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A PERPLEXING CASE OF CHYLOUS ASCITES

General Medicine

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ABSTRACT

Introduction: Chylous ascites is defined as ascites associated with high triglyceride levels and presence of lymph. It is a rare condition but when it does occur it is associated with prolonged hospital stay.[4] Most common cause of it is malignancy followed by cirrhosis. A patient presented with history of chronic alcoholism and painless distension of the abdomen. **Lab Investigations:** Milky white fluid in appearance and on diagnostic paracentecesis was found to have cholesterol levels of 1135 mg/dl with smears negative for malignancy. **Imaging Studies:** Usg Abdomen and CECT abdomen showed portal hypertension secondary to cirrhosis. **Treatment :** Therapeutic tapping and diuretics such as Spirinolactone and Furosemide was given and other supportive measures given and caused temporary improvement. **Conclusion:** Scope for lymphoscintography and other soultions for this condition are discussed.

KEYWORDS

Chylous ascites , triglycerides, cirrhosis , portal hypertension.

INTRODUCTION:

Chylous ascites presents usually as a milky appearing fluid , due to lymphatic fluid in the peritoneal cavity. It is full of triglycerides . It is a rare condition but when it does occur it is associated with prolonged hospital stay..The incidence of chylous ascites is 1% cases [1] and could have many causes such as :

Malignancy / Cirrhosis/ Abdominal trauma or a leak following abdominal surgery/ Congenital causes such as congenital lymphangiectesia .[Table 1 given below]

Cirrhosis is usually a rare cause. It was found to be responsible for 3% cases in Japan, but more than 90% in the rest .

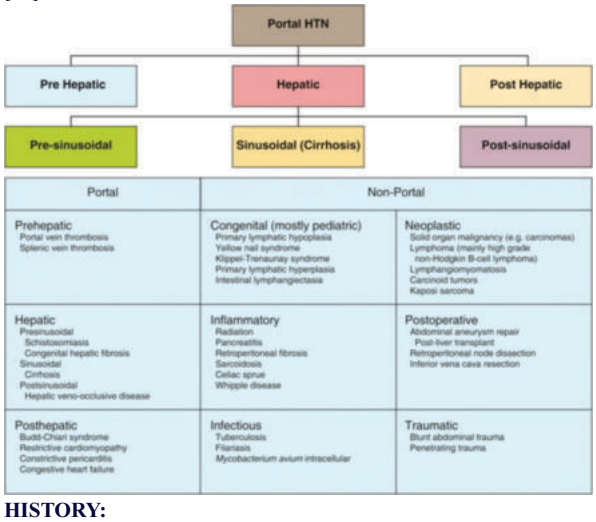
ETIOPATHOGENESIS:

Mechanisms for the formation of chylous ascites include
(1)Leakage of chyle after the rupture of dilated lymphatics
(2) Direct leakage of chyle through a fistula;
(3) Exudation of chyle through the walls of retroperitoneal lymphatics
(4) In case of portal hypertension, mechanism is unclear. However, theories suggest that hepatic lymph production increases when pressure in the hepatic vein increases. And the lymphatic channels get dilated after which they rupture.[4]

CAUSES OF CHYLOUS ASCITES[3]

- Neoplastic (common in adult population)
  - Lymphoma
  - Other cancers (see text)
  - Lymphangiomyomatosis
  - Carcinoid tumors
  - Kaposi's sarcoma
- Cirrhosis (common in adult population)
- Infectious
  - Tuberculosis
  - Filariasis (*Wuchereria bancrofti*)
  - Mycobacterium avium intracellulare
- Congenital (more common in pediatric population)
  - Primary lymphatic hypoplasia
  - Yellow Nail Syndrome
  - Klippel-Trenaunay Syndrome
  - Primary lymphatic hyperplasia
    - Bilateral hyperplasia
    - Intestinal lymphangiectasia
- Inflammatory
  - Radiation
  - Pancreatitis
  - Constrictive pericarditis
  - Retroperitoneal fibrosis
  - Sarcoidosis
  - Celiac sprue
  - Whipple's disease
  - Retractile mesenteritis
- Postoperative
  - Abdominal aneurysm repair
  - Retroperitoneal node dissection
  - Catheter placement for peritoneal dialysis
  - Inferior vena cava resection
- Traumatic
  - Blunt abdominal trauma
  - Battered Child syndrome
- Other causes
  - Right heart failure
  - Dilated cardiomyopathy
  - Nephrotic syndrome

