



A Study on Etiology of Ascites in a Tertiary Care Hospital

KEYWORDS

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ABSTRACT Ascites describes the condition of pathologic fluid collection within the abdominal cavity. The word ascites is of Greek origin (askos) and means bag or sac. There are numerous causes of ascites of which common ones are cirrhosis liver, malignancy, tuberculosis, cardiac failure, pancreatitis and nephrotic syndrome. This study has been done to screen the etiology of ascites in patients admitted with ascites in our hospital between October 2012 and August 2014.

OBJECTIVE: To study the etiology of patients presenting with ascites who were admitted in medical wards and ICU between October 2012 and August, 2014.

MATERIALS AND METHODS: A prospective, Observational study of 200 patients admitted with ascites in medical wards and ICU between October 2012 and August 2014 in our hospital. Inclusion criteria were age of patients above 18 years and ascites confirmed by clinical and ultrasound examination. Exclusion criteria were pregnancy and those who have undergone recent surgery i.e within three months. All patients who fulfilled the inclusion criteria were thoroughly evaluated with a detailed history, physical examination and appropriate investigations. All patients with ascites, after confirmation by USG underwent abdominal paracentesis to ascertain the cause of ascites

RESULTS AND DISCUSSION: In our study the most common cause of ascites was Chronic Liver disease (90%). The remaining causes were malignancy (4.5%), pancreatitis (2.5%), tuberculosis (2%) and cardiac failure (1%). Among chronic liver disease, ethanol related was 60%, HBV related was 18.5%, cryptogenic 6.5%, HCV related was 3.5% and autoimmune etiology was 1.5% respectively. The distribution in malignancy related was hepatocellular carcinoma (22.2%), carcinoma ovary (22.2%), pancreatic carcinoma (11.1%), carcinoma colon (11.1%), gastric carcinoma (11.1%), carcinoma GE junction (11.1%) and primary peritoneal carcinomatosis (11.1%).

INTRODUCTION

Ascites is presence of free fluid within the peritoneal cavity. It forms because of conditions directly involving the peritoneum (infection, malignancy) or diseases remote from the peritoneum (liver disease, heart failure, hypoproteinemia). Cirrhosis liver is the commonest cause, with malignancy and less frequently cardiac failure and tuberculosis, peritonitis being responsible for most other cases.

The pathophysiology underlying the formation of ascites in cirrhosis is complex. The proposed mechanisms involve inappropriate renal sodium and water retention, either secondary to vascular changes (underfill and peripheral arterial vasodilatation hypotheses) or as a primary event (overflow theory). Central to the process are liver disease and portal hypertension. Increased lymph production from the liver and splanchnic capillaries leads to ascites, with contribution by changes in peritoneal membrane and its permeability.

Ascites may develop suddenly when hepatocellular function is reduced i.e. (haemorrhage, shock, infection, alcoholic binge). Insidious onset carries a worse prognosis because it is not associated with any rectifiable factor.

Patients note an increase in abdominal girth that is often accompanied by the development of peripheral oedema. Respiratory function can be compromised in massive as-

cites and patients complain of shortness of breath. Hepatic hydrothorax may also occur, contributing to respiratory distress. Patients with massive ascites are often malnourished and have muscle wasting and weakness.

Diagnosis of ascites is by physical examination, often aided by abdominal imaging. Diagnostic paracentesis (about 30 ml) was performed to characterize the fluid. This includes total protein and albumin, cell counts with differential and cultures. In cirrhotic patients, the majority of patients have ascitic protein <1g/dl. If the serum albumin minus ascites albumin gradient is greater than 1.1g/dl, the patient has portal hypertension (7). A low serum -ascites albumin gradient, less than 1.1g/dl suggests infection or malignancy (1,8,9). There is an increased risk of SBP when ascitic fluid proteins are very low (8,20). The diagnosis of SBP is made when ascitic fluid has an absolute neutrophil count >250/ μ L (17). Bacterial translocation is the presumed mechanism for the development of SBP, with gut flora traversing the intestine into mesenteric lymph nodes, leading to bacteremia and seeding of the ascitic fluid (19). The most common organisms are Escherichia coli and other gut bacteria (16,18).

MATERIALS AND METHODS

A prospective, observational study was done in a tertiary care medical college hospital at Chennai between October 2012 to August 2014. 200 patients above the age of 18

years, admitted with ascites confirmed by clinical and ultrasound examination (6,14) in medicine wards and Intensive care unit(ICU) were included in the study. Patients who have underwent recent abdominal surgery, within the past 3 months and pregnant patients were excluded from the study.

All patients fulfilling the above criteria were thoroughly evaluated with a detailed history and appropriate investigations to identify the cause of ascites. All patients after confirmation of ascites by ultra-sonogram (14) of abdomen underwent abdominal paracentesis to ascertain the cause for ascites.

