

Clinical Outcome and Demographic Profile of Ascites Patients in Tertiary Care Level Hospital, Ahmedabad

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Abstract: Background & Objectives: This study was aimed to know the treatment outcome and demographic profile of ascites patients in tertiary care level hospital, Ahmedabad city. Method: This is a prospective observational study, including 100 indoor patients of ascites in medicine department in Shardaaben hospital from August 2014 to July 2016 over a period of 2 years. All the patients were interviewed with interview sheet, which was designed especially for this study and was filled by the author. Tools of study: The questionnaire included the personal data, detailed history of the presenting disease, past medical history, special inquire about history of jaundice, blood transfusion or alcohol consumption and drug history. The meticulous general and systemic examination was performed in all patients. Alimentary system examination was done to look for the following signs. -presence of dilated veins, -liver span (in cm), -spleen size, -other abdominal masses, -signs of chronic liver disease, like spider naevi, parotid gland enlargement, finger clubbing, palmar erythema, dupuytren's contracture, distribution of pubic hair and gynaecomastia. Result: Out of 100 patients, 68 (68%) had liver cirrhosis (Group-I), 11 (11%) patients had abdominal tuberculosis, (Group-II), 7 (7%) patients had nephrotic syndrome, (Group-III), 6(6%) patients had cardiac ascites (Group-IV), and 4(4%) cases of malignant ascites (Group-V). 4(4%) patients were in (Group-VI), out of them two had biliary ascites. First one was a female who underwent cholecystectomy for gallbladder stones 3 month before, complicated by bile leakage from the site of closure of C.B.D and the second patient also was a female who presented with ascites and feature of peritonism which was proved to be ruptured gall bladder. One patient was of chronic renal failure on regular haemodialysis, and one patient had abdominal lymphoma. Interpretation and conclusion: From the findings of this study we can draw the following conclusions: 1. Ascites is more common in middle age group of patients and it is more common in males compared to females. 2. The most common clinical presentations of adult patients with ascites are abdominal distension, abdominal pain and pedal edema with a mean duration of symptoms of three months. 3. Among laboratory investigations, most of patients found to have anaemia and raised bilirubin. SAAG ratio is very helpful in differentiating between transudative and exudative ascites. 4. The most common causes of ascites in this setting are liver cirrhosis, followed by abdominal tuberculosis and then renal, cardiac and malignant causes. Alcoholism is the most common cause of liver cirrhosis followed by hepatitis B in our study.

Keywords: Ascites, Cirrhosis of liver, Shardaaben hospital

1. Introduction

Ascites is 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, hypoproteinaemia). Cirrhosis is the commonest cause of ascites in the Western world with malignancy, and less frequently cardiac failure and tuberculosis peritonitis, being responsible for most other cases. In patients with cirrhosis, the development of ascites marks the transition from compensated to decompensated cirrhosis; 2,3 and is the most frequent first decompensating event, occurring in 48% 4. The mechanisms of ascites formation in cirrhosis are complex but portal (sinusoidal) hypertension and renal retention of sodium are universal. The natural history of cirrhotic ascites progresses from diuretic – responsive (uncomplicated) ascites to the development of dilutional hyponatraemia, refractory ascites, and finally hepatorenal syndrome (HRS). While one year survival in patients who develop ascites is 85%, it decreases to 25% once it has progressed to hyponatraemia, refractory ascites or HRS 4. Treatment of ascites has not resulted in a

significant improvement in survival. However, treating ascites is important, not only because it improves quality of life but because spontaneous bacterial peritonitis (SBP), a lethal complication of cirrhosis, does not occur in the absence of ascites. New treatments are being evaluated that modify its pathophysiology, such as the trans jugular intrahepatic portosystemic shunt (TIPS) for refractory ascites and vasoconstrictors for HRS.

Aims and objectives

- 1) To determine the demographic profile of patients with ascites.
- 2) To find out common clinical presentations of patients with ascites.
- 3) To identify the etiological factors of disease under study.

2. Material and Methods

This is a prospective observational study, including 100 indoor patients of ascites in medicine department of our hospital from August 2014 to July 2016 over a period of 2 years.

