

Analysis of 100 Cases of Ascites: A Prospective Study

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ABSTRACT

Objective: To determine the causes of ascites in adult patients

Study design: A prospective study

Place and duration. The study was carried out at Pakistan Air Force Hospital Faisal Base Karachi from January 2019 to October 2019.

Patients and Methods: All patients with ascites both male and female were included in this study. A detailed medical history and complete examination were carried out. Ascites was confirmed by ultrasound and ascitic fluid was taken and sent to laboratory for different tests. Blood was sent for chemistry and cells count.

Result: A total of 100 patients were enrolled. Out of them, 68 were male and 32 were female. Cirrhosis of liver was found in 66 patients, malignancy-related ascites in 14 patients, peritoneal tuberculosis in 12 patients, congestive cardiac failure in 5 and nephrotic syndrome was found in 3 patients.

Conclusion: Liver cirrhosis was the leading cause of ascites in adult patients. Hepatitis C virus was mainly responsible for cirrhosis. Strict policy to cut down viral transmission can prevent hepatotropic virus related liver disease and ultimately its common complication ie ascites.

Keywords: ascites, hepatitis c virus, hepatitis B virus,

INTRODUCTION

Accumulation of fluid within the peritoneal cavity results in ascites. The common causes include cirrhosis of liver, malignancy, tuberculosis, cardiac failure and nephrotic syndrome. The most common cause of ascites is cirrhosis, which accounts for approximately 80 percent of the cases. Successful treatment of ascites mainly depends upon accurate diagnosis of its cause 1.

Abdominal paracentesis is the most important investigation to reach at specific cause of ascites. It is indicated for all patients with new-onset ascites. It is done at bedside and under ultrasound guidance when required. The fluid is sent for routine examination test(RE), culture and sensitivity, cytology, adenosine deaminase, lactate dehydrogenase, and acid fast bacilli or geneXpert .Few more tests are performed to aid in confirming the rare causes of ascites 2.

Al Knawy et al. in his study for Aetiology of ascites, accounted liver cirrhosis 69.7%, peritoneal tuberculosis 10.6%, malignancy 9.1%, cardiac failure 7.6%, and nephrotic syndrome 3.0% as cause of ascites 3. In another study by Bruce A Runyon, cirrhosis was accounted as a cause of ascites in 80% of patients and 20% was due to non-hepatic causes. Among the cause of cirrhosis, Alcohol was the leading cause 4. This association is further confirmed by Hoefs J C , who reported 56 patients of ascites secondary to cirrhosis with 52 were due to alcoholic liver disease 5. Hepatotropic viruses are responsible for majority of liver cirrhosis in developing countries.6 Hepatitis B and Hepatitis C viruses were responsible for most of the cirrhosis 7, 8.

Ascites has evoked little research in our region. The study was started to put forward the common causes of ascites in our region so that the treatable cause could be identified. The successful treatment depends on an accurate diagnosis of the cause of ascites. For example, peritoneal tuberculosis and peritoneal carcinomatosis do not respond to diuretic therapy. The diagnosis of abdominal tuberculosis is mostly overlooked or delayed that result in increased morbidity and mortality. The aim of this study was to determine the causes of ascites common to our region and the diagnostic yield of ascitic fluid in making such diagnosis.

METHODOLOGY

This study was conducted in the department of Medicine, Pakistan Air Force Hospital Karachi, from January 2019 to October, 2019. A

total of 100 adult patients of either gender between the age of 13 and 70 with new-onset ascites were included in the study. The diagnosis of ascites was based on distension of abdomen with fullness in flanks, positive shifting dullness and fluid thrill, and ascitic fluid on tapping. Patients with previous history of abdominal paracentesis were excluded from the study.

A detailed history was taken and thorough clinical examination was performed in all patients. Particular stress was given on recent weight gain, abdominal distension, low grade fever, jaundice, cachexia, sacral and pedal oedema, cardiac failure and peri orbital puffiness. A frontal chest radiograph and abdominal ultrasound were carried out in all patients to find out and confirm the presence of pleural effusion and ascites, respectively. The blood is sent for complete blood count, ESR, CRP, Liver function tests with PT and Albumin, Renal function tests, serum electrolytes, Hepatitis B surface antigen, anti HCV antibodies and the urine routine examination. The ascitic fluid was examined for its appearance and sent for routine examination including total protein and albumin, cell counts and differential count and also for glucose , ADA levels,LDH levels, cytology , Gram's stain, bacterial culture, acid fast bacilli smear and genexpert test. More specific tests like tumour markers (AFP, CEA, CA 19-9, CA 125), amylase and lipids were done only in selected cases . Electrocardiography was performed in 22 patients and 2 D-echocardiography in 10 patients. Thirty-two patients were underwent upper GI endoscopy and three colonoscopy. Contrast enhanced CT of abdomen was done in 26 patients and 12 underwent peritoneal and/or lymph node biopsy. Fibroscan of liver was done in 8 patients. Tumour markers especially alpha fetoprotein, carcinoembryonic antigen, CA 19-9 and CA 125 were done in 14 patients.

The diagnosis of liver cirrhosis was based on history, clinical examination with particular stress on stigmata of chronic liver disease, coarse liver with increased echogenicity on ultrasonography, low serum albumin, prolonged PT, and deranged LFT and decreased platelets count and a fibroscan(transient elastography) value of more than 7.0 kPa.

