Aetiological Patterns of Ascites in 100 Adult Hospitalized Cases

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Abstract

Background: Ascites is one of the common modes of presentations in medicine ward of our hospital.

Objectives: Study objectives were to find out the causes of ascites, age incidence and sex distribution, pattern of symptoms & signs of different diseases causing ascites and also to evaluate the diagnostic investigations.

Methods: It was a descriptive, cross-sectional study where data from 100 consecutive adult cases of ascites from Shaheed Ziaur Rahman Medical College Hospital (SZMCH), Bogura within a period of ten months were analyzed.

Results: Cirrhosis of liver is the major cause of ascites (35%), followed by tuberculous peritonitis (26%), congestive cardiac failure (12%), nephrotic syndrome (9%), and Intra abdominal malignancy without HCC (8%), cirrhosis of liver with tuberculous peritonitis (4%), sub acute hepatic failure (2%), hepatocellular carcinoma (2%) and hepatocellular carcinoma on CLD (2%).

Conclusion: This series clearly shows that thorough clinical history and examination with simple relevant investigation along with sonographic examination and ascitic fluid study is well enough to reach a diagnosis in most of the ascites patients.

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Keywords: Ascites, Cirrhosis of liver, Tuberculous peritonitis, Hepatocellular carcinoma

Introduction

The accumulation of free fluid within the peritoneal cavity is known as Ascites and it is one of cardinal manifestation of many diseases. Ascites can occur in wide variety of diseases though more than 90% of cases of ascites are due to cirrhosis of liver, heart disease, nephrotic syndrome, malignancy & tuberculosis.

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In many cases the history and physical examination will yield valuable clues to the likely causes of ascites. The present study was planned to find out the causes, aetiological pattern, the age incidence and sex distribution of ascites. The study also aimed to observe the pattern of symptoms & signs of different diseases causing ascites and to evaluate the diagnostic investigations. In a study carried out at the Jefferson Davis Hospital, over 100 cases of ascites (Clinical and autopsy records), it was found that hepatic cirrhosis was present in 75% & malignancy in 21%, tuberculosis in 2%, congestive cardiac failure in 2% peritonitis due to perforation of jejunum in 1%, renal disease in 1%.[1] In another study done in Asir central Hospital, Abha, Southern region of Saudi Arabia among 132 cases of patients manifesting ascites, of which liver causes accounted for 69.7% of cases followed by peritoneal tuberculosis 10.6%, malignancy 9.1%, congestive heart failure 7.6% and nephrotic syndrome 3.0%.[2] In Our Country, study on ascites was done in 1995 and it was showed that 51% cases were due to cirrhosis of liver, 11% due to tuberculosis, 19% due to malignancy, 7% due to nephrotic syndrome, 9% due to congestive cardiac failure [3]. Therefore, it will be rational to study hospitalized adult patients with ascites to see the causes of ascites with their clinical presentation and then an attempt would be made to correlate the usefulness of different symptoms, signs, laboratory investigations and to compare the findings with the other established studies done in abroad or in our country.

Methods

This was a descriptive cross sectional study and study included a total of 100 adult patients with ascites, admitted in different medical units of Shaheed Ziaur Rahman Medical College Hospital, Bogura during the period from 01/01/2009 to 31/10/2009. Patients over age 18 years having ascites detected during physical examination and on ultrasonography of whole abdomen were included in this study. Critically ill patients and perforation of gas containing hollow viscous were excluded from the study. Complete history was taken and patients were undergone complete blood count, serum total protein, albumin, PT, ALT, AST, Alpha feto protein, ascitic fluid study, X-ray chest, ultrasonography of abdomen, echocardiography, barium swallow & barium meal X-ray (in selected cases), biopsy procedures (in selected cases), HBsAg, Anti-HCV, endoscopy of upper GIT and relevant other investigations. Study result was analyzed statistically.

Results

Cirrhosis of liver is the major cause of ascites (35%), followed by tuberculous peritonitis (26%), congestive cardiac failure (12%), nephrotic syndrome (9%), and Intra abdominal malignancy without HCC (8%), cirrhosis of liver with tuberculous peritonitis (4%), Sub acute hepatic failure (2%), hepatocellular carcinoma (2%) and hepatocellular carcinoma on CLD (2%). Maximum number of cirrhotic patient 22/35(62.84%) and, half of the tuberculous peritonitis 13/26 (50%), congestive cardiac failure 6/12 (50%) were In the age group of 41-60 yrs; whereas maximum number of nephrotic syndrome 5/9 (55.55%) where in the age group of 18-30 years. Percentage of liver diseases causing ascites were much higher in male (66.66%) than female, whereas percentage of tuberculous peritonitis is much higher in female (57.70%) than male. A large portion of cirrhotic patient 16/35 (45.71%) and tuberculous peritonitis 14/26 (53.46%) came from very low income family, whereas a large portion of CCF came from moderate income family. HBsAg and Anti-HCV were positive in 36.58% and 7.31% pts and 48.78% of all cirrhotic patients had some

degree of varices. Ascitic fluid was mostly straw and transudative. Hepatocellular carcinoma (4%) is one of the leading causes of ascites and half of them occurred on the background of cirrhosis of liver. Intra abdominal malignancy without HCC is also one of the main causes of ascites. Majority of CCF patients had IHD and 16.66% patients had DCM, most of them are female and post partum. Some of the patients were diagnosed to have sub acute hepatic failure who presented with jaundice abdominal swelling.

