Turk J Surg 2017; 33: 123-125
DOI: 10.5152/UCD.2015.2920

Case Report

# A rare cause of acute abdomen: Chylous ascites

Cemal Kaya, Pınar Yazıcı, Kinyas Kartal, Emre Bozkurt, Mehmet Mihmanlı

ABSTRACT

Chylous ascites, defined as a lipid-rich fluid accumulation in the peritoneal cavity, is a rare pathology of the lymphatic system and is a very rare cause of acute abdomen. It is generally associated with diseases such as cancer, cirrhosis, inflammatory diseases, surgery, or trauma. In this study, we report a patient with chylous ascites, which mimics acute appendicitis. Diagnosis and treatment procedures were discussed.

**Keywords:** Acute abdomen, appendectomy, chylous ascites

## INTRODUCTION

Chylous ascites is the accumulation of lipid-rich fluid in the peritoneal cavity and was first described by Morton in 1691 (1). It usually occurs secondary to chronic disorders including lymphoma, various cancers, liver cirrhosis, and infectious diseases such as tuberculosis. Traumatic injuries to the lymphatic system are also found to be related to chylous ascites (2). Chylous ascites is responsible for 0.5% of all acid-making pathologies and less than 1% of all malignant ascites (3). Clinical findings are related to the ascites volume. Rapid accumulation of the fluid in the peritoneal cavity may lead to acute abdomen, whereas the same volume is well tolerated by patients who have chronic disorders.

## CASE PRESENTATION

A 30-year-old male was admitted to the emergency department with abdominal pain, loss of appetite, nausea, and vomiting for the last two days. He had acute onset pain that was primarily felt at the epigastrium. There were no special features in his medical history. His overall health condition was not affected, showing a temperature of 38.4°C, heart rate at 100 beats per minute, and arterial pressure of 125/75 mm-Hg. On physical examination, bowel sounds were found to be hypoactive, and rebound tenderness was observed on the right lower abdominal quadrant. The rectal digital examination was unremarkable. The laboratory results showed only an elevated white blood cell count [$14\times10^6$/L (normal range: $3.8\times10^6$–$10.0\times10^6$ /L)]. Abdominal ultrasonography revealed an 8-mm diameter, blind-ending non-compressible intestinal segment with free intra-abdominal fluid. As the findings were thought to be suspicious for acute appendicitis, the patient was subsequently taken to the operating room. After the abdominal cavity was entered through McBurney's incision, approximately 600 cc of free "milky" fluid was discovered. The appendix was in the normal location but was hyperemic and edematous. Therefore, appendectomy was performed. Laparotomy was then performed for further evaluation, and an edematous area was observed within the small bowel mesentery with enlarged lymphatic vessels. The abdominal cavity was carefully inspected for associated pathologies, but there was no specific pathology related to chylous ascites. After a peritoneal lavage with warm saline solution and the insertion of drains, the midline incision was closed.

The patient's recovery period was uneventful. He received nothing peroral for 5 days and then was gradually given a full (fat-free) diet. During five-day period, he received intravenous antibiotics (ceftriaxone 1 g ×2), total parenteral nutrition, and octreotide acetate (Sandostatin) injection 2×0.1 mg/sc. In the first postoperative day, the maximum amount of chylous drainage (250 cc) was observed (Figure 1), and less than 30 mL of serous fluid was detected on the second day. The laboratory investigation of the fluid from the drains showed the levels of triglyceride to be as high as 541 mg/dL. The results of the serum and drain fluid tests are shown in Table 1.

The drain was removed on the 5$^{th}$ day postoperatively, and he was discharged on the 7$^{th}$ day postoperatively. No bacterial growth or atypical cytology was observed in the evaluation of the acid fluid. The histopathological examination of the appendix showed acute edematous appendicitis. Thoraco-abdominal computed tomography and lymphoscintigraphy were performed in

**Cite this paper as:**
Kaya C, Yazıcı P, Kartal K, Bozkurt E, Mihmanlı M. A rare cause of acute abdomen: Chylous ascites. Turk J Surg 2017; 33(2): 123-125

Clinic of General Surgery, Şişli Hamidiye Etfal Training and Research Hospital, İstanbul, Turkey

**Address for Correspondence**
**Cemal Kaya**
e-mail: drcemalkaya@gmail.com

Received: 23.09.2014
Accepted: 02.12.2014
Available Online Date: 06.07.2015

Figure 1. The "chylous" fluid in the pelvic drainage catheter

Table 1. Comparative laboratory analysis of the fluid and the blood tests

| Parameters | Drainage fluid | Simultaneous serum assays |
|---|---|---|
| Triglycerides | 541 mg/dL | 32 mg/dL |
| Cholesterol | 92 mg/dL | 60 mg/dL |
| Density | 1020 | - |
| Microprotein | 3721.7 mg | - |
| Microalbumin | 33.2 mg | - |

the postoperative period for elucidating the acid etiology. No pathological findings were observed in these imaging tests.

