CASE REPORT

Chylous ascites due to signet ring cell gastric adenocarcinoma

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Abstract

"Chylous ascites is a rare presentation of peritoneal effusion. The signet ring cell gastric adenocarcinoma is also relatively rare presentation of gastric cancer. We present a quite rare case of chylous ascites associated with signet ring cell gastric adenocarcinoma. Case report: a 47-years-old Caucasian man presented to our emergency department with abdominal distention. The abdominal ultra-sound showed high volume ascites and the diagnostic paracentesis revealed milk-like peritoneal fluid rich in triglycerides. He was underwent to medium chain triglycerides based diet, total parenteric diet and treatment with somatostatin without response. Due to presented digestive hemorrhagic events, upper digestive endoscopy was performed and revealed signet ring cells gastric adenocarcinoma on biopsy. The patient died in disseminated intravascular coagulation context. Conclusion: chylous asicites is a rare presentation of ascites and it may be associated with abdominal neoplasm. The prompt diagnosis is important for optimize the etiology evaluation and therapeutically approach."

Key words: Carcinoma, chylous ascites, paracentesis, signet ring cell, stomach neoplasm

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Introduction

Chylous ascites is defined as accumulation of milk-like peritoneal fluid rich in triglycerides in the abdominal cavity due to the presence of thoracic or intestinal lymph.[1] It is related to disruption of the lymphatic system caused by traumatic injury, congenital defects of the lymphatic system, inflammatory disease, liver cirrhosis or by benign or malignant process.[2,3] It is a very rare entity and its incidence is about 1 per 20.464 hospital admissions.[3] Malignant ascites usually account 10% of all cases of ascites and it may be caused by ovarian, endometrial, breast, esophageal, lung, colorectal, prostate or gastric cancer.[4,5] Signet ring cell gastric adenocarcinoma is a relatively rare disease and its incidence is between 3.4%.[6] and 15.3%[7] of all gastric cancers. Patients with this histology tend to be young and female.[6] This paper reports a quite rare case of chylous ascites associated with signet ring cell gastric adenocarcinoma and highlights the difficulties regarding diagnoses and some literature issues.

Case Report

A 47-year-old Caucasian man presented to our emergency department with abdominal distention, loss of weight about 10% last month, postprandial fullness, asthenia, and anorexia. He had medical history of high alcohol consumption about 100 g daily, myocardial infarction in 1997, and percutaneous coronary angioplasty with stent placement. He had no surgical and familial relevant history. On physical examination, he had ascites without signs

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of chronic hepatic disease. The abdominal ultrasound confirmed ascites and also showed mild hepatomegaly.

Hematology and biochemistry investigation on presentation demonstrated thrombocytopenia (65000/μL), alteration in coagulation study (Activated Partial Tromboplastin Time 42 seconds and fibrinogen level 534 mg/dL), high C-reactive protein (105.3 mg/dL), elevated alkaline phosphatase (808 UI/L) and gama glutamyl transferase (71 UI/L), and normal transaminases and bilirrubins levels.

He was transferred to the internal medicine ward. Paracentesis was performed and showed milk-like fluid rich in triglycerides (2225 mg/dL), diagnosing chylous ascitis. He started medium chain triglycerides (MCT)-based diet. The patient did not have good response and thus it was performed total parenteral nutrition (TPN) and somatostatin therapy. In order to exclude obstructive lesions, thoracic-abdominal computed tomography (CT) scan was performed and it revealed para-tracheal, mediastinic, tracheobronchic and prevascular lymph node enlargement [Figure 1]. The patient followed with hemorrhagic events including hematuria and melena. Upper digestive endoscopy showed infiltrative ulcerated gastric lesions with signs of bleeding [Figure 2]. The lesions histology revealed signet ring cell gastric adenocarcinoma. He evolved with progressive thrombocytopenia refractory to transfusion support, bleeding difficult to control, worsening of anemia with emergence of abundant schizocytes in blood smear and a disproportionate increase of indirect bilirrubin; thus, it was diagnosed disseminated intravascular coagulation. The patient developed respiratory failure and died on day 20 of hospitalization.

