

Original Research Article

A Study On Clinical Profile Of Patients With Ascites Admitted To Tertiary Care Center

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ABSTRACT

Ascites is the accumulation of free fluid in the peritoneal cavity. Ascites is one of the most common complaint amongst the various clinical problems confronting a physician, and ascitic fluid analysis is the most effective way of etiological diagnosis. Traditional classification into 'exudative' and 'transudative' depending on the Serum Ascites Albumin Gradient (SAAG) is unable to correctly identify the conditions. Hence a more reliable method to classify the same is required. Early diagnosis of Tuberculosis Peritonitis is often difficult to make as symptoms of Tuberculosis Peritonitis is generally non-specific. The study was conducted on patients with ascites admitted to the Medicine and Gastroenterology Department,. Totally 124 patients were included in the study of which, 98 patients had Cirrhotic Ascites, 12 patients had Tubercular Ascites, 14 patients had Malignant Ascites. Clinical evaluation, abdominal ultrasonography, and laboratory investigations were conducted as follows: Serum lipid profile, Ascitic Lipid Profile and SALG of total cholesterol, triglyceride, HDL cholesterol, and LDL cholesterol. On analysis, it was found that the SALG values are significantly higher in cirrhosis than tuberculosis or malignancy. A close relationship between the levels of SALG and type of Ascites was found which was significant for differential diagnosis.

Keywords: Cirrhosis, ascites, serum ascites lipid gradient (SALG), tuberculosis and malignancy

Introduction

Ascites is defined as a pathological free fluid accumulation within the peritoneal cavity. The word ascites is derived from the Greek word '*askos*', which means a bag or sack. Clinically ascites is a consequence or complication of a number of diseases directly involving the peritoneum (infection, and malignancy) or diseases remote from the peritoneum (hepatic, cardiac, hypoproteinemias). Ascites usually carries an unfavorable prognosis ^[1].

For example, the development of ascites in cirrhotic patients is associated with a mortality of 15% and 44% at one- year and five-year follow-up periods, respectively. However, the prognosis largely depends on the underlying cause (i.e. the primary disease). Combined analysis of laboratory data of ascitic fluid samples and clinical and pathological data is essential for establishing a differential diagnosis. This study aims to assess critically the value of ascitic

fluid analysis in the diagnosis of ascites, especially cirrhotic ascites [2].

Cirrhosis is the most common cause of ascites (75%) followed by peritoneal Malignancy (12%), cardiac failure (5%) and peritoneal tuberculosis (2%) [3].

In patients with cirrhosis, the development of ascites marks the transition from compensated to decompensated cirrhosis. The most frequent first decompensating event [4].

Methodology

The source of data were the patients diagnosed as cirrhotic ascites, tuberculous ascites and Malignant Ascites based on clinical, histo-pathological and radiological basis by Physicians in the Department of Medicine, Venous Blood sample and ascitic fluid were collected from these patients after a provisional diagnosis of either cirrhotic, Tubercular or Malignant were made based on clinical, sonographical and laboratory methods. The patients were followed up to their discharge.

Study design

Prospective Observational Study.

Sample size

A total of 128 patients were eligible for the study who met the inclusion and exclusion criteria.

Inclusion criteria

1. Patients with Ascites proved clinically and Ultrasound diagnosed as Cirrhotic, Tubercular and Malignant Ascites.
2. Patients aged more than 18 years.
3. Patients with Normal coagulation Profile

Exclusion criteria

1. Patient who refused to consent.
2. Patients with Sub Acute Bacterial Peritonitis.
3. Patients with blunt injury Abdomen.

Patients with Coagulopathy or Disseminated Intravascular Coagulation (DIC).

Results

Table 1: Sex distribution

		Frequency	Percent
Valid	Female	29	23.4
	Male	95	76.6
	Total	124	
	$X^2=1.62, p = 0.655$		

According to the observations made, out of 124 patients, 29 were females (23.4%) and 95 were males (76.6%). In each category of Ascites the number of males were higher than females owing to the increased incidence of cirrhosis, Tubercular and Malignant conditions and associated risk factors in males like smoking, alcohol consumption and associated co-

morbidities.

These numbers were analysed statistically, yielding a 'p' value of >0.6, which was statistically insignificant.