Table I: Causes of ascites

Diagnosis	Number of patients
Cirrhosis of liver	35
Tuberculous peritonitis	26
Congestive cardiac failure	12
Nephrotic syndrome	9
Intra abdominal malignancy without HCC	8
Cirrhosis of liver with tuberculous peritonitis	4
Hepatocellular carcinoma on CLD	2
Hepatocellular carcinoma	2
Sub acute hepatic failure	2
Total no of patients (n=100)	100

Table II: Age distribution in ascites patients (n=100)

Age	COL	HCC on COL	HCC	SHF	COL with TP	TP	IAM without HCC	CCF	NS
18-20	2								4
21-30	4			1		6		4	1
31-40	5			1		5	2	1	2
41-50	14	1	1		2	9	1	3	2
51-60	8		1		2	4	2	3	
61+	2	1				2	3	1	
Total	35	2	2	2	4	26	8	12	8

COL: Cirrhosis of liver, HCC: Hepatocellular carcinoma SHF: Sub acute hepatic failure, TP : Tuberculous peritonitis, IAM: Intra abdominal malignancy, CCF: Congestive cardiac failure, NS : Nephrotic syndrome

Table III: Symptoms associated with cirrhosis of liver (n=35)

Symptoms	Number of patients	Percentage
Abdominal swelling	33	94.28
Fatigue	29	82.85
Loss of appetite	25	71.42
Weight loss	16	45.71
Scanty micturition	15	42.85
Leg swelling	14	40
Yellow coloration of eye & urine	13	37.14
Abdominal pain	10	28.57
Breathlessness	9	25.71
Fever	8	22.85
Vomiting of blood	8	22.85
Black tarry stool	7	20
Loss of libido	5	14.28
Sleep alteration	5	14.28
Loss of hair	4	11.42
Altered consciousness	4	11.42
Facial swelling	2	5.71
Epistaxis	1	2.85

Table IV: Signs related to cirrhosis of liver (n=35)

Signs	Number of patients	Percentage
Ascites	35	100
Anaemia	29	82.85
Under nutrition	21	60
Jaundice	18	51.42
Pedal edema	16	45.71
Hepatic facies	14	40
Splenomegaly	12	34.14
Leuconychia	11	31.42
Loss of hair	9	2.57
Gynaecomastia (male)	8	22.85
Fever	8	22.85
Pleural effusion	8	22.85
Testicular atrophy	7	20
Spider naevi	6	1.71
Collateral venous channels	6	1.71
Hepatomegaly	6	17.14
Breast atrophy (female)	5	1.42
Palmar erythema	4	11.42
Flapping tremor	4	11.42
Clubbing	3	8.57
Dupuytren's contracture	1	2.85

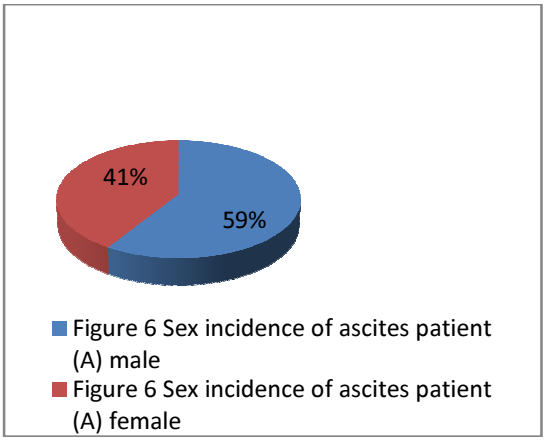

Figure 6. Sex incidence of ascites patient (A)

