

CLINICAL VIGNETTE

Chylous Ascites

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Introduction

Ascites is the accumulation of fluid within the peritoneal cavity and is caused by multiple different diseases. Common causes include cirrhosis, malignancy, heart failure, and infection. However, a relatively uncommon subtype of ascites is chylous ascites. Chylous ascites is a milky-colored and triglyceride rich ascitic fluid representing less than 1% of cases of ascites.¹ Determining the nature of the ascites is essential to ensure that treatment is directed toward the underlying cause.

Case Summary

A 49-year-old male presented to the emergency department due to bizarre behavior with grave disability. He had a history of methamphetamine use, heart failure with recovered ejection fraction, recurrent left ventricle thrombus, prior stroke, and diabetes mellitus. During admission for psychiatric stabilization, a large volume of ascites was noted on exam. The internal medicine consult service was asked to assist in managing his ascites.

The patient was started on diuretic therapy with bumetanide and underwent paracentesis. The ascitic fluid was grossly milky in appearance. The ascitic fluid showed albumin of 2.03 g/dL, protein of 4.7 g/dL, triglycerides of 496 mg/dL, and an adenosine deaminase level of 15.1 U/L. The fluid cell count showed 97 nucleated cells per cubic mm with a monocyte predominance of 59% and lymphocytes at 36%. His serum albumin was 2.5 g/dL and his serum-ascitic albumin gradient (SAAG) was 0.5, demonstrating a low SAAG ascites. Cytology of his ascitic fluid was negative for any malignant cells. Bacterial cultures were also negative. Acid fast bacilli staining and culture both returned negative. The laboratory results from his ascitic fluid established the diagnosis of chylous ascites.

He underwent further evaluation for possible causes of his chylous ascites including additional laboratory studies and diagnostic imaging. Viral Hepatitis B and C were negative, ferritin was normal, and anti-LMK was normal. ANA was positive with a 1:320 titer. Liver ultrasound revealed a nodular liver surface and splenomegaly. Given a concern for malignancy, CT imaging of the chest, abdomen, and pelvis with contrast revealed a nodular liver surface and splenomegaly, cardiomegaly, ascites, and mild bilateral inguinal lymphadenopathy. The lymphadenopathy raised concern for malignant ascites and lymph node biopsy was performed. Both the lymph node biopsy and serial cytology from ascitic fluid were negative

for malignancy. Due to rapid re-accumulation of his ascites despite diuretic therapy, he initially required large volume paracentesis every few days.

Treatment

With his decompensated psychiatric illness, he was a poor candidate for parenteral nutrition. He was started on a chylous diet with medium chain triglyceride supplementation along with octreotide subcutaneous injections. After starting this treatment for ascites, serial paracentesis showed a reduced level of his ascitic fluid triglycerides. His ascitic volume also improved to the point that he no longer required therapeutic paracentesis. He was assessed stable by the psychiatry service and was discharged to a nursing facility to continue his medium chain triglyceride supplementation along with octreotide injections. Outpatient follow up was planned to further address the etiology and management of his decompensated cirrhosis.

Discussion

Nutritional and dietary management are essential in treating chylous ascites. A low fat, high protein diet with medium-chain triglyceride supplementation is recommended with restriction of long-chain triglycerides. Long chain triglycerides are converted into monoglycerides and free fatty acids which are then transported as chylomicrons in the lymphatic system. On the other hand, medium-chain triglycerides can be absorbed directly and reduce chyle production and flow. Dietary treatment has been highly effective in resolving ascites. Up to 75% of cases resolve with dietary treatment alone. Total parenteral nutrition (TPN) is also very effective and commonly used for post-surgical patients who develop chylous ascites.² However, TPN was not an ideal option for our patient given his decompensated psychiatric illness.

