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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2023, 40(4):570–571

Surgery Quiz – Case 48

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A 72-year-old patient who was referred to our surgical department, complaining about generalized and continuous abdominal pain, nausea, vomiting, bloating and absence of bowel motion. There was nothing relevant in the past medical history except for enterectomy 20 years ago; no other trauma was referred. Clinical exam revealed a bloated and mild painful abdomen. His lab tests revealed: White blood cells (WBC) 9.71 k/MI (granulocytes 86.1%), platelets (PLT) 287 k/μL, Glu 290 mg/dL, BUN 80 mg/dL, creatinine 1.51 mg/dL, albumin 2.7 g/dL, protein 4.9 g/dL, C-reactive protein (CRP) 0.85 mg/dL, pseudocholinesterase 4,017 IU/L. An abdominal x-ray revealed large distension of the small and large bowel (fig. 1). Approximately 0.7 liters of "milky fluid", chyle was found free in the peritoneal cavity at open laparotomy exploration, without any important underlying pathological condition apart from congestion in the mesenterium from an adhesive band. Upon the small bowel walls were found white plaques (fig. 2). The lab tests revealed triglycerides 417 mg/dL from the fluid within the abdomen, whilst blood triglycerides were only 80 mg/dL.

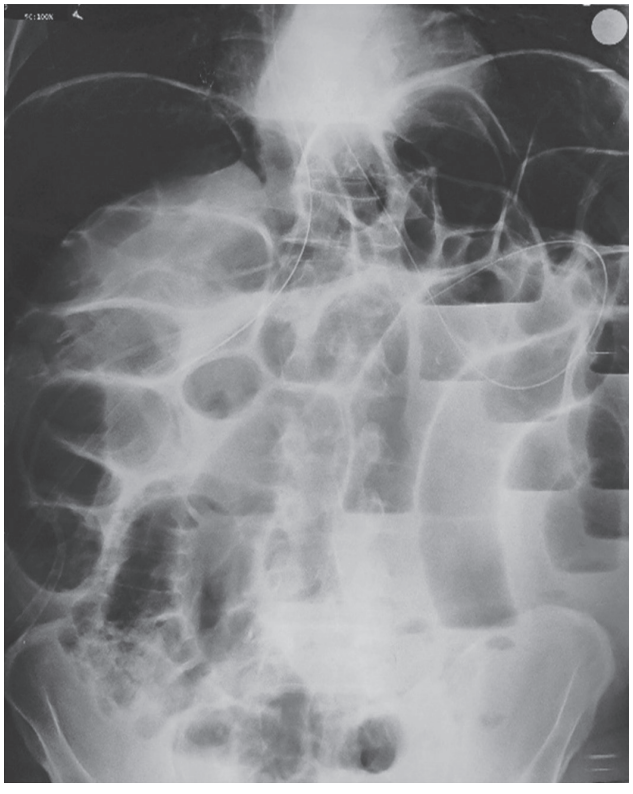

Figure 1

Comment

Chylous ascites is a rare cause of ascites due to the disruption of the lymphatic system caused by a trauma or obstruction, that leads to extravasation of lymph into the abdominal space (or thoracic), and the accumulation of a milky fluid which is rich in triglycerides. Though this is a rare condition (less than 1% of cases), the most common causes are trauma after abdominal surgery, cirrhosis and malignancies. Usually, the most frequent clinical presentation is a progressive painless abdominal distension, and less frequently it can cause acute abdomen symptoms. The management is based on identifying and treating the underlying pathology. The first case of acute chylous peritonitis was described in 1910.

Chylous ascites is characterized by lymphatic fluid leaking into the abdominal cavity and has a prevalence of about 1/20,000 admissions to hospital care. The gut lymphatics carry converted long-chain triglycerides from the intestine to the vascular system via the thoracic duct. The inflow through this duct may vary from 50 to 200 mL/h; the flow markedly increases with the ingestion of fatty meals. According to Krizek and Davis classification of patients with chylous peritonitis is obstructive, traumatic, idiopathic types and those associated with mesenteric cysts. Congenital causes are more common in infants, while inflammatory and neoplastic causes are more common in adults. Obstructive type, an increased pressure resulting in lymph stasis, oedema and consequent rupture of small lymphatic vessels, leading to chylous effusion. Some authors suspect that chyle extravasation can occur after heavy fatty meals with consequent overload of the lymphatic channels. In the present case no malignancies were found, nor any trauma reported.