## DISCUSSION

Acute chylous peritonitis results from a sudden outpour of chyle into the peritoneal cavity (4). Chylous ascites can be caused by many reasons such as peritoneal bacterial infections, parasitic diseases, tuberculosis, liver cirrhosis, malignant tumors, surgery, blunt abdominal trauma, and congenital defects of the lymphatic system (1, 5). In adults, cancer is the most frequent cause of chylous ascites.

Chylous ascites also can spontaneously occur in some patients with no discernible etiologic factor. In medical literature, acute chylous peritonitis is most frequently diagnosed in young adults mostly during surgery for acute appendicitis (6). Likewise, in this case, the preoperative diagnostic tests were suspicious for acute appendicitis. In patients with chylous ascites, the loculation of ascitic fluid is generally observed in the right paracolic area; therefore, right lower quadrant pain is the most prominent symptom. In medical literature, we found five patients with spontaneous chylous ascites that clinically mimic acute appendicitis. As in our case, none of these patients had a significant reason for the etiology of ascites (7, 8).

Diagnostic methods, including computed tomography, lymphangiography, and lymphoscintigraphy, are of great importance for the investigation of the etiology of chylous ascites. With lymphoscintigraphy, lymph flow rate and peritoneal fistulas can be evaluated (8). In our study, however, lymphoscintigraphy was not useful to detect the leak, probably because of low output chyle leak.

The treatment options of chylous peritonitis are based on the underlying diseases. Surgery can be effective in both diagnosis and treatment. Laparoscopic exploration can be an alternative to open surgical techniques and may be beneficial for the postoperative period (9). Drainage catheter placement next to the probable source of the leakage observed is useful to examine the volume and efficacy of the treatment in the follow-up period. A low-fat diet rich in medium-chain triglycerides for reducing lymphatic flow is suggested to be effective in the treatment. This type of diet would be more effective, especially if the leakage is secondary to the intestinal lymphatic system. Parenteral nutrition and octreotide treatment can substantially reduce chylous ascites resulting in low lymphatic flow (7, 10, 11).

## CONCLUSION

Chylous peritonitis is a very rare condition, which can cause acute abdomen. A meticulous exploration should be performed for elucidating the etiology. The choice of surgical technique depends on the experience of the surgical team. In the postoperative period, diagnostic tests may be helpful to clarify the etiopathogenesis.

**Informed Consent:** Written informed consent was obtained from patient who participated in this case.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - C.K., K.K.; Design - P.Y., K.K.; Supervision - P.Y., M.M.; Funding - E.B., C.K.; Materials - E.B., K.K.; Data Collection and/or Processing - E.B., C.K.; Analysis and/or Interpretation - C.K., M.M.; Literature Review - E.B., C.K.; Writer - P.Y., K.K., C.K.; Critical Review - P.Y., M.M.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

1. Browse NL, Wilson NM, Russo F, al-Hassan H, Allen DR. Aetiology and treatment of chylous ascites. Br J Surg 1992; 79: 1145-1150. [CrossRef]
2. Cárdenas A, Chopra S. Chylous ascites. Am J Gastroenterol 2002; 97: 1896-1900. [CrossRef]
3. Ferrans VJ, Yu ZX, Nelson WK, Valencia JC, Tatsuguchi A, Avila NA. Lymphangioleiomyomatosis (LAM): a review of clinical and morphological features. J Nippon Med Sch 2002; 67: 311-329. [CrossRef]
4. Steinemann DC, Dindo D, Clavien PA, Nocito A. Atraumatic chylous ascites: systematic review on symptoms and causes. J Am Coll Surg 2011; 212: 899-905. [CrossRef]
5. Smith EK, Ek E , Croagh D, Spain LA , Farrell S. Acute chylous ascites mimicking acute appendicitis in a patient with pancreatitis. World J Gastroenterol 2009; 15: 4849-4852. [CrossRef]
6. Fang FC, Hsu SD, Chen CW, Chen TW. Spontaneous chylous peritonitis mimicking acute appendicitis: a case report and review of literature. World J Gastroenterol 2006; 12: 154-156. [CrossRef]
7. Hardy SC, Yu A, Fieldman NR. Acute chylous effusion with peritonism. Eur J Surg 1992; 158: 511-512.
8. Fazili FM, Khawaja FI. Acute chylous peritonitis simulating acute appendicitis: a case report and review of the literature. Ann Saudi Med 1999; 19: 236-238. [CrossRef]

9. Vettoretto N, Odeh M, Romessis M, Pettinato G, Taglietti L, Giovanetti M. Acute abdomen from chylous peritonitis: A surgical diagnosis. Eur Surg Res 2008; 41: 54-57. [CrossRef]
10. Benedix F, Lippert H, Meyer F. Post-surgical lymphocutaneous fistula, chylous ascites and chylothorax--infrequent but serious complications: etiology, diagnosis and therapeutic options. Zentralbl Chir 2007; 132: 529-538. [CrossRef]
11. Zeidan S, Delarue A, Rome A, Roquelaure B. Fibrin glue application in the management of refractory chylous ascites in children. J Pediatr Gastroenterol Nutr 2008; 46: 478-481. [CrossRef]