We also treated our patient with subcutaneous octreotide. Octreotide reduces portal pressures, chyle flow within the lymphatic system, and chyle triglyceride content. It also reduces pancreatic exocrine function, resulting in reduced fat absorption.³ While frequent paracentesis provides symptomatic relief, it is rarely effective as solitary treatment of chylous ascites. In addition, chyle plays a role in bacterial protection and loss of chyle can lead to an increased infection risk.⁴

Conclusion

This patient presented a unique challenge undergoing treatment on a psychiatric floor while diagnostic and therapeutic treatments for his ascites were provided by the internal medicine consultants. Patients admitted to psychiatry with significant medical comorbidities are typically transferred to the internal medicine floor where they require 1:1 sitters, have restricted ability to leave their room, and do not have the opportunity to engage with peers and participate in group therapies.

A practical and low-risk treatment approach with subcutaneous octreotide, a low-fat diet, and medium-chain triglyceride supplementation proved effective in managing refractory chylous ascites while preserving the patient's ability to remain within the therapeutic milieu of the psychiatry floor.

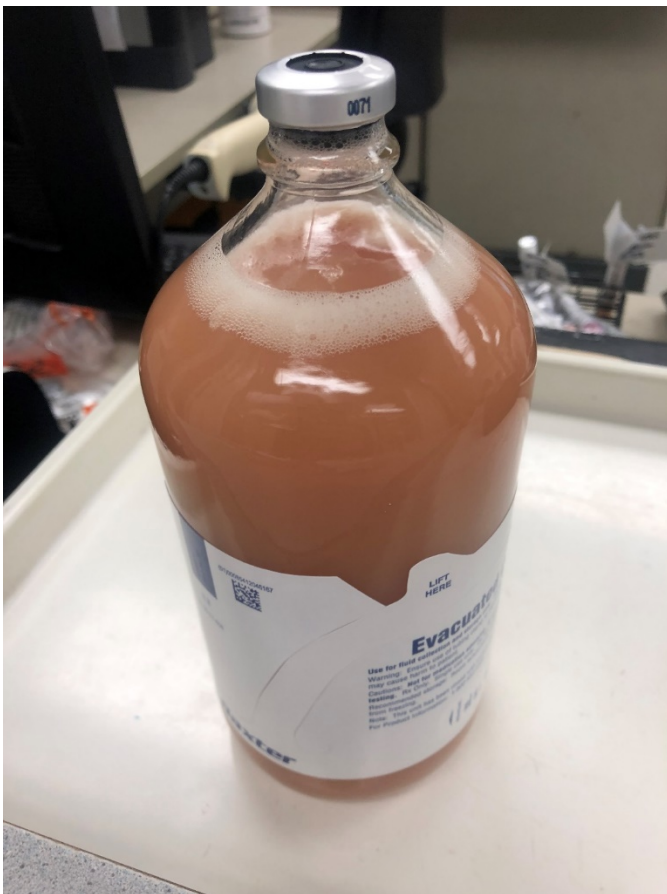


Table 1.

Ascitic fluid results	
Body Fluid Chemistry	Bacteriology and lab
<ul style="list-style-type: none"> • Color: Bloody / Yellow • Nucleated cell count: 97/cumm • Albumin: 2030 mg/dL (SAAG < 1.1g/dL) • Amylase: 47 U/L • Chol: 64 mg/dL • LDH: 87 U/L • Protein: 4.7 g/dL • Triglyceride: 496 mg/dL 	<ul style="list-style-type: none"> • Adenosine deaminase: 16.1 U/L • Culture and anaerobic screens: negative growth • Mycobacterial TB PCR and AFB: negative
Pathology	Serology
<ul style="list-style-type: none"> • Serial ascites cytology: negative for malignancy • Inguinal lymph node biopsy: reactive features with polytypic plasma cells. No evidence of malignancy 	<ul style="list-style-type: none"> • Serum TG: 132 mg/dL • Serum Chol: 170 mg/dL • Serum albumin 2.5 g/dL • ANA: 1:320 • Actin Ab: 36 units

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