A Case of Volvulus of the Small Intestine with Chylous Ascites in which Strangulation was Successfully Relieved Using A Long Intestinal Tube: A Case Report

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Abstract
Background: Chylous ascites has been uncommonly observed with bowel obstruction. This unusual phenomenon may be secondary to various disease processes with a correct diagnosis seldom made preoperatively.

Case presentation: The patient was a 64-year-old man with a medical history of distal gastrectomy for gastric cancer over 30 years ago. We diagnosed him with internal volvulus by several examinations and decided to perform emergency laparotomy. His abdominal pain improved markedly after inserting a long intestinal tube. At laparotomy, there was a large amount of chylous ascites in the abdomen. Despite an edematous small intestine with prominent lymphatic vessels, the cause of the volvulus was unclear, and there was also no evidence of ischemic change in the small intestine. A biochemical analysis of the peritoneal fluid revealed elevated values of triglyceride levels.

Conclusion: We experienced a case of volvulus of the small intestine with chylous ascites in which strangulation was successfully relieved using a long intestinal tube.

Introduction
A large amount of ascites can accompany bowel obstruction with non-viable bowel loops [1]. Ascites is occasionally bloody [2] and can be seen in obstruction cases requiring intestinal resection. Chylous ascites, however, has been uncommonly observed with bowel obstruction. This unusual phenomenon may be secondary to various disease processes, with a correct diagnosis seldom made preoperatively.

We herein report a case of a large amount of chylous ascites associated with small bowel obstruction that was successfully treated without bowel resection.

Case Presentation
The patient was a 64-year-old man with a medical history of distal gastrectomy for gastric cancer over 30 years ago. He came to our hospital with the chief complaint of sudden hypogastrum pain and distention after a meal. A physical examination on arrival showed tenderness and distention in the whole abdomen. Rebound tenderness and muscular defense were also observed. The laboratory data are shown in Table 1. Results showed high values for the white blood cell (WBC) count and creatine kinase (CK). Abdominal computed tomography (CT) revealed slight ascites, dilatation of the small intestine and whirl sign in the superior mesenteric artery (Figure 1). Given these findings, we diagnosed the patient with internal volvulus and decided to perform emergency laparotomy. A long intestinal tube was inserted before the operation (Figure 2), which resulted in the resolution of his abdominal pain and nausea and improvements of his peritoneal irritation sign.

Figure 1: Abdominal CT revealed slight ascites, dilatation of small intestine and whirl sign with the superior mesenteric artery

Keywords: Chylous ascites; Volvulus; Long intestinal tube

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Received: January 20, 2019; Accepted: January 28, 2019; Published: January 31, 2019
Shibata H (2019) A Case of Volvulus of the Small Intestine with Chylous Ascites in which Strangulation was Successfully Relieved Using A Long Intestinal Tube: A Case Report

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Table 1: Laboratory date in admission

Figure 2: The patient was inserted a long intestinal tube before operation

The intraoperative findings showed chylous ascites in the abdomen (Figure 3). Almost no adhesion from his previous operation was noted. A full inspection revealed an edematous area within the small bowel mesentery with prominent lymphatic vessels (Figure 4). There was no obvious volvulus or defect within this area of the mesentery; the volvulus appeared to have resolved. The entire small intestine was edematous but viable, so resection was not required.

Figure 3: The intraoperative findings showed amount of chylous ascites in the abdomen. The fluid was bacteriologically sterile.

Figure 4: The entire small intestine was edematous with prominent lymphatic vessels

A biochemical analysis of the peritoneal fluid revealed elevated values of lipases (622 U/l), amylases (325 U/l) and triglycerides (245 mg/dl). The triglycerides and proteins in plasma were within the normal range just like the serum amylase level. The fluid was bacteriologically sterile.

The postoperative period was uneventful, and the patient was discharged on the 10th postoperative day.

Discussion

Chylous ascites associated with intestinal obstruction was first described by Mackman in 1967 [3]. Chylous ascites is characterized by lymphatic fluid leaking into the abdominal cavity and has a prevalence of about 1 in every 20,000 admissions to hospital care [4]. High triglyceride levels (typically >200 mg/dl) in the ascitic fluid are critical for defining chylous ascites [5]. In the present case, the triglyceride level in the ascites was 245mg/dl, so we diagnosed the patient with chylous ascites.

Since the pressure in the lymphatic system is lower than that of the vascular system, the potential for the occurrence of strangulated ileus
presenting with chylous ascites has been suggested to be the result of the lymph flow being interrupted even in cases of strangulation that do not completely interrupt blood flow. As such, previous reports of volvulus of the small intestine with chylous ascites have described no need for enterectomy, with an uneventful postoperative course [6].

In the present case, our patient showed strong abdominal pain with rebound tenderness and guarding on admission. Furthermore, abdominal CT revealed slight ascites, dilatation of the small intestine and whirl sign in the superior mesenteric artery. These findings indicated strangulated ileus with bowel ischemia, and suggested the need for an emergency operation. Because there was only a short time available until the operation had to be performed, a long intestinal tube was inserted into our patient after which his abdominal pain markedly improved. However, the cause of the volvulus was unclear and there was no evidence of ischemic changes in the small intestine at laparotomy.

The preoperative abdominal findings after inserting the long intestinal tube, suggested that the volvulus was improve by this approach in our patient. The volvulus of small intestine with chylous ascites was incomplete strangulation not accompanied by ischemic change. To our knowledge, this is the first report to describe the efficacy of a long intestinal tube for the conservative treatment of volvulus with chylous ascites.

Strangulation ileus is a critical condition leading to emergency surgery, and such patients require an early diagnosis and a prompt decision concerning surgery [7]. The Bologna guidelines recommended that our patient undergo urgent exploration due to the presence of signs of strangulation, such as whirl sign and ascites [8]. However, in some cases, inserting a long intestinal tube before any operation can be effective.

Acknowledgements

This case report is not supported by any grants.

Conflict of Interests (CoI)

The authors declare that they have no conflict of interests.

References