All the patients were interviewed with interview sheet, which was designed especially for this study and was filled by the author.

Inclusion Criteria

Adult patients aged 18 years and older with evidence of ascites on abdominal examination and clinically stable.

Exclusion Criteria

- 1) Patients age <18 years and pregnant patients.
- 2) Patients with ascites with terminal illness.
- 3) Patients needing ICU and ventilatory support.

The questionnaire included the personal data, detailed history of the presenting disease, past medical history, special inquire about history of jaundice, blood transfusion or alcohol consumption and drug history. The meticulous general and systemic examination was performed in all patients.

Alimentary system examination was done to look for the following signs.

- Presence of dilated veins
- Liver span (in cm)
- Spleen size
- Other abdominal masses
- Signs of chronic liver disease, like spider naevi, parotid gland enlargement, finger clubbing, palmar erythema, dupuytren’s contracture, distribution of pubic hair and gynaecomastia.
- Signs of hepatic encephalopathy, like flapping tremors, foetor hepaticus and confusion.

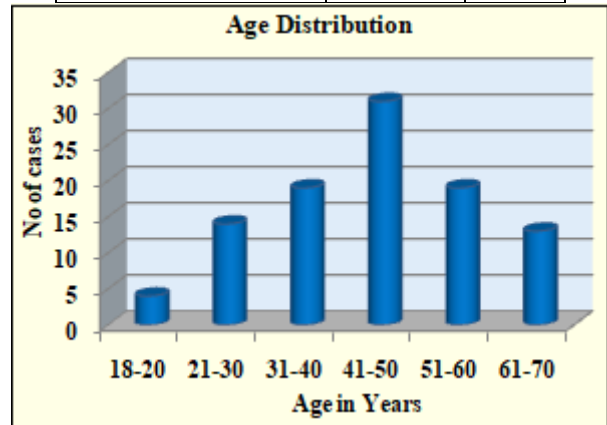
Investigations:

- **CBC and ESR.**
- **RBS, RFT, LFT, Serum Electrolytes, Serum protein.**
- **Prothrombin time.**
- **HIV, HbsAg, HCV.**
- **Urine analysis** for sugar, haematuria, pyuria and albuminuria.
- **Ultrasound of the abdomen and pelvis** was done for all patients for assessment of liver size and echogenicity, kidneys, splenomegaly, the presence of other abdominal or pelvic masses and confirmation of presence of ascites.
- **Ascitic fluid analysis** was done in all patients. Ascitic fluid aspiration was performed under aseptic condition. Examination for macroscopic appearance, colour, and protein level, for cells and bacteria, for gram stain, acid-fast bacilli (AFB), and culture was requested for selected patients.
- **Echocardiography** was done in selected patients having changes in electrocardiogram and suspected patients with cardiac ascites.
- Diagnosis of liver cirrhosis and malignant hepatic disease were made by clinical assessment, laboratory findings and ultrasound examination.
- Abdominal tuberculosis was diagnosed by clinical presentation, suggestive ascitic fluid results, USG abdomen and response to treatment.

3. Observation and Results

Table 1: Age wise Distribution

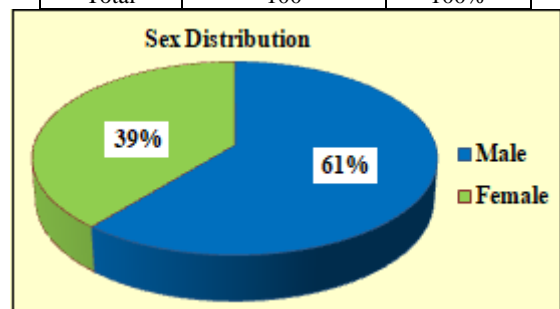
Age Ranges in years	Frequency	Percent
18-20	4	4%
21-30	14	14%
31-40	19	19%
41-50	31	31%
51-60	19	19%
61-70	13	13%
Total	100	100%



Above table and graph shows that 31 (31%) patients were present as highest in 41-50 age group. 19 (19%) patients were in 31-40 age group and 51-60 age group, 14 (14%) were in 21-30 age group, 13 (13%) were in 61-70 age group. In our study the youngest patient was of 18 years and oldest one was of 68 years.