Differential diagnosis of chylous ascites due to portal hypertension [12]



HISTORY:

A female patient 60 years old , who was a known alcoholic since 15 to 20 years [last drink 2 years back] and a case of cirrhosis of liver ,who presented with history of :
- Pain abdomen on both sides since 3 months ,
- Swelling of both feet on and off since 3 months
- Abdominal distension since 3 months despite the ascitic tap procedure done in a local hospital 6 months back. She did not have any

co morbidities such as diabetes and hypertension or tuberculosis in the past.

ON EXAMINATION:

On examination , her vitals were stable . Inspection showed fully distended flanks bilaterally, and increase in abdominal girth and the skin that appeared stretched. Hepatomegaly and or splenomegaly could not be appreciated .On percussion , she had shifting dullness and fluid thrill . Auscultation was unremarkable.

LAB INVESTIGATIONS:

Abnormal findings included a peripheral smear which showed normocytic normochromic anaemia with eosinophils. Ascitic tap was also done . **[Fig 1 as given below]** . Ascitic tap analysis revealed milky white fluid with cloudy appearance. Cell count was 1050 cells per cumm, 90 percent of which were lymphocytes and neutrophils 5% and macrophages 5% in a thick proteinaceous background. Also many reactive mesothelial cells were seen. However , smears were negative for malignant cells with features suggestive of chylous ascites secondary to portal hypertension. Liver function tests showed TB-0.6, DB-0.3, TP- 9.9 , S.alb- 4.7 , AST-31, ALT - 16, ALK Ph- 106, Globulin- 5.2 . The ascitic fluid showed sugar -140 mg/dl , Protein - 6.75 gm/dl , albumin -3.6 gm/dl , LDH 105 U/l[Normal- 110-200 IU/L] & ADA - 15.7 U/L [< 30 negative]. Triglycerides in ascitic fluid were 1135 mg/dl . The Serum albumin - ascitic albumin gradient was calculated to be 1.1. There was no growth in the culture and sensitivity report after 48 hours.

IMAGING STUDIES:

1]Ultrasound abdomen was done and showed normal sized liver of 12 cms. However , it had coarse echotexture and surface irregularities.Portal vein [9.6 mm] and hepatic vein calibre was normal in size . On Doppler interrogation , portal vein was found to have a normal hepatorenal flow and a reduced PSV of 14 cms/ s . Few periportal collaterals were seen.

Portal hypertension was suspected to be the cause of the chronic liver parenchymal disease. The kidneys had bilateral grade 1 renal parenchymal changes . Few anechoic splenic cysts were seen in the spleen the largest measuring 12 X 11 mm. An umbilical hernia was also present with a defect of 3 cms and contents were omentum and fluids.

2] CECT ABDOMEN:

Portal vein appeared prominent , 13 mm in calibre.A few enlarged retroperitoneal lymph nodes , largest measuring 21 X 13 mm suggestive of nonspecific retroperitoneal lymphadenopathy. Abdominal aorta showed atherosclerotic changes in the form of calcifications . Gross ascites was noted and minimal pleural effusion noted. Also splenic cysts were seen. **[Fig 2 as given below]** .

TREATMENT:

Patient was asked to take a diet low in fat and high in proteins and oil containing medium chain triglycerides . Also the patient was given diuretics which contained a combination of Spironolactone and Furosemide were given since they helped in excretion of the volume of fluid . Frequent withdrawal of fluid using paracentesis was done. And other supportive measures were given.

DISCUSSION:

Chylous ascites presents usually as a milky appearing fluid , due to lymphatic fluid in the peritoneal cavity and full of chylomicrons and fat.The causes have been mentioned above.

