

CASE REPORT / OLGU SUNUMU

## Late onset of chylous ascites following distal gastrectomy with D1(+) dissection for gastric cancer: A case report

*Mide kanseri nedeniyle distal gastrektomi ve D1 (+) diseksiyon sonrası geç ortaya çıkan şilöz asit: Olgu sunumu*

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### ABSTRACT

Chyloperitoneum is the accumulation of lymphatic fluid in the peritoneal cavity. Chylous ascites can occur if it is not recognized during surgery. The incidence of chylous ascites after oncological surgery was approximately 7.4% however, the incidence of lymphorrhea after radical gastrectomy for gastric cancer is so low. Extensive lymph node dissection leads to a higher incidence of lymphorrhea. There have been few cases associated with D1 dissection. In most patients conservative treatment is recommended that includes paracentesis, total parenteral nutrition (TPN), a medium chain triglyceride (MCT) based diet, and somatostatin. Surgery is the last choice only when conservative treatment fails. In this case we aimed to present a late onset of chylous ascites after subtotal gastrectomy and D1+ dissection that was treated with percutaneous drainage and conservative management.

**Key words:** Gastric cancer, chylous ascites, D1 (+) dissection

### INTRODUCTION

Chyloperitoneum is the accumulation of lymphatic fluid in the peritoneal cavity. Chylous ascites can occur if it is not recognized during surgery. The incidence of chylous ascites after oncological surgery was approximately 7.4%, however, the incidence of lymphorrhea after radical gastrectomy for gastric cancer is so low [1]. The incidence of chylous ascites after gastrectomy with D1-2 dissection was reported 1.99%, however, D3-4 lymphadenectomy is associated with higher incidence of lymphorrhea as 6.30%, indicating that extensive lymph node dis-

### ÖZET

Şiloperiton periton boşluğunda lenfatik sıvının birikmesidir. Ameliyat esnasında fark edilmezse şilöz asit oluşabilir. Onkolojik cerrahi sonrası şilöz asit insidansı yaklaşık olarak %7,4 olmasına rağmen radikal gastrektomi sonrasında lenfore gelişme insidansı oldukça düşüktür. Geniş lenf nod diseksiyonu daha yüksek oranda lenforeye neden olmaktadır. D1 diseksiyon sonrası az sayıda vaka mevcuttur. Birçok şilöz asit gelişmiş hastanın tedavisinde paracentez, total parenteral nutrisyon, orta zincirli yağ asiti bazlı diyet, ve somatostatin önerilmektedir. Cerrahi ancak konservatif tedavinin sonuç vermediği hastalarda son seçenektir. Bu olguda mide kanseri için distal subtotal gastrektomi ve D1(+) diseksiyon yapılmış bir hastada geç ortaya çıkmış şilöz asitin perkütan drenaj ve konservatif yöntemle tedavi yönetimini sunmayı amaçladık.

**Anahtar kelimeler:** Mide kanseri, şilöz asit, D1 (+) diseksiyon

section leads to a higher incidence of chylous ascites. There have been few cases associated with D1 dissection [2].

Despite the increasing incidence of chylous ascites in recent time the treatment is still unsatisfactory in some cases because of the prolonged disease process. In most patients conservative treatment is recommended that includes paracentesis, total parenteral nutrition (TPN), a medium chain triglyceride (MCT) based diet, and somatostatin. Surgery is the last choice only when conservative treatment fails [3].

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Here, we present a case of chylous ascites after distal gastrectomy with D1+ lymph node dissection successfully treated with TPN, somatostatin and regimen changes to MCT based low-fat diet.

## CASE REPORT

An 84 year-old man was admitted to our hospital for treatment of gastric cancer in May 2015. Preoperative endoscopic diagnosis was done at another hospital and revealed a 5x4.5 cm depressed-type lesion in the lower third of stomach. Pathological evaluation diagnosed mucinous adenocarcinoma with intermediate differentiation. Preoperative computerized tomography (CT) examination showed positive perigastric lymph node metastasis but no any distant. The patient underwent distal gastrectomy with D1+ dissection by using electrotome cautery. Billroth 2 gastroenterostomy anastomosis and Braun's enteroenterostomy was performed for reconstruction, and a drain was placed under the left liver lobe from the right upper abdomen. The pathological staging was T4b, N2 (6/22), M0 and stage IIIC according to American Joint Committee on Cancer (AJCC) TNM Staging Classification for Carcinoma of the Stomach (7th edition 2010).

On postoperative day 3, the patient was allowed oral intake of food. The drain output was 50-100 cc clear fluid and decreased at the following days and removed at postoperative day 6 after ultrasonographic examination of abdomen. On postoperative day 7 fever higher than 38°C occurred and CT scan for intra abdominal abscess was performed. 54x25 mm. loculated fluid collection that did not show significant contrast enhancement between the left lobe of the liver and the anterior boundary of the head of the pancreas was revealed (Figure 1). Chest X-ray showed atelectasis in the left lower lobe and pneumonic infiltration. WBC count was 7400 mm<sup>3</sup> and CRP was 15.7 mg/dl. This result was thought to be as usual postoperative findings. We guess the fever was related to pneumonic infiltration. According to the infectious diseases consultation Imipenem 4x500 mg started and continued for 7 days. On postoperative day 14 the blood tests got normal and there was no fever again during the course, so by

permission of infection diseases reconsultation he was discharged with enteral nutrition treatment.

