

Chylous Ascites after Laparoscopic Donor Nephrectomy: Case Report

Abstract

Chylous ascites refers to the accumulation of chyle in the abdominal cavity. Postoperative chylous ascites is most commonly associated with abdominal aortic surgeries. However, it is a rare complication following laparoscopic nephrectomy. It causes loss of fat, protein, and antibodies causing malnutrition and immunodeficiency. Thus, it is important to treat it as early as possible. We hereby report a case of chylous ascites following laparoscopic donor nephrectomy. A 55-year-old female was admitted at our center 2 weeks after undergoing left laparoscopic donor nephrectomy with abdominal distension and constipation. USG abdomen revealed free fluid in the abdomen. Paracentesis revealed chylous ascites. The patient was started on conservative treatment, including a diet rich in proteins and low in fats; conservative treatment, however, was unsuccessful. Lymphangiography and subsequent embolization of the defect were done, and she made a full recovery.

Keywords: Chylous ascites, embolization, laparoscopic donor nephrectomy, lymphangiography

Introduction

In kidney transplant surgeries, laparoscopic donor nephrectomy (LDN) has become the standard technique for donor nephrectomy. It has fewer complications, early postoperative recovery, and equal graft and patient survival when compared to open nephrectomy.^[1] Although LDN appears to have benefits over open nephrectomy, it is associated with some complications. Chylous ascites is one of the rare complications that can occur secondary to the damage of the lymphatic structures. Chyle contains a high amount of proteins, fats, and immunoglobulins. Thus, its loss causes various complications like malnutrition, immunodeficiency resulting in an increased risk of infections, and other mechanical complications secondary to an increase in abdominal pressure and distension.^[2] Management of chylous ascites includes conservative treatment with diet, paracentesis and surgical interventions. We hereby present a case of a 55-year-old female presenting with chylous ascites following left LDN that was successfully managed with lymphangiography and embolization of the defect.

Case Report

A 55-year-old female with no previous comorbidities had undergone left LDN after

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proper evaluation. She had no intraoperative or early postoperative complications and was discharged on postoperative day 5. She was readmitted approximately 2 weeks later with abdominal distension and constipation. Her per abdomen examination was suggestive of free fluid in the abdomen. Her laboratory parameter was significant for low serum albumin (2.27 g/dL). USG whole abdomen showed the liver with normal size and echotexture with moderate ascites.

Diagnostic paracentesis revealed a milky white fluid. Analysis of the fluid was suggestive of exudative fluid with high protein (6.4 g/dL), and a very high triglycerides levels (1518 mg/dl); thus, a diagnosis of Chylous ascites was confirmed. She was started on conservative treatment, including a special diet high in proteins and low in fats. USG-guided drain was put in the abdominal cavity, and around 900 mL of milky white fluid was drained. Daily drain output charting was done. Her drain output continued to be more than 750 mL/day on day 5 of conservative treatment. Therefore, a decision to proceed to the intervention was taken. Lymphangiography was done, which identified the leaking vessel in the left renal fossa [Figure 1], and subsequently, successful embolization with NBCA (N-Butyl Cyanoacrylate) glue of the defect was done. Her drain output

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started declining, and drain was removed after 7 days. On follow-up at 4 weeks, there was no evidence of free fluid in the abdomen on USG.

Discussion

Chylous ascites refers to the accumulation of chyle in the abdominal cavity. There are few reports of chylous ascites following donor nephrectomy^[3-7] of which two were associated with open nephrectomy^[5] and remaining cases with LDN. In a study by Harper *et al.*,^[8] 750 patients of LDN were analyzed, and only two patients had developed postoperative chylous ascites. In another study by Breda *et al.*,^[9] authors analyzed complications in 300 LDN patients, and chylous ascites was found in 0.07% cases. It was observed that all cases of postoperative chylous ascites were noted following the left sided LDN. According to Meulen *et al.*, since the majority of lymphatic vessels are present near para-aortic area, ligation of the renal artery close to the aorta causes damage to the para-aortic lymphatic vessels during left-sided LDN. In the right-sided LDN, ligation of the renal artery is lateral to IVC, causing less damage to the para-aortic lymphatics. However, since more than 95% of cases of donor nephrectomy are left sided, an association by chance cannot be completely ruled out.

Prevention of chylous ascites can be done by the following considerations. First, surgeons should be aware of these known complications of chylous ascites following left-sided LDN. Second, looking for the presence of any lymphatic leak intraoperatively after removal of the kidney before closing the wound. Lastly, and most importantly, all lymphatics vessels should be identified and clipped before cutting. Although, use of sealing devices and empirical application of hemostatic agents such as biological tissue adhesive and fibrin glue have been described, these methods are very expensive and rarely used.^[10]

Chylous ascites though rare is an important complication as it can cause malnutrition and immunodeficiency. Thus,



Figure 1: Lymphangiography showing leaking of contrast material (black arrow) in the left renal fossa

the early diagnosis of chylous ascites is important. CT is not specific for chylous ascites as the density of chyle is the same as that for simple ascites.^[11] Paracentesis can confirm the diagnosis where the ascitic fluid will be milky, sterile, and will have increased levels of triglycerides and protein. Lymphangiography can be used for the diagnosis of chylous ascites and identifying the exact location of lymphatic injury.^[12] Thus, lymphangiography is considered in patients planned for surgical repair for the exact localization of leakage site.^[13]

In spite of our knowledge of understanding of chylous ascites and an increasing number of cases, no clear guidelines are available for the management. Approach to treatment has been proposed by Jairath *et al.*^[14] based on drain output post-nephrectomy and response to conservative treatment. Patients with less than 1 L/day drain were initially managed conservatively for the lymphatic leak to seal spontaneously. Patients with large drain output of more than 1 L/d on presentation and those with continuing leakage in spite of conservative treatment were managed with surgical intervention aimed at ligating the persisting leaking lymphatics. The conservative approach includes therapeutic paracentesis, dietary modification, total parenteral nutrition (TPN), and the use of somatostatin analogs. This approach is just supportive and allows the leak to close on its own. Nutritional modifications include medium-chain triglycerides and high-protein and low-fat intake. Patient, if cannot comply with the oral diet, can be started on TPN. Early TPN had led to a faster resolution in some studies.^[11]

The role and timing of surgical intervention in the management of chylous ascites are evolving. In a case series by Aerts *et al.*,^[15] 7 out of 18 patients (39%) required surgical intervention for the treatment. One of the indication of surgical intervention is when lymphoembolisation fails. In surgical intervention, one has to identify leaking lymphatic and should clip it or suture ligation to be done; or sealing using fibrin glue.^[11,15-17] The exact timing of surgical intervention is controversial and previous studies recommend 4–12 weeks of conservative treatment before surgery.^[2,10,13,14] Early intervention can avoid the nutritional deficit and immunological consequences like decrease surgical site infection and early wound healing when compared to prolonged conservative treatment. The optimal time frame for surgical intervention and to identify which patients will not respond to conservative management is still unclear. Conservative management is preferred in patients with small to moderate drain output (less than 1 L/d) on presentation while early surgical intervention is preferred in patients with large drain output of chylous fluid (>1000 mL/day) or reaccumulation of chylous fluid within 48 h of paracentesis.

In conclusion, this case highlights a rare yet important complication of LDN, which clinicians should keep in mind

while evaluating the ascites postoperatively. Embolization of the lymphatic vessel can be attempted in the patients who are not responding to conservative management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Informed consent

A written informed consent was obtained from the patient to report this case.

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Conflicts of interest

There are no conflicts of interest.

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