Ultrasonography in the diagnosis of cases of Ascites

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Abstract

Background: Ascites, the collection of fluid in the peritoneal cavity, occurs with a variety of disease states. The present study was to assess cases of Ascites with USG.

Materials & Methods: This study was conducted on 90 patients with Ascites. All underwent USG Scan with Aloka SSD-500 with frequency convex probe, and Honda SSD-500 with frequency (3.5 MHz) convex probe.

Results: Out of 90 patients, males were 50 and females were 60. Common causes were inflammatory (31), tumor (10), renal diseases (16), liver diseases (10), cardiac disease (8) and portal hypertension (15). The difference was significant (P < 0.01). Normal patients had total protein 8.1 g, total albumin 3.5 g and serum ascites albumin gradient was 0.2. Moderate had, 7.6 g, 2.7 g and 0.8 respectively. The SAAG ratio was significant (P < 0.01).

Conclusion: Ultrasonography is a reliable aid in detection of Ascites. Common causes were inflammatory, tumor, renal diseases, liver diseases, cardiac disease and portal hypertension.

Keywords: Ascites, cirrhosis, ultrasonography

Introduction

Ascites, the collection of fluid in the peritoneal cavity, occurs with a variety of disease states. It is one of the earliest and most common complication of chronic liver disease. In cirrhosis, it is associated with circulatory dysfunction characterized by arterial vasodilatation, high cardiac output and stimulation of vasoactive systems. Ascites turn out to be clinically evident when no less than 1500 ml of liquid needs to a mass as regularly around 50 ml of liquid is available in the peritoneal depression. As meager as 10 ml of free liquid can be recognized [1]. Chronic liver disease with portal hypertension, congestive cardiac failure, tuberculosis and malignancy are important causes of ascites. However, it can occur secondary to a number of pathological conditions [2]. In a large number of patients, cirrhosis of liver is the cause of ascites. Several factors contribute to the development of ascites in chronic liver disease. Kidney plays a central role and is responsible for sodium and water retention, through complex mechanisms. The mechanism by which the diseased liver affects renal function is not fully understood [3]. As bedside US has become more widely used in the assessment of ascites, many clinicians have also routinely integrated US guidance into the paracentesis procedure. The anatomy of the liver and spleen can be further defined, so as to avoid these structures during the procedure [4]. The present study was to assess cases of ascites with USG.

Discussion

Materials & Methods

This study was conducted in department of Radiodiagnosis. It comprised of 90 patients with ascites. Ethical approval was obtained prior to start of study. All were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. All underwent USG Scan with Aloka SSD-500 with frequency convex probe, and Honda SSD-500 with frequency (3.5 MHz) convex probe. All scans were evaluated for the evaluation, hepatic recesses and around the peripheral hepatic borders, splenic recesses and around the peripheral splenic borders, right subphrenic space. During scanning the abdomen, the largest ascites pockets or pools were located, the ultrasound images in both transverse and longitudinal planes were taken. Results were subjected to statistical analysis. P value < 0.05 was considered significant.
Results

Table 1: Distribution of patients

<table>
<thead>
<tr>
<th>Gender</th>
<th>Total-90</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>50</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

Table I shows that out of 90 patients, males were 50 and females were 60.

Graph I shows that common causes were inflammatory (31), tumor (10), renal diseases (16), liver diseases (10), cardiac disease (8) and portal hypertension (15). The difference was significant (P-0.01).

Table II shows that normal patients had total protein 8.1 g, total albumin 3.5 g and serum ascites albumin gradient was 0.2. Moderate had, 7.6 g, 2.7g and 0.8 respectively. The SAAG ratio was significant (P-0.01).

Table 2: Analysis of ascites fluid

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Total protein</th>
<th>Total albumin</th>
<th>SAAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>8.1</td>
<td>3.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Mild</td>
<td>8.3</td>
<td>3.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Moderate</td>
<td>7.6</td>
<td>2.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Severe</td>
<td>6.7</td>
<td>2.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Massive</td>
<td>6.8</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>P value</td>
<td>0.2</td>
<td>0.14</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Table II shows that normal patients had total protein 8.1 g, total albumin 3.5 g and serum ascites albumin gradient was 0.2. Moderate had, 7.6 g, 2.7g and 0.8 respectively. The SAAG ratio was significant (P-0.01).

Graph 1: Causes of Ascites

Table 1 shows that out of 90 patients, males were 50 and females were 60.

Graph I shows that common causes were inflammatory (31), tumor (10), renal diseases (16), liver diseases (10), cardiac disease (8) and portal hypertension (15). The difference was significant (P-0.01).

Table II shows that normal patients had total protein 8.1 g, total albumin 3.5 g and serum ascites albumin gradient was 0.2. Moderate had, 7.6 g, 2.7g and 0.8 respectively. The SAAG ratio was significant (P-0.01).

Discussion

The reasons for ascites are liver cirrhosis, entry hyper strain, heart disappointment, hepatic venous impediment, pericarditis, malignancies, tuberculosis, pancreatitis, renal diseases and other diverse causes.

Table II shows that normal patients had total protein 8.1 g, total albumin 3.5 g and serum ascites albumin gradient was 0.2. Moderate had, 7.6 g, 2.7g and 0.8 respectively. The SAAG ratio was significant (P-0.01).

Abdominal paracentesis and a careful analysis of ascitic fluid is the single most important procedure and should be an early step in evaluating a patient with ascites. It should be performed in all patients with new onset ascites and whenever deterioration occurs in a patient with known ascites. Paracentesis can be performed easily and within minutes. The procedure has been found to be safe with about 1 percent risk of abdominal wall hematoma.

Conclusion

Ultrasonography is a reliable aid in detection of ascites common causes were inflammatory, tumor, renal diseases, liver diseases, cardiac disease and portal hypertension.
References


