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Case Report

Chylous ascites as a complication of laparoscopic living donor nephrectomy: A case report

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Living donor kidney transplantation has increased the number of organs available due mainly to the introduction of laparoscopic kidney extraction. However, this has resulted in the onset of rare complications in the donor such as chylous ascites whose rate of resolution with medical management is 60-100% with 6 weeks of parenteral feeding and fasting. To date only 22 cases of chylous ascites post-laparoscopic donor nephrectomy have been published. We present a 55 year old female patient who developed chylous ascites after left laparoscopic donor nephrectomy. She was discharged after 11 days of medical treatment based on parenteral feeding, diuretics and somatostatin analogues. Total centimetres in abdominal circumference reduction of 10 and disappearance of symptoms achieved.

Key words: chylous ascites, nephrectomy, living donor, MCTs, somatostatin.

INTRODUCTION

To encourage more people to become living donors, Ratner et al. (1995; 1997), introduced laparoscopic donor nephrectomy (LDN) in 1995. LDN emerged as a minimally invasive alternative with significant advantages over open surgery such as less postoperative pain, quicker return to normal activity and shorter hospital stay. However, this technique is not without complications, such as chylous ascites or chyloperitoneum, defined as the accumulation of chyle in the abdominal cavity as a result of disruption to the abdominal lymphatic system with an incidence of 6.4 to 16.5% in literature (Gagliano, 2011). In Urology onset usually follows retroperitoneal lymphadenectomy for testicular tumour (Baniel, 1995; Evans, 2006).

CASE REPORT

A 55 year old female donor complained of pain, diarrhoea (3-4 daily) and increasing abdominal distension one week after an initially uncomplicated left laparoscopic donor nephrectomy. Her medical history only referred a fracture of the right fibula fracture and irritable bowel syndrome. On physical examination, the patient presented a healthy surgical wound and distended abdomen (perimeter of 98 centimetres), with a positive fluid wave and tympanic abdominal percussion in all four quadrants, with no signs of acute abdomen. Bowel sounds were present whereas the vesicular murmur of the left pulmonary base is absent.

Laboratory results: haemoglobin 10.4 g/dL, white blood cell count 4.8 x10^3/mm^3, urea 19 mg/dL, creatinine 0.8 mg/dL, and 5.9 gr/dL proteins. The chest and abdominal CT scan with contrast revealed left pleural effusion and a large amount of ascites in all compartments with no other findings of interest (Figures 1 and 2).

Abdominal paracentesis was performed for diagnostic purposes and a milky liquid aspirated. Biochemical analysis of the sterile fluid revealed: pH 7.22, triglycerides 1861 mg/dL, proteins 33 g/dL and presence of chylomicrons. All these findings and the positive Sudan III staining confirmed the chyloperitoneum diagnosis.

We proceeded with conservative management administering: octreotide, parenteral nutrition and loop

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Figure 1. Abdominal CT with contrast coronal cut showing free abdominal fluid.

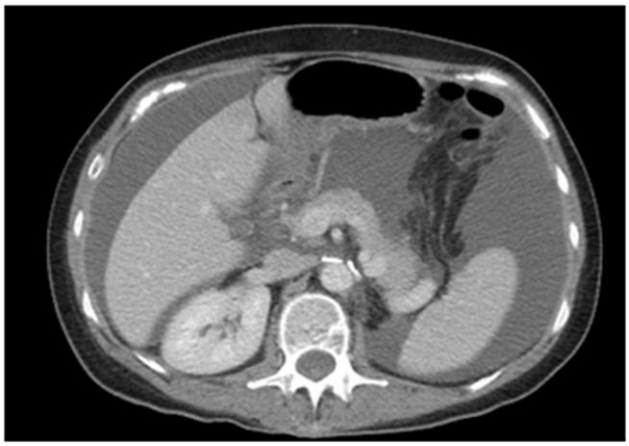

Figure 2. Abdominal CT with contrast axial cut showing free abdominal fluid

diuretics (furosemide) and potassium sparing (spironolactone). Low fat oral supplements introduced at 48 hours, together with daily abdominal circumference control to objectively assess evolution of the ascites fluid.
A lymphoscintigraphy was carried out to identify the chyloperitoneal fistula; however, it provided no data. This was most likely due to the large amount of free liquid with a low debit fistula.

