

A novel therapeutic strategy for chylous ascites after gynecological cancer surgery: a continuous low-pressure drainage system

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Abstract

Purpose Postoperative chylous ascites is an unusual complication following retroperitoneal surgery. A search of the English literature showed only 44 cases of chylous ascites following gynecological cancer surgery. The treatment is primarily conservative, but surgical treatment is considered in resistant cases. We developed a novel non-surgical therapeutic strategy for postoperative chylous ascites.

Methods We report a case of severe chylous ascites following pelvic lymph node dissection for gynecological cancer.

Results Total abdominal hysterectomy, bilateral salpingo-oophorectomy, peritoneal washing, and systematic pelvic lymph node dissection were performed for a stage II G1 endometrioid adenocarcinoma (FIGO 2009). Forty-one days after surgery, the patient was readmitted due to massive ascites. Repeated paracentesis and a low-fat diet were only partially effective. Fifty-one days after surgery, we started paracentesis with a continuous low-pressure drainage system. Nine days later, there was no further fluid drainage. The patient was asymptomatic and without recurrent disease at follow-up 3 months later.

Conclusions Pelvic lymph node dissection may cause postoperative chylous ascites. Paracentesis with a continuous low-pressure drainage system can be an effective conservative treatment for postoperative chylous ascites.

Keywords Chylous ascites · Lymph node dissection · Gynecologic cancer · Conservative treatment · Serial paracentesis · Continuous low-pressure drainage system

Introduction

Chylous ascites is an accumulation of lymphatic fluid in the peritoneal cavity. Postoperative chylous ascites is an unusual complication caused by surgical trauma to the lymphatic vessels during retroperitoneal surgery. Treatment is primarily conservative, and is aimed at reducing chyle formation. Therapeutic strategies may include a low-fat diet with medium-chain triglycerides, total parenteral nutrition, octreotide, and paracentesis. In resistant cases, therapeutic lymphography, surgical ligation, or peritoneo-venous shunting may also be performed.

We report a case of severe chylous ascites following pelvic lymph node dissection for gynecological cancer. The patient was successfully managed with paracentesis with a continuous low-pressure drainage system. This treatment is simple, but very effective for postoperative chylous ascites.

Case report

A 60-year-old woman was referred to our institution with postmenopausal bleeding and cytodiagnosis of endometrial carcinoma. Histological examination of endometrial biopsy specimens showed a grade 1 endometrioid adenocarcinoma. Magnetic resonance imaging of the uterus showed a 20-mm mass at the internal cervical os, with possible myometrial invasion of more than 50 %. Computed tomography of the neck, chest, abdomen, and pelvis showed no evidence of extrauterine disease. Her CA125

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level was 32.2 UI/dL. She underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, peritoneal washing, and systematic pelvic lymph node dissection. There was no enlargement of pelvic lymph nodes. The proximal ends of the lymphatic vessels were ligated with 3-0 Vicryl at the common iliac arteries and cut. The distal ends of the lymphatic vessels were cut and sealed using bipolar scissors.

Pathological examination of the surgical specimen showed a stage II G1 endometrioid adenocarcinoma (FIGO 2009). All 37 lymph nodes were found to be free of disease.

In Japan, para-aortic lymphadenectomy is not always recommended in stage II endometrial cancer, but adjuvant chemotherapy or pelvic radiation therapy is recommended. Twenty-three days after surgery, she was hospitalized for adjuvant chemotherapy (carboplatin and paclitaxel). She was noted to have leakage of lymphatic fluid from her vagina at the time of admission. Ultrasonography showed a small amount of ascites. Cytology of the lymphatic fluid from her vagina was negative.

Forty-one days after surgery, she was readmitted because of abdominal distension due to massive ascites. The leakage from her vagina had stopped. Approximately 2 L of chylous ascites was drained via paracentesis (Fig. 1). The ascites re-accumulated, requiring a second paracentesis 4 days later, which drained approximately 3 L of fluid. She started a low-fat diet to try to manage the ascites. Her weight gain decreased from 500 to 100 g/day, but the ascites continued to accumulate.

Forty-nine days after surgery, approximately 2.5 L of chylous ascites was drained. Ascitic fluid analysis showed the following results: triglyceride level 677 mg/dL (normal range in serum: 40–130 mg/dL), total cholesterol 84 mg/dL (normal range in serum: 130–200 mg/dL), and protein 3.2 g/dL (normal range in serum: 6.5–7.2 g/dL).

Her serum protein concentration was 4.3 g/dL (normal range: 6.5–7.2 g/dL) and serum albumin concentration was 2.1 g/dL (normal range: 3.8–5.3 g/dL).

Fifty-one days after surgery, we placed a drainage catheter (Aspiration Kit: 8Fr) in her peritoneal cavity, attached to a continuous low-pressure drainage system (Hama Servo-Drain SD-2000). Suction was set at 10 mm H₂O, continuing for 15 s out of every 60 s (Fig. 2). On the first day, approximately 5 L of chylous ascites was drained. The amount of drainage reduced gradually to 0.3 L/day 5 days later. Sixty days after surgery, there was no further fluid drainage (Fig. 3). The catheter was removed and the patient returned to a normal diet. The ascites did not re-accumulate. She was asymptomatic and without recurrent disease at follow-up 3 months later.