Characteristics to identify the ascitic fluid as chylous ascitic fluid is given below[Table 2][5]

	Characteristics	Reference range
Color	Whitish, milky	
pH	Alkaline	>7
Triglycerides	Elevated	150-1100 mg/dl
Cholesterol	Decreased	<220 mg/dL
Total proteins	Elevated	>3 g/L
Cellularity	Lymphocyte	400-7.000 × 103/dL
LDH		110-200 UI/L
Culture	+/-	
Cytology	+ in case of neoplasms	
Glucose	Decreased	<100 mg/dl

Table 2: Characteristics of chylous ascites.

The pathognomic characteristic in the chylous fluid was the presence of triglycerides[5].

Ideally, the best investigation to be done for chylous ascites is

lymphoscintography where the lymphatic leak could be detected using radiolabelled albumin when available .[8]It is not only a means of fast diagnosis but the rate of complications too were found to be less and can be repeated again if necessary. [9]

In our patient , the SAAG was found to be 1.1 which suggested portal hypertension [SAAG > or equal to 1.1] . And the elevated triglyceride fluid levels suggested chylous ascites. And also secondary to being an alcoholic , cirrhosis of liver was probably due to alcoholism. There was no history of any abdominal surgeries done previously or any blunt trauma or having received any radiotherapy treatment. Spontaneous bacterial peritonitis was ruled out by culture and sensitivity and neutrophils less than 250 in ascitic fluid. Also, tuberculosis was ruled out due to low ADA levels.

Malignancy was ruled out as the cause by finding reactive mesothelial cells , and smears which were negative for malignant cells.In view of the SAAG levels and history of consumption of alcohol in the past ,along with confirmation on ultrasound and CECT abdomen the diagnosis of portal hypertension secondary to alcoholic cirrhosis was made. [9]

In many small scale studies done , other steps taken in the management of chylous ascites include :
- In one study Orlistat , which inhibits absorption of fat in the intestine[5] was successful in treating ascites and also bringing down the triglyceride levels , the cause of chylous ascites here being cirrhosis.
- In another study , Inj Octreotide or Somatostatin analogues were given .It was found to reduce the portal pressure and decrease peristalsis, leading to a reduced absorption of triglycerides into the lymphatic system [7]One more study used Inj Octreotide for the cirrhosis associated portal vein thrombosis [9].
- Etilefrine [1][10]may help in reducing the chyle flow by contracting the muscles in the thoracic duct
- In another study , chylous ascites due to cirrhosis did not respond to medical therapy. Since the liver function tests were normal , ascites was reduced by decreasing the portal pressure using TIPS. [Transjugular intrahepatic portosystemic shunt] [1]. It was found to be a safe method . But complications include: disseminated intravascular coagulation etc[1]
- In some other study , peritoneal-venous shunts were put for symptomatic relief, but it was associated with the risk of shunt getting occluded.[11]
- TIPS and Denver shunt are usually kept as the last resort [5] when the conservative management has not worked for more than 4 to 5 weeks [10] and /or direct repair surgery was contraindicated.
- One of the studies even used percutaneous embolization of the leaking vessel. [10]

In our ward the patient was given diuretics which contained a combination of Spironolactone and Furosemide since they helped in excretion of the volume of fluid thus reducing the ascitic fluid . And repeated therapeutic paracentesis to remove the ascitic fluid .

CONCLUSION:

The presence of ascitic fluid which was once clear fluid and its conversion to chylous ascites indicates a poor prognosis in the patient.[9]Although conservative techniques are considered to be adequate and one of the studies mentions it as the treatment of choice [2] ,despite treating the probable cause , and optimising nutritional therapy , the therapy only worked temporarily .[9]

Patient followed up after 2 months with recurrence of ascites and was referred to higher centre for lymphoscintography and /or lymphoangiography along with surgical gastroenterology intervention. TIPS[1] / Denver shunt[11] would be ideal.Also, Etilefrine can be tried too during the conservative phase. [10]

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