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Chyloperitoneum associated with idiopathic pancreatitis: case report and review of the literature

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SUMMARY: **Chyloperitoneum associated with idiopathic pancreatitis: case report and review of the literature.**

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Acute chylous peritonitis is defined as the onset of acute abdomen findings due to abrupt chylous fluid accumulation in the peritoneal space. A correct diagnosis of this condition is seldom made preoperatively. The optimal management of true chylous pancreatitis depends upon the underlying etiology. Thorough lavage of the abdomen and adequate drainage has proven to be an excellent treatment modality for acute chylous peritonitis, since resolution of chylous ascites usually occurs within the next few days. However, conservative treatment may be appropriate in selected cases. We present a case report and a brief review of the literature.

KEY WORDS: Acute chylous peritonitis - Laparoscopy - Acute abdomen - Acute pancreatitis.

Introduction

Acute chylous peritonitis is defined as the onset of acute abdomen findings due to abrupt chylous fluid accumulation in the peritoneal space (1, 2). The diagnosis of spontaneous chylous peritonitis is rarely suspected preoperatively, usually misdiagnosed with diverse common surgical emergencies. A small number of cases of acute chylous peritonitis have been described in the literature. We present a case report and a brief review of the literature.

Case report

A 34-year-old woman came to the emergency room suffering from upper abdominal pain, nausea and occasional vomiting which started several hours before. The patient had not any relevant medical history, she was not an alcohol drinker nor she suffered from pancreatitis before. The first blood test showed a serum amylase of 195 U/L, lipase of 123 U/L, leucocytes of 17000 per ml, with transaminase and other analytical parameters within normal ranges. Radiological images of abdomen did not show any pathological findings and abdominal ultrasound showed a normal biliary duct diameter without gallstones. Tenderness associated with a diffuse guarding (that pointed to a suspected acute perforation of a hollow viscus) called for an immediate laparoscopy instead of a preoperative CT scan. At exploration there was neither evidence of stomach, duodenum or colon perforation nor of the other most common surgical causes of peritonitis (cholecystitis, appendicitis, intestinal ischemia or diverticulitis) but a large amount of milky fluid filled the peritoneal cavity. Samples of the chylous liquid were taken for bacteriological, biochemical and cytological examination. Four peritoneal drainages were positioned in the right paracolic gutter, infrahepatic and perisplenic space and in the Douglas pouch and maintained for six days. Biochemical analysis of the peritoneal fluid revealed elevated values of triglycerides (433 U/L). The fluid was bacteriologically sterile. In the postoperative period a CT scan was performed in the 5th postoperative day and showed an acute pancreatitis (Fig. 1) with oedema of the pancreatic head and a fluid collection in the pancreatic tail. The drainages were removed after six days in the presence of a clear aspect of the peritoneal fluid. A conservative treatment for the acute pancreatitis was start-

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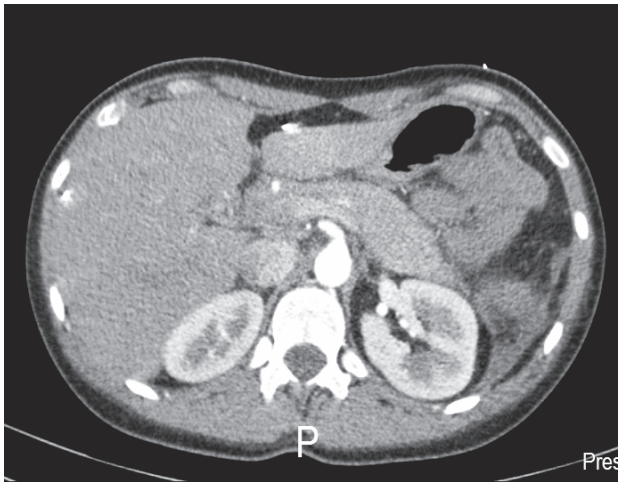

Figure 1 - Postoperative abdominal computed tomography image showing moderate oedema of the head of the pancreas and a small fluid collection near the tail of the pancreas.

ed. The patient recovered well and she was discharged after ten days from the surgical operation. After 1 year of follow up no malignancy or recurrence of chylous ascites has been evidenced.

Discussion

Chylous ascites is characterized by lymphatic fluid leaking into the abdominal cavity; in some cases an acute peritoneal reaction called acute chylous peritonitis can be the initial presentation (1). Under normal circumstances, lymph from the lower parts of the body as well as from viscera is circulated through lymphatic vessel that follow a retroperitoneal course before emptying in the cisterna chyli and finally the thoracic duct and the venous system. This fluid consists of converted long-chain triglycerides at high concentrations that originate from the gut during ingestion. In cases where a disruption of this normal flow occurs, the peritoneal cavity may be filled with a high-density, milky-like fluid that is called chyle. In developed countries, the commonest causes of chylous ascites are intra-abdominal malignancy (lymphomas) and cirrhosis. In developing countries, the commonest etiology is infection with tuberculosis and filariasis. Other etiologies are congenital, traumatic (including postoperative) and inflammatory causes, such as acute or chronich pancreatitis or following radiotherapy. More rare causes which have been described include constrictive pericarditis (increases lymph production and increasing hepatic venous flow), retroperitoneal fibrosis, sarcoidosis, and Whipple's disease (Table 1). Krizek and Dacis classify patients with chylous peritonitis into obstructive, traumatic, idiopathic types and those associated with mesenteric cysts (3). In children, causes include congenital lymphatic abnormalities such as primary lymphatic hypoplasia, but obstructive or idiopathic lesions caused by malrotations, intussusception, lymphangioma, and incarcerated hernia can occur (4). AAlami et al. present a detailed classification of causes of chylous ascites in a comprehensive review published in 2000 (5). A sudden outpour of chyle might manifest itself as acute peritonitis, like in our case. A correct diagnosis of this condition is seldom made preoperatively (1). The first case of chylous peritonitis was described in 1910 (6). Very few cases of acute chylous peritonitis have been described in the literature (2, 7, 8). Vettoretto et al. found less than a 100 cases of acute chyolous peritonitis in their review of 2008 (1). The clinical picture may be misleading, with appendicitis, hollow organ perforation and

