Chylous ascites specifically after anterior resection for rectal cancer has not been documented in the literature thus far. All previously reported postoperative chylous ascites developed in other types of malignancies and were diagnosed within a few days of surgery. However, the patient we report had symptoms 2 years after surgery. Intraoperatively, chylous ascites was found with multiple lymph node metastasis in the small bowel mesentery and retroperitoneal region. The rarity of chylous ascites after anterior resection in rectal carcinoma is documented and discussed. [Asian J Surg 2006;29(1):46–8]

Key Words: adenocarcinoma, chylous ascites, rectum

Introduction

Chylous ascites after surgery is rarely encountered. Hence, the understanding and treatment of chylous ascites is not well established. Although a few causes have been postulated, the experimental manipulation of cisterna chyli in animals could not reproduce similar chylous ascites. An algorithm for treatment of chylous ascites has been proposed, but the outcome still varies. The high morbidity and mortality associated with surgical treatment makes most surgeons opt for conservative treatment. We report delayed chylous ascites seen in adenocarcinoma of the rectum after anterior resection, which to our knowledge has not been reported before. We reviewed the literature on postoperative chylous ascites with special emphasis on the possible cause and relevant treatment.

Case report

A 32-year-old man presented with lower abdominal pain with altered bowel habit and per rectal bleeding for 8 months. On clinical abdominal examination, there was no mass palpable per abdomen, but a mass was felt per rectum. The patient underwent colonoscopy that showed a circumferential tumour 10 cm from the anal verge. Abdominal computed tomography (CT) showed a well-confined distal sigmoid mass. Neoadjuvant radiotherapy was given before surgery. Anterior resection was performed and histopathology reported a moderately differentiated adenocarcinoma. The surgical margin was free from tumour, but lymph nodes were infiltrated by malignant cells. The patient underwent chemotherapy and had regular follow-up with initial repeat colonoscopy and pelvic CT, which did not reveal any tumour recurrence. Two years later, he started to have intermittent mild colicky abdominal pain. Investigations including abdominal X-ray, barium meal follow-through, carcinoembryonic antigen tumour marker and colonoscopy were normal. CT did not reveal any significant intraperitoneal fluid or local tumour recurrence, but enlarged para-aortic lymph nodes were seen (Figure). Colic adhesion was suspected, but due to persistent severe pain, elective laparoscopic adhesiolysis was done. Intraoperatively, there was 100 mL chylous ascites. The procedure was converted to laparotomy. The lymphatic channels were dilated at the duodenojejunal junction. The retroperitoneal area was thickened and the small bowel adhered to this region. There were multiple mesenteric lymph nodes in the small bowel mesentery. The histopathology report on the mesenteric lymph

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CHYLOUS ASCITES AFTER ANTERIOR RESECTION FOR RECTAL CARCINOMA

Figure. Retroperitoneal para-aortic lymph node infiltration by malignancy (white arrows) obstructs the lymphatic channels and results in chylous ascites.

Discussion

The lymphatic system provides one-way drainage for return of fluid and protein from tissues to the vascular system. The gastrointestinal lymphatic system also helps in transport of water and lipids to the systemic circulation. Chylous ascites is defined as accumulation of chyle in the peritoneal cavity. The first description of chylous ascites was in 1694 in a 2-year-old boy who died of tuberculosis. The incidence of chylous ascites in 1956 was 1:187,000 hospital admissions, but with more recognition of this diagnosis, the incidence had increased to 1:11,589 in 1999. However, it is still an uncommon condition. The proposed mechanisms of chylous ascites include exudation of chyle from obstructed and dilated lymphatics of the bowel and mesentery secondary to malignancy and direct leakage of chyle through a lymphoperitoneal fistula secondary to trauma or surgery. Hence, the chylous ascites in this case could have been due to obstructed lymphatic channels that developed after radiotherapy and malignancy involving the lymph nodes and lymphatics. The unusually late presentation may have been because obstruction of the lymphatics developed gradually rather than rapidly over days, as reported in the literature.

Postoperative chylous ascites has been reported in surgeries involving the retroperitoneal lymphatics such as retroperitoneal lymph node dissection in urological surgery, abdominal aortic surgery, gynaecological oncology surgery, spine surgery and laparoscopic gastric fundoplication. Weiser et al reported that the interval between diagnosis of chylous ascites and surgery in his series of Wilm’s tumour was between 12 and 49 days. No chylous ascites has been reported as a result of advancing pelvic rectal malignancy even after anterior resection. Metastatic adenocarcinoma of the rectum does not usually cause lymphatic obstruction. This exceptional case of chylous ascites in rectal carcinoma could be due to the compounding effect of extensive retroperitoneal dissection, radiochemotherapy, and widespread retroperitoneal lymphatic infiltration by the malignancy.

The common clinical features of chylous ascites are hypoproteinaemic oedema, asthenia, distended abdomen, nausea and steatorrhoea. These are secondary to exudative enteropathy, where lymphatic outflow from the gut is obstructed or disrupted. Hypogammaglobulinaemia due to protein loss can also result in immunosuppression with lymphocytopenia in lymphocyte-rich lymph. The distribution of presentations noted by Aalami et al was 75% abdominal distension, 60% malnutrition, 46% dyspnoea and 40% steatorrhoea, but free chyle in the peritoneum does not cause pain, except when it stretches the peritoneum or the mesentery. Surprisingly, our patient did not have any symptoms except pain. This pain was most probably due to malignancy infiltrating the retroperitoneal nerves.

The investigation for chylous ascites is paracentesis, which can be diagnostic, or therapeutic in patients with respiratory distress. Chyle is the only body fluid with a fat content greater than plasma. Therefore, it can be easily identified by its milky appearance and high fat content on CT and ultrasound. Lymphangiography is invasive and painful, but can be replaced by lymphoscintigraphy. This helps in localization of lymphatic leakage for surgery. Lymphoscintigraphy is also used in follow-up, to document the reduction of chyle leakage postoperatively.

Although algorithms for chylous ascites have been developed, the outcomes of such treatment vary between centres. Hence, different authors advocate their own way of managing this condition. Most cases (67%) resolve without surgery. During conservative treatment, a patient may need repeated therapeutic paracentesis and a high-protein, low-fat, salt-restricted, medium-chain-triglyceride diet, with diuretics and total parenteral nutrition. Medium-chain triglycerides bypass the lymphatic glands and are absorbed directly into the portal venous system, so they do not interfere with lymph flow. Recently, intravenous or subcutaneous administration of somatostatin analogues such as octreotide has been shown to
reduce the output of lymphatic fistulas after 24–72 hours of therapy. This therapy reduces intestinal fat absorption and splanchnic blood flow. Hence, it attenuates lymph production and lymphatic flow.

Permanent drain insertion has been attempted, but was abandoned because patients deteriorated with continuous depletion of nutritional and immunological status. The timing of surgery is controversial. There are many reported cases of unsuccessful identification and ligation of the leak, but few of recurrence of chylous ascites after surgery. Therefore, the published algorithms suggest a trial of conservative treatment for 6 weeks before any attempt at surgery. The initial surgery is to identify the leak for definitive ligation. However, if this is not possible, a peritoneovenous shunt can be used. This shunting procedure was popular in the 1970s, but potentially fatal complications such as disseminated intravascular coagulation, fat embolism, sepsis and shunt malfunction have been reported. It is now reserved for non-malignant cases only.

The chylous ascites in our case was due to diffuse intraperitoneal and retroperitoneal metastasis. Therefore, the patient was not subjected to any surgical interventions. He received further palliative chemotherapy and the pain improved before he died 6 months later with brain metastasis.

References