

Amlodipine - Induced Chylous Ascites in a patient undergoing Peritoneal Dialysis.

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Abstract : Chylous ascites though a very uncommon and rare form of ascites generally is associated with malignancies or can be a post surgical event. The incidence of spontaneous chylous ascites in patients with chronic liver diseases is estimated to be 0.5%. Fluid in the space of Disse may enter lymphatic channels in the portal and central venous areas of the liver. An increase in portal pressure can lead to increased flow of fluid into both the space of Disse and the liver's lymphatic system. Indeed, patients with cirrhosis have increased thoracic duct lymph flow. Although there has been a very less references regarding this condition manifesting secondary to administration of any drug. But we are going to discuss the unusual presentation of chylous ascites associated with amlodipine, a calcium channel blocker.

INTRODUCTION

Chylous Ascites is a rare form of ascites in which there is extravasation of milky white chyle into the peritoneal fluid. Any source of lymph vessels obstruction or leakage can potentially cause chylous effusions in the peritoneal or retroperitoneal cavities. Any type of cancer and lymph node involvement may be associated with this uncommon type of ascites. Traumatic, and mainly surgical, vessels leakage is the second most common source of chylous effusions¹. Chylous ascites is an infrequent postoperative complication after retroperitoneal surgical procedure. Despite its infrequent occurrence, postoperative chylous ascites are associated with significant morbidity. There have been reports of chylous ascites or fistula after retroperitoneal lymph node dissection for gynecologic malignancies without radiation therapy². It could also occur as a rare complication of radical gastrectomy³. Any kind of malignancy or lymph node obstruction can lead to this uncommon type of ascites. Chylous ascites is a rare complication in patients undergoing peritoneal dialysis. It may occur due to traumatic peritoneal dialysis catheter insertion or other causes⁹. The presence of a milky, creamy appearing ascitic fluid with triglyceride content above 200mg/dL is diagnostic, and, in the majority of cases, unless there is a strong suspicion of malignancy, further investigations are not required in patients with cirrhosis. If an underlying cause is identified, targeted therapy is possible, but most cases will be treated conservatively, with dietary support including high-protein and low-fat diets supplemented with medium-chain triglycerides, therapeutic paracentesis, total parenteral nutrition, and somatostatins. Rarely, resistant cases have been treated by transjugular intrahepatic portosystemic shunt, surgical exploration, or peritoneovenous shunt⁴.

CASE REPORT

A 65 year old hypertensive male with CKD (chronic kidney disease) reported to ASCOMS hospital for uremic symptoms, decreased urine output and signs of fluid overload. This was the patient's first ever hospitalization for any ailment. A known hypertensive for 15 years and suffering from CKD for last 2 years, the past history of this patient did not reveal any remarkable finding. The patient's medications during the past two months included oral calcitriol, toseamide, sevelamer carbonate and atorvastatin.

On clinical examination, nothing remarkable was noticed other than presence of pallor, pedal edema and a sallow complexion with elevated blood pressure of 172/94 mm Hg, pulse of 68/minute, regular. Respiratory rate was 12/minute and buccal temperature was 98.6°F. Clinical investigations when conducted showed elevated serum urea and serum creatinine levels. Serum urea was 200.9 mg/dl and serum creatinine was 7.1mg/dl, hemoglobin (Hb) was 8.8g/dl, Total leukocyte count (TLC) was 7000 cells/mm³ with an ESR of 30 mm 1st hour using Westergren's method. Liver function tests and serum electrolytes were within range. Routine urine examination revealed no abnormality and Chest X-Ray, ECG were also reported within normal limits. The patient was planned for peritoneal dialysis. A Tenckhoff catheter was placed in peritoneum and the patient had 6 sessions of hemodialysis in 14 days. All the previous medications were continued. After 14 days the patient was shifted to peritoneal dialysis with 2.5% Dianeal solution. The initial days of onset of peritoneal dialysis were remained uneventful. On day 5 of initiation of peritoneal dialysis, he was prescribed amlodipine 5 mg for uncontrolled hypertension with blood pressure of 180/98 mm Hg. On day 8 of initiation of peritoneal dialysis, the patient reported

that the peritoneal fluid had become cloudy with thick milky white fluid. On bedside examination the fluid was found to be milky white in appearance, otherwise the patient did not report of any complaints and was substantiated by examination which did not reveal any new findings. Clinical investigations revealed patient's serum urea to be 98.2 mg/dl, serum creatinine to be 3.8 mg/dl, Hb was 8.6 mg/dl, TLC was 7800 cells/mm³ and ESR around 25mm 1st hour by Westergren method. LFT and serum electrolytes were within range. Routine urine examination was also within normal limits. The fluid was sent for analysis and was found to be negative on gram staining, Zeihl-Neelson staining and KOH mount. Investigations revealed no cells in the fluid. Serum Ascites Albumin Gradient (SAAG) was 0.89. Serum amylase levels and triglycerides were 26.6 U/dl and 88.4 mg/dl respectively, whereas effluent amylase and triglyceride levels were 16.3 U/dl and 293.8 mg/dl respectively. Amlodipine was stopped since the BP also had come down to 138/90 mm Hg. Meanwhile, the patient did not report of any new complaints and there was no change in his clinical condition. The next day, after 24 hours of withdrawal of amlodipine, the peritoneal effluent started becoming clearer. A repeat analysis of the effluent showed no cells, a triglyceride level had fallen to 2.1 mg/dl and a serum albumin ascitic gradient (SAAG) of 1.4. The patient underwent a CT Chest and an abdominal MRI which showed no signs of thoracic duct injury, sarcoidosis, malignancy, pancreatitis, retroperitoneal fibrosis, liver cirrhosis, amyloidosis or infections such as tuberculosis etc. Montoux's test was also negative.

There was no suggestive history of whipple's disease, filariasis or SLE with a negative ANA value of 0.12 U/L (Range < 1.0 U/L). There was no history of radiation exposure also the echocardiography was normal which ruled out any dilated cardiomyopathy. Nephrotic syndrome was also ruled out with no suggestive investigations.

DISCUSSION

Calcium channel blocker related chylous ascites has occasionally been observed in patients on peritoneal dialysis. Dihydropyridine calcium channel blockers have been reported to produce cloudy (in fact almost white) effluent because of high triglyceride levels^{8,11,13}. The problem was first reported when manidipine was used⁵. Subsequently, benidipine, nisoldipine, nifedipine⁶, and lercanidipine⁷ were also reported to produce cloudy dialysate. The exact mechanism involved is unclear but is thought to be related to their lipophilic characteristic. Most authors suggest that calcium channel blockers improve peritoneal vascular perfusion and therefore increase clearance or UF through an effect on vascular smooth muscle cells. Re-challenge was not done due to ethical reasons. De-challenge test is an evidence in support of amlodipine being the causal agent of chylous ascites in our patient.

To the best of our knowledge the present report is the first in which chylous ascites in patients on peritoneal dialysis can be attributed to amlodipine and hence should be considered as one of the possibilities in such patients.

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