

# A study of etiological factors in ascities - a cross sectional study

Bindu C B<sup>1\*</sup>, Uday B Nayak<sup>2</sup>, Sydney D Souza<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of General Medicine, Hassan Institute of Medical Sciences, Hassan, Karnataka, INDIA.

<sup>2</sup>Associate Professor, <sup>3</sup>Professor, Department of General Medicine, Kasturba Medical College, Mangalore, Karnataka, INDIA.

Email: [srinivasabindu76@gmail.com](mailto:srinivasabindu76@gmail.com)

## Abstract

**Introduction:** Ascites is a known complication in cirrhosis of liver and ascites can develop in many other conditions in adults like cardiac, infectious, autoimmune, renal, malnutrition and many others clinical conditions. Ascites along with abdominal distension presents with other salient features depending on the etiology. This study was focused on evaluating various aetiological factors involved in ascites. **Methods and Materials:** It was a cross sectional study done among 60 patients with ascites in K M C Hospital Mangalore from September 2006 to September 2008. Patients were clinically assessed and subjected to various biochemical tests of blood and ascitic fluid. **Results:** Among the 60 patients of ascites majority of the patients are males 85% probably related to alcohol, and cirrhosis of liver was the leading cause for ascites 66.7% followed by HBV infection 10% and tubercular peritonitis 8.3% and nearly 33.3% were of the age group between 40 to 50 years. In our study anorexia and pain abdomen were common presenting symptoms along with distension of abdomen and pedal oedema was seen in 88.3% of patients. Pallor and splenomegaly are the other common signs. **Conclusions:** Cirrhosis was the common aetiology for ascites when compared to other causes probably seen in chronic alcoholics as it is shown in our study that males in mid age group are more affected.

**Keywords:** Ascites, Cirrhosis, Etiology, Hepatitis.

## \*Address for Correspondence:

Dr. Bindu C B, Assistant Professor, Department of General Medicine, Hassan Institute of Medical Sciences, Hassan, Karnataka, INDIA.

Email: [srinivasabindu76@gmail.com](mailto:srinivasabindu76@gmail.com)

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## INTRODUCTION

Ascites is a pathological accumulation of fluid in the peritoneal cavity<sup>1</sup>. This can develop in a variety of clinical settings. Cirrhosis and alcoholic hepatitis cause the vast majority of ascites. It is the most common complication of cirrhosis occurring in 50% of patients within 10 yrs of a diagnosis of compensated cirrhosis<sup>2</sup>. The diagnosis was done by history, physical examination, ascitic fluid examination and ultrasonography. Abdominal paracentesis with careful analysis of ascitic fluid was done in evaluating patients with ascites. It is the

most rapid and most effective method in the diagnosis of ascites. The link between ascites and liver disease had already been recognized by Erasistratus of Cappadocia around 300 BC<sup>3</sup>. The development of ascites in a person with chronic liver disease is a poor prognostic sign<sup>2</sup>. 80% of cirrhosis are alcohol related<sup>4</sup> and the most frequent complication observed is ascites<sup>5</sup>. The prognosis is determined by the extent of hepatocellular failure, Jaundice, spontaneous bruising and ascites resistant to treatment are grave signs<sup>6</sup>. The clinical manifestation range from the asymptomatic to the fulminant hepatic failure. It may be totally reversible after alcohol withdrawal. Cirrhosis is the final stage of alcoholic liver disease<sup>7</sup>. The other cause of cirrhosis is viral hepatitis due to HBV and HCV infection can lead to chronic hepatitis, cirrhosis and hepatocellular carcinoma. Hepatitis-C infection complicating alcoholic liver disease is seen 30% of patients<sup>7</sup>. Other causes for extrahepatic sinusoidal portal hypertension are Budd-Chiari syndrome (BCS), the tumours, polycythemia and inferior vena caval obstruction. Puerperal state with accompanying hypercoagulable state is a major setting for BCS in India<sup>8</sup>. Extravasation of milky chyle into peritoneal cavity due to

trauma or obstruction of lymphatic system due to malignancy, tuberculosis, filariasis or congenital lymphangiectasia results in chylous ascites<sup>9</sup>. This study was done with an objective of evaluating various etiological factors in ascities.

### MATERIALS AND METHODS

This was a cross sectional study done among 60 patients with ascites in KMC Hospitals from September 2006 to September 2008. Patients with a diagnosis of ascites clinically and confirmed by ultrasound examination of abdomen for evidence of free fluid in the peritoneal cavity were included into the study. Patients who were receiving long term diuretics and patients with very low serum albumin (<1.5gm/dl) were excluded from the study. The detailed history of every patient was taken as per the proforma. Detailed physical examination was done in every patient as per the proforma and physical signs were elicited for evidence of ascites and other organomegaly. The patients were subjected for detailed investigations like blood for total WBC count, differential count, ESR, hemoglobin percentage, random blood sugar, blood urea, serum creatinine and liver function tests. The abdominal paracentesis was done in all patients with full aseptic precaution. Ascitic fluid cell count and differential count was done in all patients. The ascitic fluid cytology for malignant cells done in patients suspected to have malignancy related ascites. Ascitic fluid bacterial culture was done in patients. The ultrasound criteria used for diagnosis of cirrhosis of liver were<sup>10</sup>.

