the thoracic duct is less than 1 mL/kg per hour. However, following the ingestion of a fatty meal, it increases dramatically to 225 mL/kg per hour. Therefore, symptoms of lymphatic leakage usually do not occur immediately after surgery, but rather when the patient resumes oral intake. Then, clinical indications of

chylous ascites begin to appear [3–5].

The diagnosis of chylous ascites is made by biochemical analysis [1–5]. The treatment of chylous ascites includes a low-fat diet with high-protein supplementation to the medium-chain triglycerides, or total parenteral nutrition [5]. Other authors advise early reoperation when possible, particularly after surgery on the abdominal aorta where there may be injury to the major lymphatic trunks [3].

The conservative approach allows the intestinal lymph flow to be reduced to a minimum, which, in turn, makes leaking ducts heal and close. Long periods of time – several months – are required for conservative treatment methods. After liver transplantation, chylous ascites may develop due to disruption of lymphatic vessels in the porta hepatis or the retrohepatic area during dissection and removal of the native liver. This usually merits a conservative method.

In our case, the patient was reoperated with an indication of peritonitis, and the result of the operation was successful without any complications. The time elapsed until the surgical intervention was only 4 days.

In contrast to a conservative mode of treatment reported in the literature, we used a surgical method to treat chylous ascites following a partial living-related liver transplantation in a patient who had severe and persistent abdominal tenderness and a deterioration in general condition.

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