Discussion

In 1627, Asellius described the lymphatic system in a Later, the first chylous ascites case was observed by Morton in 1691 in an 18-month-old boy with disseminated tuberculosis.[2,3] The lymphatic system is an important rout

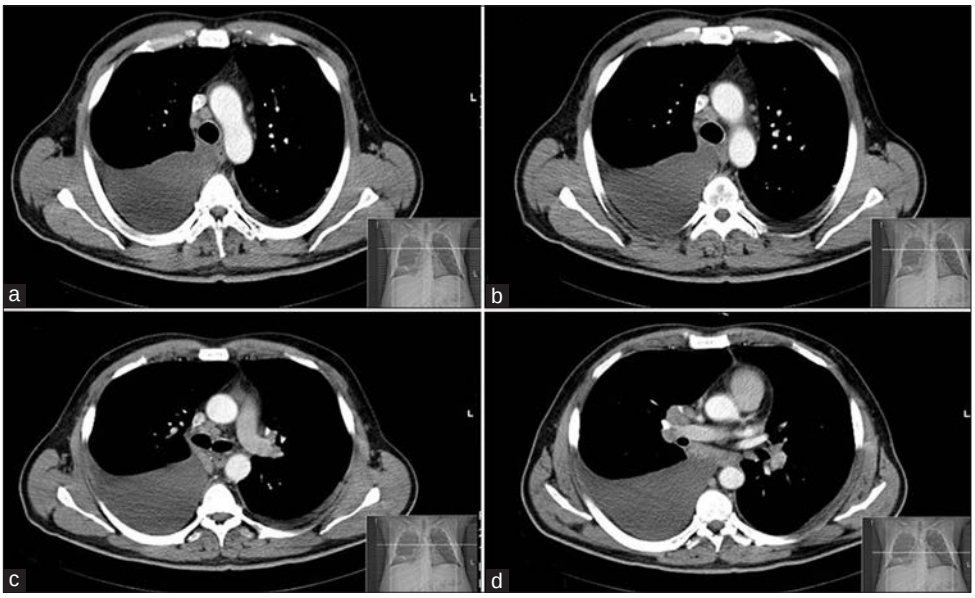

Figure 1: Thoracic-abdominal CT showing para-tracheal, tracheal-bronchial and pre-vascular lymph node enlargement

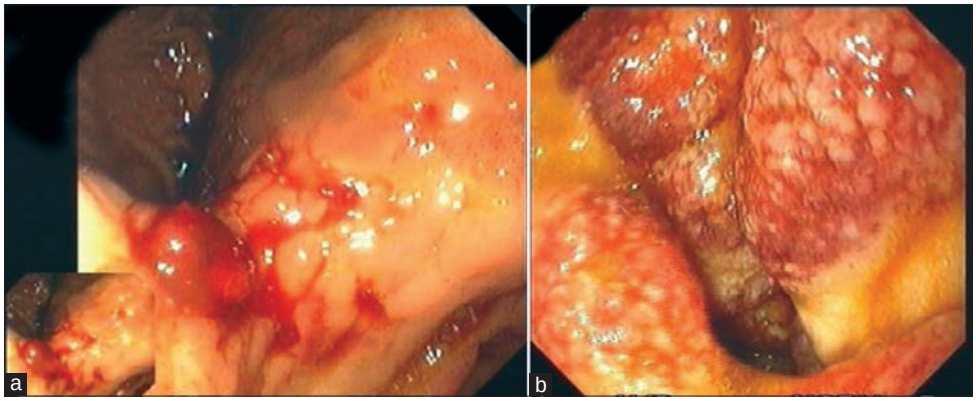

Figure 2: Upper digestive endoscopy showing signs of gastric bleeding (a) and malignant lesion in the antrum (b)

