Successful Treatment of Refractory Chylous Effusions of Unknown Origin with Octreotide

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Chylous ascites is a rare condition that is characterized by a milky-appearing peritoneal fluid rich in triglycerides (concentration of triglycerides in peritoneal fluid above 200 mg/dl). Chylous ascites is the result of a disruption of the abdominal lymphatics, most commonly due to traumatic injury or obstruction from benign or malignant causes [1].

In adults, chylous ascites is usually associated with malignant conditions, such as lymphoma or disseminated carcinoma. Other causes include cirrhosis, peritoneal tuberculosis, constrictive pericarditis and right-sided heart failure. Three underlying mechanisms have been proposed [2]: obstruction of the lymph flow causing leakage from subserosal lymphatics into the peritoneal cavity; exudation of lymph through the walls of dilated retroperitoneal vessels that leak fluid through a fistula; and acquired thoracic duct obstruction from trauma, causing direct leakage of chyle. We describe a case of chylous ascites of unknown origin treated successfully by octreotide, a somatostatin analog.

Patient Description

A 56 year old woman was admitted to hospital due to abdominal distension that had appeared 3 months earlier. She had no other symptoms. Past medical history was negative for chronic illnesses, regular medications and abdominal surgery.

On examination, the patient was alert, without respiratory distress. Her temperature was 36.6°C, the heart rate was 95/min and the blood pressure 117/76 mmHg. The physical examination was unremarkable except for abdominal distension and ascites. Specifically, no abdominal dilated blood vessels were observed, and the pelvic examination was normal. The hemoglobin level was 15.5 g/dl, the leukocyte count 9750/mm^3 and the platelet count 349,000/mm^3. Serum electrolytes, aspartate aminotransferase, alanine aminotransferase, lipase, amylase and alkaline phosphatase levels were all within normal limits. Cancer biomarkers were in the normal range, as was a rheumatological serological panel.

Paracentesis revealed a white lipemic fluid with triglycerides 851 mg/dl, glucose 87 mg/dl, lactate dehydrogenase 182 u/L, amylase 43 u/L and total protein 3.9 g/dl. The SAAG was 0.9 (serum albumin 4.1 g/dl, ascites albumin of 3.2 g/dl) consistent with a chylous ascites. A Ziehl-Nielsen stain was negative for acid-fast bacilli and the cytological examination of the fluid found no evidence of epithelial malignancy.

Computed tomography scan of the thorax, abdomen and pelvis revealed a small bilateral pleural effusion, an enlarged uterus and a suspected lesion in the right ovary. Additional tests were performed in an attempt to rule out an occult malignancy. These included mammography, Pap smear, colonoscopy, gastroscopy, and bone marrow aspiration, which were all normal. An exploratory laparotomy was performed, and during the operation 2 L of chylous fluid were drained. Due to the suspicious ovarian finding on CT, bilateral salpingo-oophorectomy was performed and multiple biopsies were taken from the peritoneum, appendix, omentum, small bowel, and right common iliac lymph nodes. Histological examination of all these biopsies was normal. A lymphogram did not reveal any pathology.

Over the course of 3 months the patient was admitted numerous times for disabling dyspnea and abdominal distension requiring repeated therapeutic thoracocenteses and paracenteses (a total of five thoracocenteses and paracenteses during 3 months of treatment). A low fat diet treatment did not reduce the amount of the ascites.

Three months after the patient's initial presentation, octreotide (Sandostatin®) 100 µg was administered subcutaneously twice a day in an attempt to control the ascites and debilitating pleural effusion. This treatment was suggested after reviewing the literature, and due to the fact that conventional treatments failed to resolve the accumulation of chylous effusions. Within 3 weeks of treatment the patient's ascites and pleural effusion resolved completely. The treatment was continued for 4 months. After 24 months of follow-up, she maintains a good quality of life without the recurrence of ascites or pleural effusion. There were no side effects.

Comment

Chylous ascites is a manifestation rather than a disease by itself. The prognosis depends mainly on the underlying disease or mode of therapy. The traditional treatment includes a high protein and low fat diet with medium-chain triglycerides to reduce the load of chylomicrons. Patients who do not respond to these measures can be managed by parenteral nutrition since fasting reduces intestinal lymph flow. Peritovenous shunting may be an option for patients refractory to non-surgical treatment. However, shunts are associated with a high rate of complications including sepsis, disseminated intravascular coagula-

tion, electrolytes imbalance, small bowel obstruction and air embolism [3]. Reports of octreotide usage for chylous ascites and pleural effusions are few. Octreotide has been used primarily to treat patients with the yellow nail syndrome, lymphatic leakage due to abdominal and thoracic surgery, and portal vein thrombosis [4]. Somatostatin is secreted by scattered cells in the gastrointestinal epithelium, and by neurons in the enteric nervous system. It has been shown to inhibit secretion of many of the other gastrointestinal hormones, including gastrin, cholecystokinin, secretin and vasoactive intestinal peptide.

In addition to the direct effects of inhibiting secretion of other gastrointestinal hormones, somatostatin has a variety of other inhibitory effects on the gastrointestinal tract, which may reflect its effects on other hormones, plus some additional direct effects. Somatostatin suppresses secretion of gastric acid and pepsin, lowers the rate of gastric emptying, and reduces smooth muscle contractions and blood flow within the intestine. Collectively, these activities seem to have the overall effect of decreasing the rate of nutrient absorption.

A few mechanisms of action have been proposed that involve inhibition of lymph fluid excretion. Somatostatin is known to reduce splanchnic, hepatic and portal blood flow and inhibit the intestinal motility. This may have a role in reducing lymph flow, and it is achieved through specific receptors found in the normal intestinal wall of lymphatic vessels. Another proposed mechanism of action is that octreotide reduces portal hypertension, which may underlie chylous ascites [5]. To the best of our knowledge this is the first report of successful use of octreotide in refractory chylous ascites and chylothorax of unknown origin.

Management options in chylous ascites are limited. In our patient, a low fat diet and recurrent paracentesis and thoracocenteses failed and recovery was achieved only after octreotide treatment. This treatment was free of any side effects and very efficacious in the long-term management of refractory chylous ascites and chylous pleural effusion.

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