Discussion

The present study of ascites focused primarily on the diverse aetiologic aspects, incidence of different underlying disease and the variable modes of clinical presentation. Cirrhosis of liver was the major cause of ascites in the present study. If we consider the other associated disease along with cirrhosis, it constitutes 41% of total ascitic patients. The preponderance of cirrhosis of liver as a cause of ascites is similar to the findings of other studies, which found that 51%, 52%, 54%, 60%, 65.9% of their ascitic patients had been suffering from cirrhosis of liver.[2,8,9] Earlier studies have shown that cirrhosis, malignancy, tuberculous peritonitis, CCF are the major causes of ascites in hospitalized patients.[2,8,9] The maximum age incidence of cirrhosis patients was between 41-50 yrs (62.84%). This compares favorably with the other studies from Bangladesh.[9] In this study, male and female ratio was 1.85:1. This high male preponderance is similar to other studies.[8,9] The male preponderance in this hospital-based study is most probably due to social prejudice and avoidance of hospital admission by female.[7] The overall occupational incidences showed that majority of cases were house wife (30%), farmers (19%) and businessmen (10%). This is similar to the other observational study[9]. 14.63% had history of alcoholism, which is little bit higher than other study,[40] probably because of presence of tribal and more non muslim people in that area. A large number of cirrhotic patients did not give any past history of viral hepatitis, alcoholism, reflecting that some other environmental factors e.g. aflatoxin B may play some role in our country. 14.63% of cirrhotic patients gave history of exposer with commercial sex workers, 7% of patients gave history of intravenous drug abuse. The presenting symptoms in this series were similar to other studies.[7,10,11,40] HBsAg and Anti-HCV were positive in 36.58% and 7.31%patients respectively. Association between Hepatitis B and C virus and cirrhosis is well documented.[4,5,12,13] 5%-10% of adults and nearly 70-90% perinatally Hepatitis B infected persons become chronic carriers with the prospect of cirrhosis and /or HCC in future [4,5,14,15]. Bangladesh has highly endemic HBsAg carrier rates. Different studies revealed a HBsAg carrier rate 5.6- 15.9% among different population groups of Bangladesh.[16,17,18,19,20,39] Prevalence of HBsAg carrier is more among professional blood donars (20%).[19] And low among non-professional blood donars (5.6%).[17] The high HBsAg carriage rate may be responsible for the large number of cirrhotic patients who constitute substantial proportion of our hospital admission.[7,21] HBsAg had been identified in 30-8-% of cirrhotic patients.[13,22,23] This is consistent with the results of present study. Anti-HCV had been detected in 64% & 18% of cirrhotic patients[13]. The result of the present study is much lower. In present study, 41.46% (17/41) of all female patients were having tuberculous peritonitis, whereas incidence in male is 22.03%, similar female preponderance has been observed by different authors.[21,24,25,26] These patients had classical presentation with fever, anorexia, weight loss, abdominal pain, and ascites.

These presentation correlates with other studies.[24,25,26,27,28,29] In present study, it is also found that a number of patients of tuberculous peritonitis 13.33% developed this disease on the background of cirrhosis of liver. Abnormal Chest radiograph suggestive of tuberculosis and different studies showed radiographic abnormality in 19.2-50% cases.[7,22] In different study culture was positive in 7.7%-8.0% of cases.[7] In our study, AFB was not found and culture could not be done due to logistic problems. 4% of total ascites patients were diagnosed to have hepatocellular carcinoma. Out of them, 2 patients were found to have cirrhosis of liver also. It points out to the fact that cirrhosis of liver is one of the major risk factors for HCC.[6] Another risk factor i.e. male sex [6] is also found to be true in this study. 100% patients were found to be of male sex. Association between HBSAg positivity and HCC is Well-documented.[4,5,15,31,32,33,34] Globally HBV causes 60-80% of the world's primary liver cancer.[35] 19-60.66% of HCC were positive in different studies of our country.[23,33,36] Persons with HBsAg positive are at 100 times increased risk in developing HCC than HBsAg negative one.[15,32] In one study of our country HBsAg had been detected in 44% of HCC patients. Again persons who acquired HBV infection in early childhood are at increased risk of developing HCC.[14] In our study HBsAg was detected in 36.58% of HCC patients. Several studies suggest that patient with chronic HCV infection have a significant risk of developing carcinoma and 50% of patients with HCC were Anti-HCV positive.[37] Alpha-fetoprotein was significantly raised in 2 out of 3 patients who underwent that investigation. However, association of rising titer or high titer of AFP in HCC is well-documented.[4,37,38] But the result varies in different studies and in one study 93.3% of the HCC showed high levels of AFP.[38] There were 8 patients of ascites with intra abdominal malignancy other than HCC in the present study. Haemorrhagic ascites were found in 75% (6/8) of our patients, which is higher than a previous study where it was 48% patients.[30] In cytological study for malignant cells in ascitic fluid our finding 37.5o% (3/8) was lower than a previous study (77%).[5] In the present study 12% patients were suffering from CCF. 50% (6/12) of them were due to HD, 16.66% (2/12) due to multiple valvular heart disease and 16.66% due to DCM. In present study, 2 patients were diagnosed to have sub acute hepatic failure.

Conclusion

In this study an attempt has been made to see the aetiological pattern of ascites. Only adult patients were enrolled in this study.The results prove that Cirrhosis of liver is the major cause of ascites in our country. Other very important causes are tuberculous peritonitis, malignancy and CCF. Since tuberculous peritonitis can be curative, more emphasis on this particular clinical entity is called for. Many of the patients with cirrhosis of liver and hepatocellular carcinoma are positive for HBsAg and Anti-HCV, implying that these play a causative role in these conditions. Proper immunization against HBV, avoidance of illicit sexual exposure and IV drug abuse can reduce the transmission of HBV and HCV, and can prevent the stage of chronic carrier and complications of CLD. Abstinence from excess alcohol consumption is also recommended.

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