Table 2: Sex Distribution

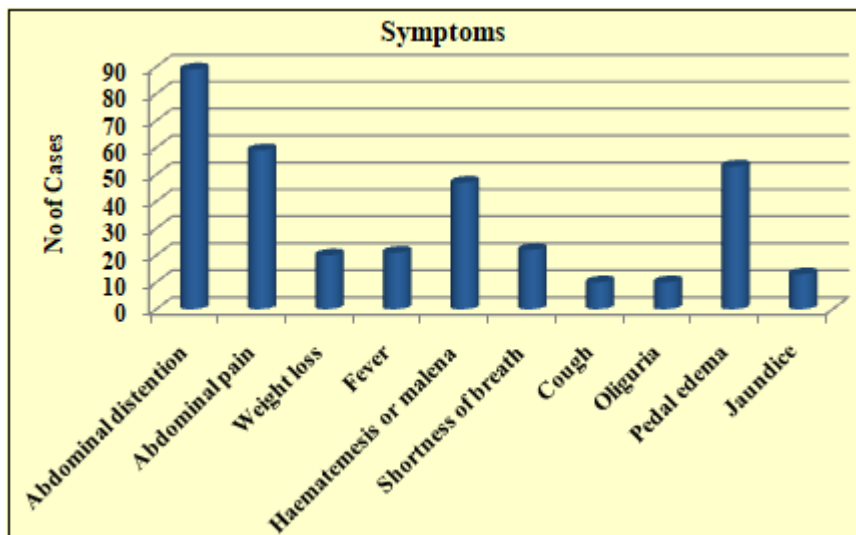
Sex	Frequency	Percent
Male	61	61%
Female	39	39%
Total	100	100%



Above table and graph shows that 61 (61%) patients were Male and remaining 39 (39%) were Female in our study.

Table 3: Symptoms Wise Distribution

Symptoms	Frequency	Percent
Abdominal distention	89	89%
Abdominal pain	59	59%
Weight loss	20	20%
Fever	21	21%
Haematemesis or melena	47	47%
Shortness of breath	22	22%
Cough	10	10%
Oliguria	10	10%
Pedal oedema	53	53%
Jaundice	13	13%



In our study, most common presenting complains were abdominal distension in 89 (89%) patients, followed by abdominal pain (59%), pedal oedema (53%) and bleeding from gastrointestinal tract in the form of either haematemesis or melaena (47%).

22 (22%) patients presented with shortness of breath, 21 (21%) had fever, 20 (20%) had weight loss, 13 (13%) have jaundice and 10 (10%) presented with cough and oliguria.

Table 4: Past History

Past history	Frequency	Percent
Jaundice	26	26%
Blood transfusion	19	19%
Alcohol consumption	35	35%
Pulmonary T.B.	15	15%
Hematemesis	6	6%

Out of 100, 26(26%) patients had past history of jaundice and 19 (19%) patients had history of blood transfusion.35 (35%) patients gave history of alcohol consumption, among them 30 patients were regularly consuming alcohol for more than 10 yrs. 15(15%) patients had history of pulmonary tuberculosis and 6 (6%) patients had history of hematemesis.

Table 5: Clinical Examination of the Abdominal System

Examination finding	Frequency	Percent
Liver		
A. Enlarged	10	10%
B. Normal Liver Span	41	41%
C. Not Palpable	49	49%
Spleen		
A. Not palpable	51	51%
B. Enlarged	49	49%
Ascites signs		
A. Shifting dullness	58	58%
B. Horseshoe dullness	32	32%
C. Fluidthrill	10	10%

10 (10%) patients had enlarged liver, out of them 7 (7%) patients had smooth surface and irregular in 3 (3%) patients. 41 (41%) patients had normal liver span. 49 (49%) patients were found having enlarged spleen, size range (4 – 15) cm below costal margin.

On percussion of abdomen, shifting dullness was elicited on 58(58%) of patients and 10 (10%) patients of tense ascites had fluid thrill.

