

## Chylous Ascites in Recurrent Gynaecological Malignancies

### Dear Editor,

Chylous ascites is an unusual phenomenon where there is accumulation of chyle in the peritoneal cavity. It is especially rare following treatment of gynaecological cancers.

The mechanism is thought to be due to the destruction or obstruction of the lymphatics. Short chain lipids are absorbed into the circulation directly from the small intestines whereas long chain lipids (>12 carbon molecules) are absorbed into the lacteals after emulsification by bile acids. These lacteals converge into the cisterna chyli, drain into the thoracic duct and finally into the circulation via the superior vena cava.<sup>1</sup> The lipids in the lacteals leak into the peritoneal cavity and result in chylous ascites when the lymphatics are disrupted or obstructed for whatever reason. We report 2 cases seen in our unit and discuss about the aetiology and management of this rare condition.

### Case Report

Patient 1 is a 66-year-old lady with Stage 3C grade 3 serous adenocarcinoma of the ovary diagnosed in November 2003. She underwent a total hysterectomy bilateral salpingo-oophorectomy, anterior resection and infragastric omentectomy followed by 6 cycles of adjuvant chemotherapy. The disease recurred 8 months later in the para-aortic and left obturator lymph nodes. Despite palliative chemotherapy, the disease persisted but she remained asymptomatic. In April 2006, there was general progression of the left para-aortic, aortocaval and mesenteric lymphadenopathy and she developed straw-coloured ascites. The ascites resolved after 6 cycles of palliative chemotherapy with reduction in the lymphadenopathy. In March 2007, the disease progressed and she developed matted para-aortic as well as mesenteric lymphadenopathy and gross ascites. Abdominal tap revealed milky white fluid that was positive for adenocarcinoma as well as high levels of lipids (Fig. 1). She was put on high protein, low fat diet. She required serial paracentesis every 3 weeks to relieve the pressure symptoms from the ascites. She finally succumbed to the recurrent cancer and passed away in June 2007.

Patient 2 is a 54-year-old lady with Stage 4B grade 2 adenocarcinoma of the cervix diagnosed in January 2004. She had lung metastases at presentation. She received chemotherapy followed by extended field radiotherapy. In July 2006, she developed enlarged aorto-caval and para-aortic nodes. She declined further treatment then. The disease progressed and in January 2007, she developed



Fig. 1. Milky white chylous ascites.

peritoneal metastases, as well as supraclavicular lymphadenopathy. She developed symptomatic gross ascites in April 2007. Abdominal tap revealed milky white fluid positive for adenocarcinoma as well as high lipid levels. She was started on low fat and high protein diet. She received a course of palliative chemotherapy as well as serial paracentesis to relieve the pressure symptoms from the ascites. She is still alive at the time of preparation of the manuscript.

### Discussion

Chylous ascites is rare following treatment of gynaecological cancers. There are about 28 reported cases in the English literature. Twenty one of these cases developed chylous ascites following radiation therapy with or without pelvic lymphadenectomy.<sup>2</sup> The incidence following whole abdominal radiation therapy has been reported at about 3%<sup>3</sup> whereas it is about 7.4% after complex surgical procedures.<sup>4</sup> Other possible factors that may cause chylous ascites include lymphatic damage due to surgery, pelvic malignancy, congenital lymphatic abnormalities, liver cirrhosis, non-specific bacterial, parasitic or tuberculous infections and even blunt abdominal trauma.<sup>5</sup>

In these 2 cases, the aetiology is likely due to the recurrent malignancy involving the abdominal and mesenteric lymph nodes causing lymphatic obstruction. Patient 2 received extended field radiation as well and this may have resulted in fibrosis of the lymphatic vessels within the small bowel and mesentery resulting in occlusion and leakage of chyle.

Analysis of the ascitic fluid would reveal elevated triglycerides. CT scan may identify recurrent disease but

may not be able to localise the site of leakage. Lymphangiography or lymphoscintigraphy may demonstrate the site of leakage from the cisterna or from the retroperitoneal lymphatics. However, if the leakage is from the mesenteric or hepatic lymphatics, it may not be useful.<sup>2</sup>

Management of chylous ascites in recurrent malignancies is essentially palliative. Symptoms associated with chylous ascites include abdominal distension, discomfort, anorexia, nausea, dyspnea and lower limb edema. Resolution of chylous ascites may be achieved via conservative means. Paracentesis achieves immediate relief of symptoms but as a solitary measure it is only transiently effective. Furthermore, it may result in hypoproteinaemia, malnutrition and even peritonitis. Dietary intervention with high protein and low fat diet with medium chain triglyceride supplementation has been advocated. The basis is to decrease the intestinal lymphatic flow and lymphatic transport of triglycerides by decreasing long chain fat molecule production. Hence, this may prevent lymph and triglyceride accumulation.<sup>2</sup> However, this method has been reported by patients as being unpalatable. Total parenteral nutrition (TPN) with cessation of all oral intake will also minimise chyle production. The benefit is derived from caloric and protein replacement rather than the exclusion of long chain fat molecules. However, the effect is only transient and seen maximally at the start. A course of at least 3 weeks is recommended if TPN is initiated.<sup>3</sup> Variable success has been reported with the use of somatostatin. It decreases gastric, pancreatic and intestinal secretions and decreases splanchnic blood flow that may contribute to decreased lymphatic production. It may be used in cases not responding to initial measures of dietary modification.<sup>6</sup> The use of concomitant chemotherapy may also contribute to resolution of ascites.<sup>1</sup>

Surgical intervention may be appropriate for refractory cases. Methods described include peritoneo-venous shunting and surgical ligation of the lymphoperitoneal fistula. Peritoneo-venous shunting may be useful in situations where a definitive cause of the leak cannot be identified on radiographic studies.<sup>7</sup> However, surgical methods are not recommended where there is recurrent malignant disease not amenable to treatment.

In our unit, patient 1 was palliated with serial paracentesis (up to 2.5 litres per day), diuretics, high protein and low fat diet. She survived for 3 months before succumbing to the recurrent cancer. Patient 2 received serial paracentesis,

high protein and low fat diet with medium chain triglyceride supplementation as well as a course of systemic chemotherapy. However, she was non-compliant with the low fat diet as it was nauseating. She preferred peritoneal aspiration every 2 to 3 weeks, where up to 2.5 to 3 litres were drained per day over 3 to 4 days. She is still alive 6 months after onset of the ascites.

In conclusion, chylous ascites remains a rare complication following recurrent gynaecological malignancies. Recognition of this uncommon condition is important so that correct measures can be taken to palliate the patient's symptoms. However, in the context of advanced malignant disease, conservative management with serial peritoneal aspiration to relieve the discomfort of abdominal distension is the mainstay of treatment.

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