He admitted to hospital because of abdominal pain and distension postoperative day 21. Physical examination revealed an increasing abdominal girth and ascites. There was no peritoneal irritation finding. WBC count was 9900 mm<sup>3</sup> and CRP was 9.7 mg/dl. Diffuse ascites was also confirmed by ultrasound examination. A percutaneous peritoneal drainage catheter was placed in the peritoneal cavity by the ultrasonographic view. Approximately 3 lt of white-milky odorless fluid was drained which had high triglyceride level (760 mg/dl) (Figure 2). Gram stain and bacterial cultures were negative. Oral intake was discontinued immediately and a central line catheter was introduced and parenteral nutrition started. Somatostatin was started also as continuous intravenous infusion at a dose of 3 mg per 12 h. The drain discharge became clear on the third day and decreased from 1500cc to 350cc/day. Somatostatin infusion was stopped on the day 4 when drain discharge was 50cc. An enteral nutrition containing medium chain triglycerides (MCTs) and low fat (1gr/day) diet was started and gradually increased the fat of the diet. In control blood tests, WBC count was 7600 mm<sup>3</sup> and CRP was 1.26 mg/dl. The drain tube was removed on post drainage day 14 and the patient was discharged uneventfully. A verbal consent was obtained from the patient for publication of this case report and accompanying images.



**Figure 1.** Abdominal computerized tomography slice shows 54x25 mm. loculated fluid collection.



**Figure 2.** Chylous ascites after percutaneous drainage.

## DISCUSSION

A consensus on the definition of chylorrhea has not been reached; however, Griniatsos et al. [4] proposed the criteria for diagnosis of chylorrhea to be the presence of a non-bloody, amylase- and bilirubin-free, triglyceride rich, milky or creamy peritoneal fluid in the drainage tube or on aspiration from postoperative day 3 onward, independent of the amount of fluid drained daily.

Generally it occurs immediately after restart of oral intake on the early postoperative days, but in our case it appeared after patient's discharge. As we considered the CT findings as postoperative usual changes, when we look retrospectively maybe the chylous fluid collection had began but because the clinic course of the patient was not worsened and recovered well we did not need to make a control abdominal CT scan before discharge. If we had done maybe we would detect the chylous ascites accumulation earlier before the patient discharge. We guess that the cause of chylous ascites in this case was due to anatomical variation, because D1+ dissection does not typically cause injury to the lymphatic trunks, cisterna chyli, or thoracic duct [5]. McVay has described 16 distinctive anatomic variants of the abdominal lymphatic plexus and cisterna chyli [6]. Surgeons who practice thoraco-abdominal oncological surgery should be aware of the inconsistent anatomy of thoraco-abdominal lymphatic system and the variations as well.

Total parenteral nutrition can reduce the lymph flow in the thoracic duct from 220 ml/kg/h to 1 ml/kg/h and can restore the nutritional deficits [6]. MCT oil low-fat diet can decrease chyli flow and maintain proper nutrition because MCTs are directly transported into intestinal cells. Cardenas et al. recommended MCTs as a first line therapeutic option; which can be combined with TPN also [7]. Somatostatin also remains an uncertain or second-line therapy in management of chylous ascites. In a review in 2000; somatostatin is recommended only in combination with TPN as an unproved alternative method [6]. TPN had failed in another algorithm in 2002 which had recommended somatostatin therapy only after a period of combined dietary intervention [8]. It has specific receptors in the normal lymphatic vessels of the intestinal wall, decrease the intestinal absorption of fats, lower the triglyceride concentration in the thoracic duct and attenuate lymph flow in the major lymphatic channels [6-8].

Postoperative chylous ascites may become a difficult problem for patient with comorbid disease and low performance status due to the primary surgery. Our patient responded to conservative treatment without any other complications even though advanced age, comorbid disease, nutritional depletion and late diagnosis of chylous ascites. In conclusion, chylous ascites after D1+ dissection does not typically cause injury to the lymphatic trunks, cisterna chyli, or thoracic duct but variations of lymphatic system should be remembered. As generally, chylous ascites occurs immediately after restart of oral intake on the early postoperative days, but it can also begin after several days of oral intake after discharge of the patient. In spite of the serous drainage, postoperative abdominal fluid collection with fever, leukocytosis and no peritoneal irritation signs should bring to physicians' mind the probability of chylous ascites after radical gastrectomy. Conservative therapy with percutaneous drainage can also be effective on late occurred or diagnosed chylous ascites.

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