Table 6: Type of Blood Investigation:

Type of investigation	Frequency	Range
Haemoglobin		
<10 gm/dl	62	62%
>10 gm/dl	38	38%
Total WBCs		
3,000-9,000/cm ³	83	83%
<3,000	11	11%
>9,000	6	6%
ESR		
20-49mm/hr	48	48%
50-100mm/hr	30	30%
>100mm/hr	22	22%
Serum urea		
<45mg/dl	69	69%
45-100mg/dl	23	23%
>100mg/dl	8	8%
Serum Creatinine		
<1.2 mg/dl	65	65%
>1.2 mg/dl	35	35%
Serum sodium		
<135meq/L	31	31%
135-150meq/L	69	69%
Serum potassium		
3.5-5meq/L	65	65%
<3.5 meq/L	25	25%
>5meq/L	10	10%

In our study, out of 100 patients, 62(62%) patients had haemoglobin level < 10 gm/dl. 6(6%)patients had total WBCs of > 9000/cm³ and 48(48%) patients with ESR <50 mm/hr. 69(69%) patients had serum urea <45 mg/dl and 35(35%) patients had serum creatinine level of >1.2 mg/dl. 69 (69%) patients had serum sodium of normal range (135-150 meq/L) while 31 (31%) patients has sodium level <135 meq/L. 65(65%) patients had normal level of serum potassium (3.5-5 meq/L) while 25(25%) had level <3.5 meq/L.

Table 7: Type of Blood Investigation

Investigation	Frequency	Percent
Total protein		
> 6.0 g/dl	62	62%
< 6.0 g/dl	38	38%
Serum albumin		
> 3.0 g/dl	39	39%
< 3.0 g/dl	61	61%
Serum bilirubin		
0.2-1.3 mg/dl	65	65%
>1.3 mg/dl	35	35%
Prothrombin time		
Prolonged > 4 sec than control	34	34%
HBs Ag		
Positive	18	18%
Negative	82	82%
HCV		
Positive	0	0
Negative	19	19%
Not done	81	81%

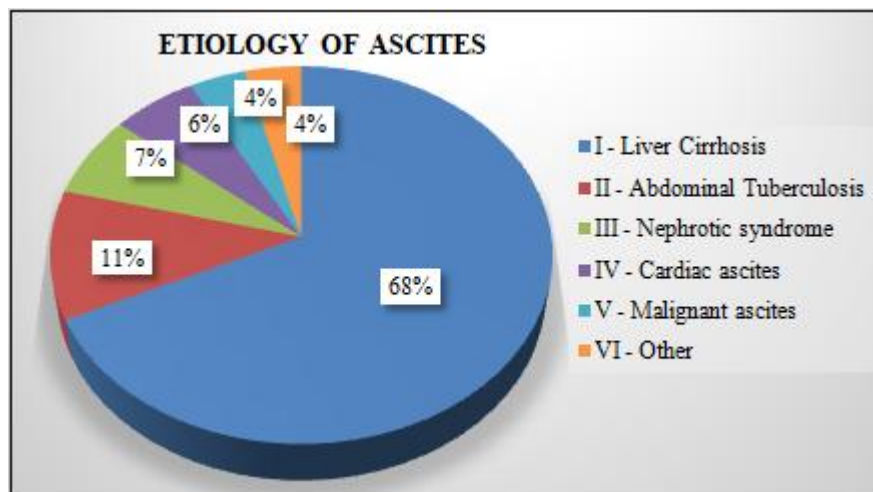
serum bilirubin ranging from 0.2 -1.3 mg/dl and 35(35%) had serum bilirubin range more than 1.3mg/dl.

34(34%) patients had prolonged prothrombin time. HBsAg was done for all patients, out of them 18 (18%) were positive and 82 (82%) were negative. HCV was done for 19 patients having past history of blood transfusions and all were negative.