where fluids and proteins can flow from the intestinal spaces to the vascular system. It also plays an essential role in absorption of lipid and lipid soluble vitamins.[2,8] Interstitial resistance really affects the apparent lymphatic uptake rate. Normally, lymph and interstitial fluid have the same concentration and also osmotic pressure.[8] Molecules enter into the lymphatic capillaries by the influence of hydrostatic and oncotic forces and the vesicular transport runs in fluid throughout the following rout: initial lynphatics, prenodal collecting lymphatic, lymph nodes, postnodal collecting lymphatic, lymphatic trunks, and cisterna chyli and thoracic ducts.[8] Thus, mechanisms of the underlying disease may be related to primary lymph node fibrosis caused by the tumor obstructing the flow from the gut to the cysterna chili resulting lymphatic fluid into the abdominal cavity, exudation of lymph through the walls of retroperitoneal megalymphatics and/or dilated retroperitoneal lymphatic vessels caused by acquired thoracic duct obstruction.[2]

In this report, despite the patient had high alcohol consumption, he was without signs of chronic hepatic disease. He also did not have medical history of traumatic injury and no infection disease, such as tuberculosis. In the clinical field, constitutional symptoms are common but not specific, such as anorexia and weakness.[1,3] Furthermore, abdominal pain, weight loss, diarrhea, steatorrhea, malnutrition, edema, enlarged lymph nodes, early satiety, fevers, and night sweats are others related features.[1] Our patient initially complained of weight loss, anorexia (suggesting also neoplasm associated disease), and weakness. Others general aspects found were the enlargement lymph nodes at CT scan, but without signs of obstruction. Despite CT of the abdomen being an important imaging exam to diagnose ascites,[1] in this case the ultrasound of the abdomen was decisive to confirm this hypothesis and lead to abdominal paracentesis. This procedure is the most important tool in evaluation and management of patients with ascites[2] and herein allowed the possibility of characterizing the ascites fluid as milk-like pattern and performs subsequent analysis that disclosed high triglycerides levels. The recommendations approach implies conservative treatment such as MCT-based diet, TPN and subsequent somatostatin or its analogs.[3,9] The surgical approach is only recommended when conservative treatment fails.[3] Signet ring cell gastric adenocarcinoma occurs in a reduced number of gastric cancers. In early stages, 5-year overall survival is about 90%; and in advanced stages, 42.5%.[6] The history of this disease is quite aggressive and it is often diagnosed in advanced stages. The treatment for advanced stage is usually with chemotherapy based on cisplatin/fluorouacil.[10] Our patient had a very aggressive progression, with gastric bleeding due to gastric cancer and it was not possible subsequent surgical proposal to address chylous ascites. Unfortunately, he was not early diagnosed and died after disseminated intravascular coagulation (DIC) complication and respiratory failure during hospitalization.

Disseminated intravascular coagulation is a clinical-pathological syndrome characterized by evidence of consumption and proteolytic degradation only or in combination with hemorrhagic and thrombotic events.[11] DIC may occurs in patients with advanced gastric cancer due to disseminated fibrin and microthrombi and it has a dark prognosis.[12] Those patients usually die within 1-4 weeks if not adequately treated.[11] Conventional treatment modalities, such as fresh frozen plasma platelet transfusion, sometimes are disappointed. However, palliative chemotherapy regimen based on etoposide 40 mg/m^2, epirubicin 10 mg/m^2, cisplatin 25 mg/m^2, 5-fluorouracil 2200 mg/m^2, and leucovorin 120 mg/m^2 in those eligibile patients previously showed stabilization of clinical and laboratorial evidence of DIC after starting chemotherapy.[13] Also, others regimens can improve the outcome of DIC in the context of advanced gastric cancer, such as methotrexate 100 mg/m^2 plus 5-fluorouracil 600 mg/ m^2.[14] Thus, although gastric cancer that initially presents with DIC has poor prognosis, palliative chemotherapy seems to prolong overall survival when compared to best supportive care in some studies conducted in the Korean population.[15]