Peritoneal carcinomatosis was diagnosed on previous history of malignancy, cachexia, diuretic resistant ascites, palpation of abdominal lump(s), haemorrhagic tap and positive cytology. Peritoneal tuberculosis was diagnosed by history of chronic low grade fever, progressive weight loss, history of tuberculosis, prominent lymph nodes on ultrasound, exudative

ascites with raised ADA levels, and peritoneal biopsy. Cardiac ascites was diagnosed by clinical features, previous history of cardiac disease, electrocardiographic and echocardiographic findings. The nephrotic ascites was diagnosed by history of renal disease, periorbital puffiness, anasarca, and low albumin and proteinuria.

RESULTS

This study enrolled 100 patients. The age was between 18 to 70 years. The mean age was 41.5 year. Out of 100 patients, sixty-eight (68%) were male and thirty two (32%) were female and the ratio was 2:1. The most common cause of ascites was cirrhosis of liver (66%), followed by peritoneal carcinomatosis (14%), peritoneal tuberculosis(12%),congestive cardiac failure(5%),and nephrotic syndrome(3%). Liver cirrhosis was found in 66 patients. Generalized muscle wasting, abdominal distension and pitting type of pedal oedema were common at presentation. While one or two stigmata of chronic liver disease like palmar erythema, spider naevi, jaundice, gynecomastia, testicular atrophy or scanty pubic or axillary hairs were common signs. Additional signs of portal hypertension like splenomegaly, prominent veins around umbilicus were also noted. Ascitic fluid was clear and straw-colored in most patients. The protein content was low and cell count was not increased. Bacterial culture was positive in 2 patients. The serum ascites albumin gradient was more than 1.1 g/dl in 60(91%) patients. Right sided pleural effusion was present in 6(9%) patients. Chronic viral hepatitis was the cause in 54(82%) patients. In twelve (18%) patients the cause could not be found by available laboratory tests. No one disclosed or admitted alcohol intake. Hepatitis B was found in 20(37%) and hepatitis C in 32(59%) while 2(3.7%) have dual infection.

Malignancy-related ascites was observed in 14 patients. Colonic malignancy in 6 patients and ovarian malignancy in 3 patients were detected. In 5 patients the primary malignancy remained unknown. The value of serum ascites albumin gradient was less than 1.1 g/dl. Malignant cells were seen in 8 patients. Peritoneal tuberculosis was seen in 12 patients. Two patients had pulmonary findings and only one disclosed raw-milk ingestion. Four patients accepted positive family history of tuberculosis in close contacts. Congestive heart failure was seen in 5 patients. All patients had previous history of ischemic heart disease with ejection fraction less than 40 percent. Nephrotic syndrome was seen in 3 patients. The serum ascites albumin gradient was less than 1.1 g/dl. Two patients had membranous nephropathy and one minimal change disease.

Table 1: Causes of ascites

cause of ascites	%
cirrhosis of liver	66%
peritoneal carcinomatosis	14%
peritoneal tuberculosis	12%
congestive cardiac failure	5%
Nephrotic syndrome	3%

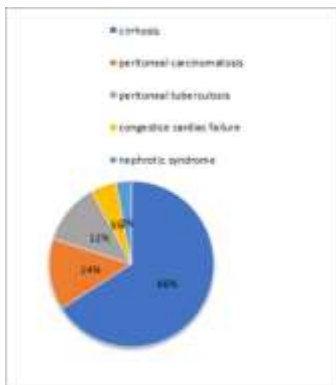


Figure 1: Causes of ascites

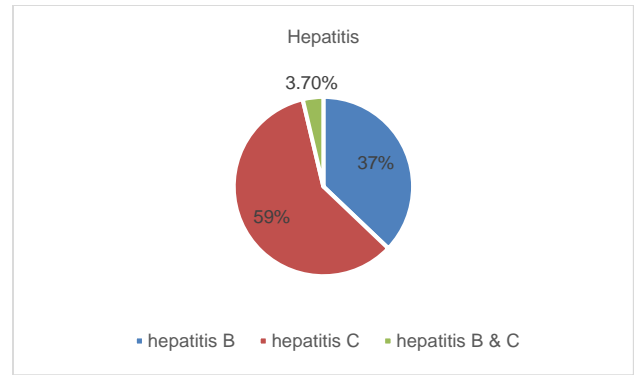


Figure 2: Hepatitis

Table 2: Malignancy

Malignancy ascites related	14
Chronic malignancy	6
Ovarian malignancy	3
Primary malignancy	5

DISCUSSION

Ascites secondary to Alcohol-related liver disease is not the cause in our study. Alcohol is not easily available to common people. Chronic hepatitis C infection is the common cause for cirrhosis and ascites. It has insidious onset and patient remained ignorant before viral testing. In few cases of cirrhosis, the cause could not be ascertained. The next common cause of ascites was secondary to peritoneal carcinomatosis. Half of these patient has had liver metastasis with high alkaline phosphatase and normal alpha fetoprotein. Tumor markers like CA 125, CA 19-9 and CEA were elevated in ovarian, pancreatic and colonic malignancies respectively. Ascitic fluid was haemorrhagic in all cases. Peritoneal Tuberculosis is common disease in our region. Most patients were young and few had loculated fluid in pockets with difficult diagnostic tap. Their ascitic fluid had high lymphocytes and high ADA levels.9.

One young boy developed ascites rapidly and was diagnosed as Budd-Chiari syndrome. He had a family history of venous thrombosis and high Homocysteinemia. He underwent transjugular intrahepatic portosystemic shunts(TIPS). Our study enrolled 100 patients of middle to lower income class. The scope and number of patients can be broadened to ascertain the causes in few cirrhotic patients. A need for a study that include upper income class or business class to clearly demonstrate the incidence of alcoholic cirrhosis and subsequent development of ascites [10].

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