Chyle is relatively non-irritating to the peritoneal surface, but pain may result from the stretching of the retroperitoneum and the mesenteric serosa. In our case, an acute abdominal tenderness and guarding, was noticeable since the onset of the symptoms, and pain

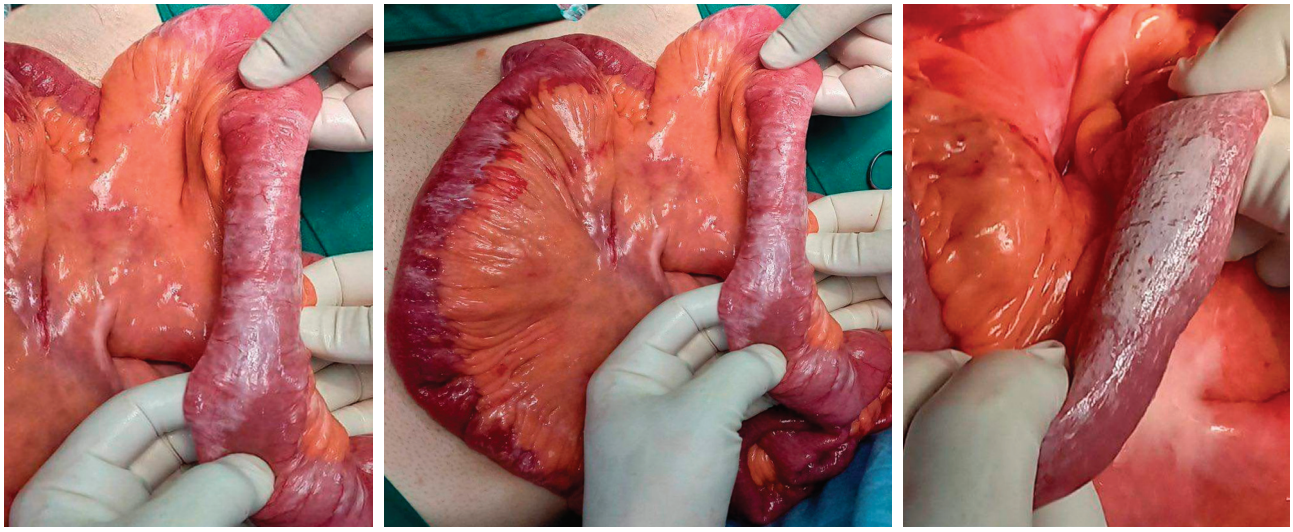

Figure 2

did not regress with common analgesics. There was no correlation between pain and retroperitoneal bulging, as the bulging was minimal. There was a lot of free chyle within the abdominal cavity which makes us suggest that chyle could play a part in the pain evoked by contact with peritoneal serosa, especially if the outpour was sudden.

Abdominal surgery is another common cause of chylous ascites, for it has been frequently associated with aortic substitution for aneurysm, with retroperitoneal lymph node dissection or with sigmoid volvulus.

Chylous effusion should be differentiated from pseudochyle, pus and ascites. Chyle is a milky appearance similar to peripheral lymph. It is normally odorless and sometimes it might smell like digested food. The triglyceride level is an important diagnostic tool, and concentration in chylous ascites is typically 2–8 times that of plasma. Chylous ascites must be differentiated from "chyliform" and "pseudochylous" effusions. Pseudochyle is an opalescent chyle-like fluid aspirated from patients with widespread peritoneal seeding of a malignant neoplasm (e.g., pseudomyxoma peritonei). Peritoneal tuberculosis can easily be differentiated by laboratory tests. Triglyceride concentration in these cases is low. Other diagnostic tests include computed tomography (CT) and lymphangiography. These tests are reserved for non-emergency situations. CT scan can demonstrate fluid collection with a density index similar to that of water (1 to 4 Hounsfield units).

The management of chylous peritonitis depends on its underlying etiology. Patients with symptoms of an acute abdomen, require immediate exploration of the abdomen. Extravasation of the chylous can be corrected by ligation of the leaking lymphatics or removal of the offending lesions. Conservative treatment includes total parenteral nutrition (TPN), in order to achieve complete bowel rest, and therefore decreasing the rate of chyle formation. Fasting and TPN might allow resolution of the chylous ascites by inhibiting lymph fluid excretion through specific receptors found in the normal intestinal wall.

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