Conclusion

Chylous ascites is a rare presentation of ascites and sometimes it may be associated with neoplasm disorders.[4] Signet ring cell gastric adenocarcinoma is also rarely associated with this entity.[6] The prompt diagnosis is important to optimize approach and outcome of the underlying cancer. Despite no guidelines for malignant chylous ascites are well defined,[3] conservative treatment may improve the life's quality of this type of patients. Also, when advanced gastric cancer is presented with DIC, palliative chemotherapy can improve outcome.

References

1. 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;15:4849-52.
2. Cárdenas A, Chopra S. Chylous ascites. Am J Gastroenterol 2002;97:1896-900.
3. Huang Q, Jiang Z, Jiang J, Li N, Li J. Chylous ascites: Treated with total parenteral nutrition and somatostatin. World J Gastroenterol 2004;10:2588-91.
4. Saif M, Siddiqui I, Sohail M. Management of ascites due to gastrointestinal malignancy. Ann Saudi Med 2009;29:369-77.
5. Saif MW. Malignant Ascites Associated with Carcinoma of the Prostate. J Appl Res 2005;5:305-11.
6. Maehara Y, Sakaguchi Y, Moriguchi S, Orita H, Korenaga D, Kohnoe S, *et al*. Signet ring cell carcinoma of the stomach. Cancer 1992;69:1645-50.
7. Zhang M, Zhu G, Zhang H, Gao H, Xue Y. Clinicopathologic Features of Gastric Carcinoma with Signet Ring Cell Histology. J Gastrointest Surg 2010;14:601-6.
8. Griniatsos J, Dimitriou N, Kyriaki D, Velidaki A, Sougioultzis S, Pappas P.

Chylorrhea complicating D2+a gastrectomy: Review of the literature and clarification of terminology apropos one case. Chin Med J (Engl) 2010;123:2279-83.
9. Qi J, Gu Z, Chen F, Zhang L, Chen J. Management of postoperative chyloretroperitoneum in adults. Singapore Med J 2009;50:e338-41.
10. Ajani JA, Rodriguez W, Bodoky G, Moiseyenko V, Lichinitser M, Gorbunova V, *et al*. Multicenter phase III comparison of cisplatin/S-1 with cisplatin/infusional fluorouracil in advanced gastric or gastroesophageal adenocarcinoma study: The FLAGS trial. J Clin Oncol. 2010;28:1547-53.
11. Tokar M, Bobilev D, Ariad S, Geffen D. Disseminated intravascular coagulation at presentation of advanced gastric cancer. Isr Med Assoc J 2006;8:853-5.
12. dos Santos VM, Rodrigues DB, Castro EC, Saldanha JC, Soares S, Teixeira VP, *et al*. Widespread hematogenous metastases and Trousseau's syndrome in gastric adenocarcinoma. Rev Hosp Clin Fac Med Sao Paulo 2001;56:91-6.
13. Chao Y, Teng HC, Hung HC, King KL, Li CP, Chi KH, *et al*. Successful initial treatment with weekly etoposide, epirubicin, cisplatin, 5-fluorouracil and leucovorin chemotherapy in advanced gastric cancer patients with disseminated intravascular coagulation. Jpn J Clin Oncol 2000;30:122-5.
14. Takai H, Kondoh E, Sato Y, Kakui K, Tatsumi K, Konishi I. Disseminated intravascular coagulation as the presenting sign of gastric cancer during pregnancy. J Obstet Gynaecol Res. 2011;37:1717-9.
15. Rhee J, Han S, Oh D, Im S, Kim T, Bang Y. Clinicopathologic features and clinical outcomes of gastric cancer that initially presents with disseminated intravascular coagulation: A retrospective study. J Gastroenterol Hepatol 2010;25:1537-42.

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