Table 2: Age distribution

	Frequency	Mean
<20 YRS	3	48.065
20 to 30 yrs	14	
30 to 40 yrs	26	
40 to 50 yrs	27	
50 to 60 yrs	37	
60 to 70 yrs	7	
>70 yrs	10	

According to the observations made, the mean age of the patients in the study was 48 years. Patients presented with ascites from 12 years to 86 years.

Table 3: Serum ascites cholestrol gradient

SACG	<10	20 - 40	40 - 60	60 - 80	80 - 100	>100	Total
Cirrhotic ascites	9	10	21	17	15	26	98
Malignant ascites	0	2	4	1	2	5	14
Tubercular ascites	1	2	6	0	2	1	12
Total	10	14	31	18	19	32	124

Table 3A: Chi-Square tests serum ascites cholestrol gradient

SACG	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	159.991a	172	.735
Likelihood Ratio	119.196	172	.999
N of Valid Cases	124		

a. 261 cells (100.0%) have expected count less than 5. The minimum expected count is 10.

Cohen's d effect size has been computed and discrimination function analysis is done to determine the percentage of correct classification between cirrhotic tubercular and malignant ascites. Serum Ascites Cholesterol Gradients was high among the Cirrhotic Ascites compared to Malignant and Tubercular ascites 75 versus 54 versus 56. Hence it is definitely the best marker to differentiate cirrhotic ascites, tuberculous ascites and malignant ascites.

There was a statistically significant result observed with the values of p value of < which was statistically significant.

Discussion

Biochemical ascitic fluid is of great importance for a clinician when making etiologic diagnosis of ascites. Distinction between cirrhotic and other causes of ascites has important therapeutic and prognostic implications. Biochemical analysis of ascitic fluid can be helpful in determining the underlying disease. This study aimed at evaluation of biochemical parameters Lipid gradients in differentiating cirrhotic from tuberculous ascites and malignant causes^[5].

Lipid gradient is calculated by subtracting ascitic fluid cholesterol from serum cholesterol. Our

study showed a higher serum ascites lipid gradient (cholesterol)/ cholesterol gradient in cirrhotic ascites group when compared with the tuberculous ascites group with large effect size and not a very good discrimination percentage to differentiate the two conditions ^[6].

Hypercholesterolemia has been described in alcoholic liver cirrhosis. However, an exact pathophysiological relationship between lipid gradients and portal hypertension was difficult to explain. It is hypothesized that there might be some factors related to lipid gradients which will indirectly reflect the abnormally high hydrostatic pressure gradient between the portal system and peritoneal compartment. On the other hand chylous ascites is most often the result of lymphatic obstruction from trauma, tumour, and tuberculosis and rarely from liver cirrhosis ^[7].

Rahul Sai Gangula, Mukhyaprana Prabhu M, Weena Stanley, *et al.* of Kasturba Medical College, Manipal. Under the title Diagnostic Utility of Serum Ascites Lipid Gradient. In The Differential Diagnosis of Ascites. The study was conducted on patients with ascites admitted to General Medicine Department, Kasturba Hospital, Manipal. The study included 60 patients with ascites of different etiologies (liver cirrhosis, tubercular peritonitis, and malignant ascites). Concluded that Similar to SAAG, SALG has important value in differentiating cirrhotic ascites from tuberculosis or malignant ascites but cannot differentiate tuberculosis ascites from malignant ascites. However the study found out that HDL Cholesterol levels in serum and ascitic fluid between malignant and tubercular groups are statistically significant ^[8].

Khairy H Morsy, Mohamed AA Ghaliony. *et al.*, under title of “Diagnostic Value of Serum Ascites Lipid Gradients in Patients with Ascites” The study was conducted on patients with ascites admitted to Tropical Medicine and Gastroenterology Department, Assiut University. The study included 115 patients with ascites of different etiologies (liver cirrhosis, tuberculosis, and malignant ascites). Clinical evaluation, abdominal ultrasonography and laboratory investigations were conducted as follows: Serum Ascites Albumin Gradient (SAAG), serum lipid profile, and SALG of total cholesterol, triglyceride, HDL cholesterol, and LDL cholesterol. Concluded that, SALG has important value in differentiation cirrhotic ascites from tuberculosis or malignant ascites but cannot differentiate tuberculosis ascites from malignant ascites ^[9, 10].

Conclusion

Serum Ascites Cholesterol Gradients was high among the Cirrhotic Ascites compared to Malignant and Tubercular ascites 75 versus 54 versus 56. Hence it is definitely the best marker to differentiate cirrhotic ascites, tuberculous ascites and malignant ascites.

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