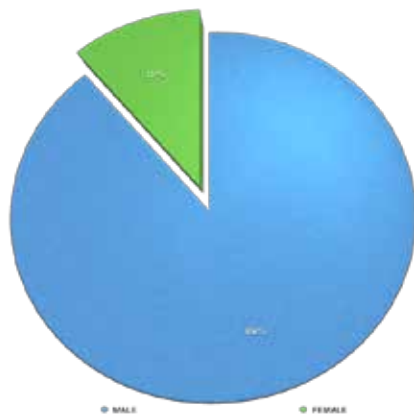
RESULTS

A total of 200 patients with ascites were studied. Male Sex preponderance (89%) was noted compared to female sex(11%). The mean age of presentation is 50.16 years with youngest patient being 23 years and oldest being 76 years. The most common etiology of ascites being chronic liver disease (90%) with ethanol being the most common cause for it.(60%). Out of 200 patients 120(60%) were alcoholic liver cirrhosis, 37(18.5%) were HBV related liver cirrhosis, 13(6.5%) were cryptogenic cirrhosis, 7(3.5%) were HCV related liver cirrhosis, 3(1.5%) were autoimmune liver disease, 9(4.5%) were malignant ascites, 5(2.5%) were pancreatitis, 4(2%) were TB abdomen, 2(1%) were cardiac cirrhosis.

Table 1: Showing sex distribution among patients presenting with ascites.

SEX	FREQUENCY	PERCENTAGE
MALE	178	89%
FEMALE	22	11%

Figure 1: showing sex distribution among patients presenting with ascites



Out of 200 patients included in the study, 178 (89%) were male patients and 22(11%) were female patients (Table 1, figure 1).

The presenting features of patients with ascites were fever in 68.8%, hepatic encephalopathy in 59.4%, pain abdomen in 53.1% & gastrointestinal bleeding in 37.5% of patients (6).

Table-2 Presenting features of ascites

Presenting Features	No.	%
Fever	138	68.8%

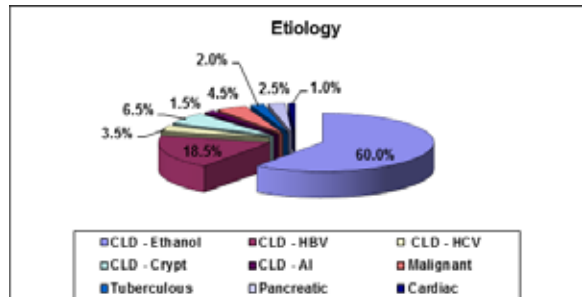
Hepatic encephalopathy	119	59.4%
Abdominal pain	106	53.1%
GI bleeding	75	37.5%

Out of the 200 patients included in the study 17 patients (8.5%) had a Low SAAG of <1.1 while 183 patients (91.5%) had high SAAG OF ≥1.1 (5).

Table 3: showing frequencies of etiologies among patients with Ascites

Etiology	Frequency	Percentage
CLD-Ethanol	120	60%
CLD-HBV	37	18.5%
CLD-Crypt	13	6.5%
CLD-HCV	7	3.5%
CLD-AI	3	1.5%
Malignant	9	4.5%
Pancreatic	5	2.5%
Tuberculosis	4	2%
Cardiac	2	1%
Total	200	100.0

Figure 2: showing percentage of etiologies among patients with ascites



Out of 200 patients 120(60%) were alcoholic liver cirrhosis, 37(18.5%) were HBV related liver cirrhosis, 13(6.5%) were cryptogenic cirrhosis, 7(3.5%) were HCV related liver cirrhosis (4), 3(1.5%) were autoimmune liver disease, 9(4.5%) were malignant ascites, 5(2.5%) were pancreatitis, 4(2%) were TB abdomen (10), 2(1%) were cardiac cirrhosis (Table 2, figure 2) (15).

Table 4: showing etiology of Malignant ascites.

Etiology	Frequency
Carcinoma ovary	2
Hepatocellular Carcinoma(HCC)	2
Pancreatic Carcinoma	1
Carcinoma colon	1
Carcinoma gastro-esophageal junction	1
Gastric carcinoma	1
Primary peritoneal carcinomatosis	1
Total	9

Malignant ascites were seen in 9 out of 200(4.5%) patients. Out of these, 2 were carcinoma ovary, 2 were HCC (13), 1 was Pancreatic Carcinoma, 1 was Carcinoma colon, 1 was

Carcinoma gastro-esophageal junction, 1 was Gastric carcinoma, 1 was Primary peritoneal carcinomatosis (3). Cytology was positive in 6 out of these 9 patients (9,11,12).

DISCUSSION

A total of 200 patients with ascites were studied. Male Sex preponderance (89%) was noted compared to female sex (11%) (2). The mean age of presentation is 50.16 years with youngest patient being 23 years and oldest being 76 years.

The most common etiology of ascites being chronic liver disease (90%) with ethanol being the most common cause for it. (60%) (2).

In our study among the presenting symptoms fever is present in 68.8%, hepatic encephalopathy in 59.4%, pain abdomen in 53.1% & gastrointestinal bleeding in 37.5% of patients. Great variation in presenting features have been reported. Minhas et al reported fever 54%, pain abdomen in 57% and Hepatic encephalopathy in 67% of patients. [92] In other study, Pelletier et al found 89% of patients had fever, UGI bleed (42%), pain abdomen 53% and Hepatic encephalopathy in 50% of cases. [9,3] Limitation of our study was a smaller sample size.

CONCLUSION

In our present study the most common cause of ascites was chronic liver disease (90%) followed by malignant (4.5%). Other causes were pancreatitis (2.5%), Tuberculosis (2%) and cardiac failure (1%).

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