TABLE 1 - CAUSES OF CHYLOPERITONEUM.

Malignancy	Lymphoma
	Linfangioleiomyomatosis
	Carcinoid tumor
	Kaposi's sarcoma
	Other malignancies
Congenital	Primary lymphatic hypoplasia
	Yellow nails syndrome
	Klippel-Trenaunay syndrome
	Primary bilateral lymphatic hyperplasia
	Primary intestinal lymphangiectasia
Surgical	Aorta aneurism reparation
	Lower cava resection
	Laparoscopic Nissen's procedure
	Peritoneal dialysis catheter
	Retroperitoneal lymph nodes resection
Inflammatory	Sarcoidosis
	Celiac disease
	Whipple's disease
	Retractile mesentheritis
	Retroperitoneal fibrosis
	Radiotherapy
	Pancreatitis
	Constrictive pericarditis
Traumatism	Battered child syndrome
	Abdominal contusion
Infectious	Tuberculosis
	Filariasis (Wuchereria bancrofti)
	Mycobacterium avium intracellulare
Cirrhosis	Enolic, biliary...
Miscellanea	Right Heart Failure
	Dilated myocardiopathy
	Nephrotic syndrome

visceral ischemia being the most commonly suspected diagnosis preoperatively (9). Chyloperitoneum is usually discovered during exploratory laparotomy, and in some cases this is the only intraoperative finding. The laparoscopy plays a central role in the early diagnosis of acute abdomen, regardless of the suspected etiology. The association of chylous peritonitis with acute pancreatitis is quite unusual and it has been described only anecdotally in the literature.

We have presented a spontaneous chylous-ascites-related peritonitis in a young adult woman, associated to a subsequent acute pancreatitis. Pancreatitis is a rare cause of chylous ascites formation (10-15). In almost of them, the presence of chyle into the peritoneal cavity was discovered at some time after the episode of pancreatitis, usually days or weeks (11-13). It has been postulated that lymph may leak through destroyed lymphatics due to pancreatic enzyme erosions or that chylous accumulation is the result of exudation of chyle, caused by the obstruction of lymphatic channel flow secondary to severe inflammatory changes in the retroperitoneal space surrounding the pancreas (5).

In patient with symptoms of an acute abdominal process, immediate exploration should be performed. Laparotomy or laparoscopy usually allows a definitive diagnosis and provide opportunity to address the underlying cause (2). Sometimes the acute pancreatitis, like in our case, is idiopathic (16). Chylous effusion must be differentiated from pus, pseudochyle and ascites (7). Chyle has a milky appearance similar to peripheral lymph. The triglycerides level is an important diagnostic tool, and concentration in chylous ascites is typically 2-8 times that of plasma (17). "Chyliform" and "pseudochylous" effusions must be differentiated from true chylous ascites, in these cases the trygliceride concentration is low. A CT scan can demonstrate fluid collection and other pathological findings such as tumours or inflammation of mesentery, but the diagnosis in chylous peritonitis is more often a surgical diagnosis. Ultrasonography and computed tomography are note very specific, and usually include intra-abdominal fluid, mesenteric edema, and inflammation. Fluid density is not more than water density. Biochemical analysis of the intraabdominal fluid may be carried out. A milky fluid obtained from the abdomen and triglyceride levels 2- to 8- fold greater than plasma levels are significant diagnostic tools (7).

The optimal management of true chylous pancreatitis depends upon the underlying etiology. Thorough lavage of the abdomen and adequate drainage has proven to be an excellent treatment modality for acute chylous peritonitis, since resolution of chylous ascites usually occurs within the next few days. However, conservative treatment may be appropriate in selected cases, but preoperative diagnosis is often difficult due to the rarity of this condition and its resemblance to other surgical urgencies that call for immediate laparotomy or laparoscopy. In our case, peritoneal lavage and adequate drainage offered sufficient treatment, and the subsequent pancreatitis was treated conservatively. When ascites persists after the resolution of the underlying cause, it is recommended a high protein and low lipid diet, the latter in form of medium chain triglycerides, which passes directly to the portal circulation without production of lymph (16). Somatostatin analogues have been successfully used in different forms of chylous ascites, with an unclear mechanism of action (18).

Conclusion

In conclusion, acute abdominal pain due to sudden accumulation of chyle in the peritoneal cavity is a rare situation that the clinician should be aware of in cases of acute abdomen. Association of chylous ascites with idhiopathic acute pancreatitis is more often rare. Treatment is often provided by surgical exploration with peritoneal drainage, but in some cases a conservative treatment can be advised.

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