Discussion

A search of the English literature showed only 44 cases of chylous ascites in patients with gynecological cancer, of which only 15 cases had ascites following retroperitoneal lymph node dissection without radiotherapy. Only five cases of chylous ascites have been reported following pelvic lymph node dissection without further lymph node dissection or radiotherapy [1–3]. As we report in this case, pelvic lymph node dissection may cause postoperative chylous ascites. Before her admission for chemotherapy, the lymphatic fluid was leaking out through her vagina. After the vaginal wound closed, chylous ascites became apparent.

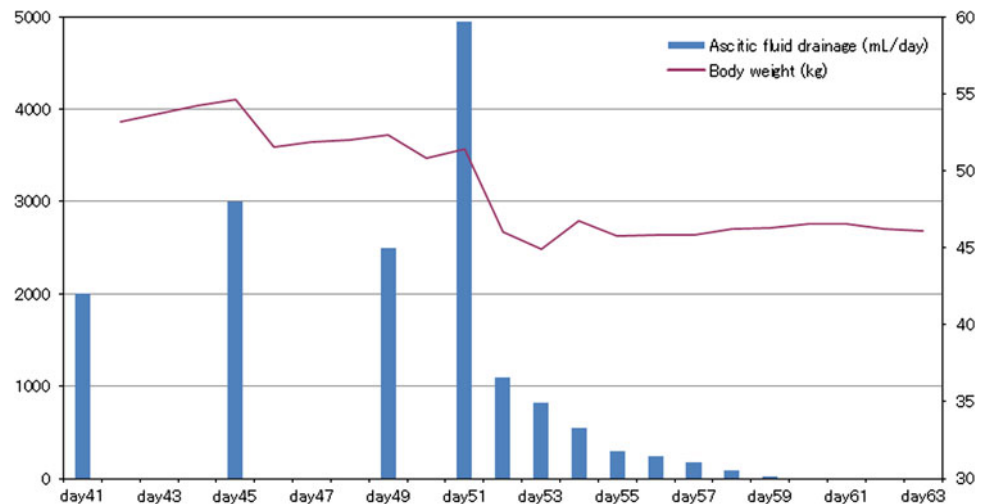
Han et al. [3] reported 7 (0.17 %) cases of chylous ascites among 4,119 patients who underwent pelvic or/and para-aortic lymph node dissection for gynecological cancer. Despite the low incidence, the cause-specific mortality rate was high at 11.5 % [4].



Fig. 1 Chylous ascites



Fig. 2 Hama Servo-Drain SD-2000

Fig. 3 Daily ascitic fluid drainage and body weight

Treatment is primarily conservative, and is aimed at reducing chyle formation. Therapeutic strategies may include a low-fat diet with medium-chain triglycerides, total parenteral nutrition, octreotide, and paracentesis [1]. In resistant cases, therapeutic lymphography, surgical ligation, or peritoneovenous shunting may also be performed [5–7]. Therapeutic lymphography using lipiodol was only found to completely occlude the lymphatic leak in 70 % of patients when the lymphatic drainage volume was <500 mL/day [5]. Surgical ligation was reported to fail in more than 50 % of cases [8]. Peritoneovenous shunting may be complicated by loss of shunt patency, sepsis, hypokalemia, or disseminated intravascular coagulation [4]. It is therefore important to improve conservative management of this condition.

Although some reports suggest that serial paracentesis may perpetuate chylous ascites [9], Han et al. [3] reported seven cases of postoperative chylous ascites which were successfully managed mainly with serial paracentesis. They reported that the mean time to resolution was 13 days (range 2–28 days). Our case resolved in 9 days, in spite of initially having severe leakage.

We used a continuous low-pressure drainage system for the following reasons. First, we thought that maintaining negative pressure in the peritoneal cavity would result in earlier closure of the chylous fistula. Negative pressure may assist in closing the valves in the lymphatic channels. Second, this system keeps the drainage tube clean by avoiding backward flow. The triglyceride level in the ascitic fluid was extremely high, which is typical of chylous ascites and carries an increased risk of infection. The serum protein concentration was low, indicating malnutrition and possible immune compromise. Insertion of active suction into the abdominal cavity carries some risks, such as bowel irritation or obstruction. To minimize these risks, we applied only

low-pressure suction. We used a drainage tube with side holes to avoid damage to intra-abdominal tissues.

A low-fat diet may have reduced chyle formation in our case, but did not stop it (Fig. 3). In some reported cases, a low-fat diet or octreotide were continued for 6 weeks after the resolution of chylous ascites [2, 10]. We stopped the low-fat diet at the time of resolution, and there was no re-accumulation of the chylous ascites.

In conclusion, paracentesis with a continuous low-pressure drainage system can be an effective conservative treatment for postoperative chylous ascites.

Conflict of interest We declare that we have no conflict of interest.

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