- a. Shrunken or enlarged liver
- b. Nodular surface
- c. Increased echotexture
- d. Caudate to right lobe ratio of >0.65.
- e. Hepatic vein irregularities
- f. Signs suggestive of portal hypertension like portal vein diameter of >13 mm and splenomegaly.

The other investigations were done when required to establish a definite diagnosis included ECG in all 12 leads, Chest X-ray PA view, Echocardiography, serum HBsAg, ascitic ADA level. The cirrhosis of liver was diagnosed based on clinical signs of portal hypertension. Laboratory and ultrasonographic evidence as explained above. Tuberculous aetiology was considered by clinical features of chronic infection, exudative ascites with lymphocytic predominance in ascitic fluid with absent malignant cells. Chest x-ray was done in all suspected cases for the evidence of pulmonary tuberculosis. ADA estimation was done for further confirmation.

### RESULTS

**Table 1:** Showing Age and Sex wise distribution of ascites patients

Age in years	No. of Patients
20-30	6 (10)
30-40	15 (25)
40-50	20 (33)
50-60	14 (23)
>60	5 (9)
<b>Sex</b>	
Male	51(85)
Female	9 (15)

Figure in parenthesis indicates percentage

The age of patients with ascites ranged from 20-60 years. The maximum age incidence was seen in 40-50 years age group (33 %). Males constituted 85% of cases in the present study.

**Table 2:** Showing Pattern of symptoms in ascites patient

Symptoms	Number of cases
Pain abdomen	20 (33.3)
Fever	10 (16.7)
Jaundice	17(28.3)
Haematemesis	7 (11.7)
Anorexia	40 (66.7)

Figure in parenthesis indicates percentage

In this study other than distension of abdomen other complaints were anorexia (66.7%), pain abdomen (33.3%), Jaundice (28.3%), Fever (16.7%) and Haematemesis (11.7%).

**Table 3:** Showing various signs in ascites patients

Signs	No. of Patients
Pallor	43 (71.7)
Icterus	27 (45)
Pedal edema	53 (88.3)
Tender abdomen	3 (5)
Dilated abdominal veins	18 (30)
Hepatomegaly	11(18.3)
Splenomegaly	32 (53.3)

Figure in parenthesis indicates percentage

In this study pedal oedema was seen in 88.3% cases, Pallor was seen in 71.1% of cases, hepatomegaly was seen 18.3% of cases, splenomegaly was seen in 53.3% of cases.

**Table 4:** Showing various etiological factors in ascites patients

Aetiology	No. of Patients
Budd Chiari Syndrome	1 (1.7)
Cirrhosis of liver	40 (66.7)
Hepatitis B Virus	6 (10)
Hepatitis C virus	1 (1.7)
Malignant ascites	4 (6.7)
Sub acute bacterial peritonitis	3 (5)
Tubercular peritonitis	5 (8.3)
<b>Total</b>	<b>60 (100)</b>

Figure in parenthesis indicates percentage

In this study, Cirrhosis of liver constituted 78% of cases. Among cirrhosis of liver alcohol was the most common aetiology (66%), followed by hepatitis B virus infection (10%) and hepatitis C virus infection (2%). Other aetiologies were tubercular peritonitis (8%) and malignant ascites (7%).

## DISCUSSION

Our study has shown that as compared to many other studies cirrhosis of liver is the most common cause for ascites (table-4) and the common cause for cirrhosis is alcohol consumption<sup>11</sup>. Other etiologies are HBV hepatitis followed by tubercular peritonitis. Studies have shown that complete abstinence from alcohol in decompensated liver disease the outcome is excellent<sup>12</sup>. In our study we also noticed nearly 85% (table-1) of the patients are males and commonly involving middle age groups (table-1) probable reason could be like alcohol consumption more among male population leading to cirrhosis of liver but other etiologies are not sex dependent. In our study the clinical profile of patients along with abdominal distension anorexia(table-2) was the predominant symptom which is again because of liver involvement. We also found along with ascites pedal oedema was the most common sign followed by anemia(table-3) because of impaired venous drainage due cirrhotic liver and massive ascites and malnutrition. Among infections HBV was more compared to tuberculosis as the complications of tuberculosis is less now a days. The results of the present study tell us that in majority of the etiological factors for ascites there is involvement of liver for causation of ascites and various clinical signs and symptoms.

## CONCLUSION

Cirrhosis of liver is the commonest cause of ascites and alcohol is the most common cause of cirrhosis of liver in our study.

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