Table 8: Etiology of Ascites

Etiology	Frequency	Percent
I -Liver Cirrhosis	68	68%
II -Abdominal Tuberculosis	11	11%
III -Nephrotic syndrome	7	7%
IV -Cardiac ascites	6	6%
V -Malignant ascites	4	4%
VI -Other	4	4%
-Bilious ascites	2	2%
-Chronic renal failure	1	1%
-Lymphoma	1	1%

62(62%) patients had total protein>6.0 gm/dl while 39(39%) patients had serum albumin >3 gm/dl. 65 (65%) patients had



Out of 100 patients, 68 (68%) had liver cirrhosis (Group-I), 11 (11%) patients had abdominal tuberculosis, (Group-II), 7 (7%) patients had nephrotic syndrome, (Group-III), 6(6%) patients had cardiac ascites (Group-IV), and 4(4%) cases of malignant ascites (Group-V).

4(4%) patients were in (Group-VI), out of them two had biliary ascites. First one was a female who underwent cholecystectomy for gallbladder stones 3 month before, complicated by bile leakage from the site of closure of C.B.D and the second patient also was a female who presented with ascites and feature of peritonism which was proved to be ruptured gall bladder. One patient was of chronic renal failure on regular haemodialysis, and one patient had abdominal lymphoma.

4. Discussion

In this prospective study of 100 patients with clinical ascites, 68% had liver cirrhosis. Cirrhosis is the commonest cause of ascites in our study. This finding is comparable with causes of ascites worldwide, with liver cirrhosis being

the commonest cause. In India it accounts for 60.7% by Bhopinderkumaret al.⁹⁶

Etiology	Present Study	Bhopinder et al ⁹⁶	Darshan et al ⁹⁷
Liver Cirrhosis	68%	60.7%	60.7%
Abdominal Tuberculosis	11%	13%	15.6%
Renal	7%	5.9%	3.9%
Cardiac	6%	7.7%	5.8%
Malignant	4%	7.7%	5.8%

1)Alcoholic cirrhosis is the most common cause of liver cirrhosis (53.03%), since past medical history revealed that 35 patients were alcohol consumer among them 31 (88.5%) were male and 4 (11.5%) were female. Among them, 30 were regular consumer with duration of more than 10 years and 5 were irregular consumer. Second most common etiology of cirrhosis in this group is post infective(39.39%) since 26 patients with liver cirrhosis had past history of jaundice and hepatitis B surface antigen (HbsAg) was positive in 18 (34.61%).

Etiology of liver cirrhosis showed great difference from country to another. If we compare our result with others, in

Yemen alcohol is the commonest cause (53.57%), followed by post infective (46.43%)⁸⁶; in Saudi Arabia post infective is the commonest cause (64.13%)⁸⁷; in USA alcoholism account for 60% and post infective for 10-20%⁸⁸; in Britain alcoholic cirrhosis account for 34% and post infective for 6%⁸⁹.

Alcoholic cirrhosis is the most common type of cirrhosis encountered in North America, and many parts of West Europe and South America. The amount and duration of alcohol ingestion, appears to be the most important determinant of liver injury, however, among heavy alcohol drinkers only 10-20% develop cirrhosis⁹⁰, which suggests that other factors may affect the impact of alcohol on the liver such as malnutrition. All patients with alcoholic cirrhosis should be advised to stop drinking for life. Abstinence from alcohol results in an improvement in prognosis, with 15 year survival of 90%, but with continued drinking this falls to 60%. HCC is a complication more in men in 10-15% of cases with alcoholic cirrhosis⁹⁰. The percent of alcohol consumer decreased in the last 20 years because of the awareness of its complication and religious restriction.

The investigations for hepatitis B became more available and more accurate, chronic hepatitis B infection remains an important worldwide problem and a leading cause of cirrhosis and hepatocellular carcinoma. In present study, the diagnosis of hepatitis B infection is usually very late, because patients used to treat it traditionally and they usually seek medical advice late after the development of complications. Standard of care and treatment for hepatitis B infection are the use of either immunomodulatory agents, interferon, or the antiviral drugs. Portal hypertension alone rarely causes ascites and the development of ascites may signal a precipitating cause, which may be in most cases upper GIT bleeding from varices, or infection. In the absence of these precipitating factors, it indicates that either there is hepatic insufficiency due to concomitant hepatitis B infection or portal hypertension has reached an advanced stage, which has a poor prognosis.⁹³ Propranolol used as a secondary prevention for bleeding esophageal varices was found to reduce the risk of bleeding from 45% to 22%.