By day 11 of treatment, the abdominal circumference had dropped 10 centimetres and patient was asymptomatic so we decided to start with diuretic descending pattern, and MCTs in addition to a low fat-low salt diet.

We ceased treatment one month after discharge and the abdominal ultrasound performed reveal low amounts of free abdominal fluid (Figure 3).

DISCUSSION

Although chylous ascites represent a rare complication of laparoscopic living donor nephrectomy, it may cause significant donor morbidity. However, the increase in keyhole surgery (pure and hand- assisted) has been associated with increased incidence of this pathology, ranging between 6.4% to 16.5%. Anatomical aspects and

Figure 3. Abdominal ultrasound one month after discharge

Table 1. Case reports on chylous acites after laparoscopic donor nephrectomy (*Hand- assisted Laparoscopic Donor Nephrectomy)

Author	Number of cases (year)
Shafizadeh et al.	1 (2002)
Molina et al.	1 (2003)
Geary et al.	1* (2004)
Wu et al.	1 (2004)
Sharma et al.	1 (2005)
Caumartin et al.	1 (2005)
Wadstrom	1* (2005)
Ramani et al.	1 (2005)
Leventhal et al.	3 (2006)
Breda et al.	2 (2007)
Bachmannn et al.	3 (2008)
Aerts et el.	3 (2010)
Gagliano et al.	1 (2011)
Ter Meulen et al.	1* (2013)

surgical techniques in their execution, are in themselves very important factors. No chylous ascites case has been mentioned post-right laparoscopic nephrectomy in living donor (Table 1).

Postoperative chylous ascites usually appear with symptoms of: abdominal pain or bloating, vomiting, dyspnoea along with signs of malnutrition and hypoproteinaemia several days or months after surgery. It may also occur as milky fluid oozing out the surgical wound or drainage. Only two cases of chylous ascites after open donor nephrectomy have been reported in the literature (Harkar, 2012). Cytochemical analysis of abdominal fluid rich in triglycerides (2-8 times that of plasma), protein> 3 g/dl and Sudan III staining confirmed this diagnosis (Liebovitch, 2002). Treatment of chylous ascites is primarily conservative, with an MCT rich diet and diuretics to reduce chyle production (Sharma, 2005).

A recent internet-based, multi-institutional survey published in the Asian Journal of Endoscopic Surgery (Tion, 2014), reported conservative therapy was successful close to 50% of patients analysed. It remains unclear whether medical treatment will be effective and or not.

Somatostatin administration has been associated with a rapid decline in the lymphatic fistula after 24 to 48hours' treatment (Ijichi, 2008; Huang, 2007). The somatostatin

mechanism is not fully understood; however, it is does reduce lymph production (García Correa, 2005). Lymphoscintigraphic evidence of fistula presence reveals the large output of the same and subsequent need for surgical correction. In our case lymphoscintigraphy did not provide any information.

To prevent postoperative chylous ascites we must avoid the lesión caused to the lymphatic vessels medial to the vascular pedicle during dissection as well as the Pneumoperitoneum increase from 10 to 15 mmHg. Leventhal et al (2004), modified the surgical technique to include a fibrin sealant application together with an ultrasonic scalpel to facilitate occlusion of lymphatic tissue.

Surgical management is typically reserved for cases refractory to medical management and includes open or laparoscopic approach (Molina, 2003) to chyle leakage with small clips, bipolar cauterization or, if possible, direct stitching with 4-0 monofilm sutures and a peritoneal-venous shunt.

Ashish Sinha et al (2010) initially opposed medical treatment of this pathology considering keyhole surgery the treatment of choice. According to their experience, the use of clips, harmonic scalpel or ligature, is more effective than diathermy due the negative effects of coagulation.

In conclusion, chylous ascites should be take into consideration, in patients referring abdominal pain or swelling after laparoscopic nephrectomy.

Early detection and medical treatment of this iatrogenic complication may avoid a second surgery.

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