

CASE REPORT

# First case report of chylous ascites after robot-assisted donor nephrectomy

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## Abstract

We present the first case report of chylous ascites following total robot-assisted donor nephrectomy. A 39-year-old female underwent a transperitoneal left-sided total robot-assisted donor nephrectomy. The procedure was uneventful and the patient was discharged without any symptoms. At postoperative Day 29, the patient presented with abdominal pain, nausea and a distended, painful abdomen with shifting dullness. She was diagnosed with chylous ascites by ultrasonography and puncture analysis, and treated with therapeutic drainage and dietary restriction. After 4 weeks, she was free of symptoms. The occurrence of this complication is rare after donor nephrectomy. Fortunately, the complication can be successfully treated within a few weeks with minimal discomfort for the patient as demonstrated in this case. It is of utmost importance to minimize the risks and limit discomfort for live kidney donors who willingly undergo major surgery to improve the well-being of another individual.

## INTRODUCTION

Chylous ascites is the leakage of fluid from transected lymphatic vessels after surgery. This complication usually occurs during abdominal aortic surgery and is an unusual complication following live donor nephrectomy. Live kidney donors are healthy individuals who willingly undergo major surgery to improve the well-being of another individual. Therefore, it is of utmost importance to minimize the risks of this procedure and thus maximize donor safety [1].

## CASE REPORT

A 39-year-old Mediterranean female with a BMI of 26, underwent an elective, living-related, transperitoneal left-sided totally robot-assisted donor nephrectomy using the *da Vinci*<sup>®</sup>

Surgical System. Donor nephrectomy was performed by a transplant surgeon and assisted by a second transplant surgeon, as described elsewhere [2, 3]. Briefly, the procedure was performed with the *da Vinci*<sup>®</sup> Surgical System S using three arms with a fenestrated bipolar forceps (*EndoWrist* bipolar cautery instrument; Intuitive Surgical, Sunnydale, USA) in arm 1, a monopolar cautery hook (*EndoWrist* Monopolar Cautery instrument; Intuitive Surgical, Sunnydale, USA) to dissect structures in arm 2 and the camera (3D Vision System 12 mm 30° endoscope; Intuitive Surgical, Sunnydale, USA) in arm 3. After full exposure of the kidney and vascular structures, a Pfannenstiel incision was made and an endo-bag (*Endocatch*; US surgical, Norwalk, USA) was introduced into the abdomen. Subsequently, the ureter was clipped and divided with scissors, and the renal artery and the vein were transected using an

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endoscopic stapler (EndoGIA; US Surgical, Norwalk, USA). The kidney was then placed in the endobag and extracted through the Pfannenstiel incision. Before removing all trocars, the renal bed and vascular stumps were inspected using the *da Vinci*<sup>®</sup>, and intra-abdominal hemostasis was performed with the fenestrated bipolar forceps. The operation field was found to be dry after which all incisions were closed intracutaneously.

Postoperatively, the patient was placed on dipidolor patient-controlled analgesia combined with paracetamol. During the postoperative recovery, she received anti-emetics for nausea on postoperative Day 1. She was discharged at postoperative Day 3 with a normal appetite and no wound problems. She received a prescription for anti-analgesia and anti-emetics.

On postoperative Day 11, she visited the outpatient clinic for a follow-up visit and the nausea was completely gone. However, she noted abdominal pain located on the right side near the iliac crest and reported two episodes of hematuria. Wound inspection showed no signs of infection. Laboratory results showed a decreased C-reactive protein (CRP) level and normal leukocyte count. The urine tested negative for a urinary tract infection. The differential diagnosis included postoperative pain as main reason for her complaints. On postoperative Day 19, the patient noted bright red fluid leakage from the Pfannenstiel incision without any further symptoms and contacted the nurse practitioner. It was decided that she would visit the outpatient clinic if the leakage would worsen or other complaints would emerge.

On postoperative Day 29, the patient visited the outpatient clinic for her scheduled 1-month postoperative follow-up visit. She still experienced pain in her abdomen which was mildly controlled with anti-analgesia. The pain progressed when she laid on her right or left side and, at night, her abdomen was more distended than usual. On physical examination, she had a distended abdomen, with tenderness on palpation on the right and the left side, and below the umbilicus, with a shifting dullness on percussion during movement. The differential diagnosis was ascites. An abdominal ultrasonography showed intraperitoneal fluid in all four quadrants of the abdomen and a diagnostic paracentesis demonstrated yellow fluid with a lipid aspect, suspected of being chylous ascites and confirmed by biochemical analysis showing positive triglycerides of 57.98 mmol/L. She was admitted to the hospital for drainage and a medium-chain triglyceride-based diet was started. On Day 4, she was discharged. The medium-chain triglyceride-based diet was continued for a total of 4 weeks after which a second abdominal ultrasonography was done, which showed no fluid in the abdomen. A normal diet was started without further complaints.

## DISCUSSION

In this case report, we describe the first reported complication of chylous ascites after total robot-assisted donor nephrectomy. This complication is more common in major oncological surgical procedures, where lymph nodes are often resected. Therefore, from an oncological point of view these patients often casually accept this complication. Nevertheless, healthy live kidney donors are different from patients who undergo extensive dissection damaging lymphatic vessels necessitating postoperative treatment.

In over three decades, >1500 live donor nephrectomies have been performed at our centre and never before have we encountered a case of postoperative chylous ascites after a donor nephrectomy. A review of the literature resulted in a total of 56 reported cases of chylous ascites after donor nephrectomy (Supplement 1). A huge contrast has been compared

with the thousands of live donor nephrectomies that have been published over the years. The occurrence of chylous ascites is low and the expectation is that this is an underestimation. There is no clear treatment pathway; however, a median chain triglyceride diet combined with a therapeutic drain or octreotide seems to be the first step. We could not identify any other reported cases of chylous ascites after robot-assisted donor nephrectomy [2, 4–7]. During a robot-assisted donor nephrectomy, it is not necessary to dissect the lymphatic tissues around the aorta and the origin of the renal artery. Larger lymphatics around the renal vessels are either clipped or sealed by modern energy devices. In our case, a fenestrated bipolar forceps and a monopolar cautery hook were used for dissection and sealing. However, with monopolar energy, although control of the lymphatics for a short time, necrosis can occur later on leading to leakage of large amount of chyle. This might explain our case of chylous ascites.

In conclusion, chylous ascites after donor nephrectomy is a rare complication. Caution is advised when using monopolar energy-sealing devices during surgery. The complication is often diagnosed after a few weeks, causing a delay in treatment. Fortunately, the complication can be successfully treated with conservative measures within a few weeks as demonstrated in this case.

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## CONFLICT OF INTEREST STATEMENT

None declared.

## SUPPLEMENTARY MATERIAL

Supplementary material is available at JSCREP Journal online.

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