2) Abdominal tuberculosis in our study was account for 11% of causes, compared with Bhupinderkumar et al ⁹⁶(13%). The diagnosis of tuberculous ascites is often difficult because of the subtle clinical clues, poorly discriminating biochemical studies, delayed results of bacteriological studies and hazards of laparoscopy. CT abdomen is useful diagnostic tool for abdominal tuberculosis but in present study, as most of the patients admitted in our hospital were poor and coming from lower socioeconomic class, it was not possible. So, diagnosis of abdominal tuberculosis was done by clinical presentation with symptoms and signs of tuberculosis, suggestive ascitic fluid, which is exudative containing high cells with predominant lymphocytes and response to treatment, which may necessitate prolonged hospitalization and frequent visits in the refer clinic.

Adenosine deaminase (ADA) level in ascitic fluid is a useful non-invasive screening test in the diagnosis of tuberculosis specially in endemic areas or in high risk patients. However,

false negative results may occur in those patients with low ascitic protein concentration. Gamma interferon is also useful in the investigation of tuberculous peritonitis⁹⁴.

3) In our study, 7% patients presented with generalized body swelling with facial puffiness, were diagnosed as nephrotic syndrome on the basis of proteinuria with high 24 hrs urinary protein (mean 4.6g/24hrs), low serum albumin (mean 2.2g/dl) and ultrasound findings. Renal biopsy which was done for 3 patients, one was a female diagnosed in the laboratory as SLE her renal biopsy showed type (IV) SLE nephritis and the other two biopsies showed focal segmental and membranous glomerulonephritis. Incidence of ascites due to nephrotic syndrome in Darshan et al is 3.9%⁹⁷.

4) Congestive heart failure was diagnosed in 6% patients, the underlying etiology was confirmed by Echocardiography which revealed I.H.D in 2 (33.33%), DCM in 2 (33.33%), valvular lesion M.S and MR in one (16.67%) and constrictive pericarditis in one (16.67%). In Bhupinder kumar et al it was 7.7%⁹⁶.

5) Malignant ascites in our study accounted for 4%, compared with Bhupinderkumar et al (7.7%)⁹⁶, with three cases of HCC and one case of carcinoma stomach. Hepatocellular carcinoma accounted for (80-90%) of liver carcinoma, with high incidence in Africa and Asia. It is more common in men than in women, it occur in top of cirrhosis in over 75% of cases.⁹⁴ Diagnosis of HCC depends on the clinical examination which usually shows enlarged, hard, nodular liver, with ultrasound findings, high level of alpha-fetoprotein > 400ng/dl, and the confirmation of diagnosis by liver biopsy best done under ultrasound guidance.

Management depends on the size of the tumour, partial hepatectomy for solitary hepatic lesion but with low 5 years survival. In cases of diffuse tumour other approaches which are of limited usefulness include hepatic artery embolization and hepatic artery perfusion with chemotherapy.⁹⁴ Unfortunately most of our patients presented very late with massive hepatomegaly and extensive metastasis, which make their prognosis very poor.

6) Biliary ascites, although it is a rare condition was found in two females, first one due to leakage from C.B.D ligation after cholecystectomy, and the second one due to rupture gall bladder, both of them were operated on with complete recovery. One patient presented with abdominal masses and milky ascites, after investigation she was diagnosed as a case of lymphoma and referred for chemotherapy with some improvement.

5. Summary and Conclusion

From the findings of this study we can draw the following conclusions:

- 1) Ascites is more common in middle age group of patients and it is more common in males compared to females.
- 2) The most common clinical presentations of adult patients with ascites are abdominal distension, abdominal pain and pedal edema with a mean duration of symptoms of three months.

- 3) Among laboratory investigations, most of patients found to have anemia and raised bilirubin. SAAG ratio is very helpful in differentiating between transudative and exudative ascites.
- 4) The most common causes of ascites in this setting are liver cirrhosis, followed by abdominal tuberculosis and then renal, cardiac and malignant causes.
- 5) Alcoholism is the most common cause of liver cirrhosis followed by hepatitis B in our study.

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