

Original Research

Usefulness of Ultrasonography in detection of cases of Ascites

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ABSTRACT:

Background: Ascites usually indicates the end stage of a disease. The present study was to determine utility of USG in detection of ascites. **Materials & Methods:** This study was conducted on 64 patients with ascites of both genders. All patients were subjected to USG Scan. The ultrasound images in both transverse and longitudinal planes were taken. All scans were evaluated by a radiologist. **Results:** Out of 64 patients, males were 40 and females were 24. Common causes were inflammatory seen in 23 patients, tumor in 10, renal diseases in 13, liver diseases in 10, cardiac disease in 4 and portal hypertension in 6. The difference was significant ($P < 0.05$). The sensitivity of USG was 98% and specificity was 87%. **Conclusion:** Authors found Ultrasonography an useful tool in detection of ascites. **Key words:** Ascites, Inflammatory, USG

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INTRODUCTION

Ascites usually indicates the end stage of a disease, but it also affects further treatment and worsens the prognosis in both, benign and malignant processes. Cirrhosis and neoplastic diseases are the most common causes of ascites, accounting for 81% and 10% of cases, respectively.

It is a known fact that the presence of peritoneal fluid is an initial sign of cancer in about 50% of cancer patients. Previous works on the differentiation between benign and malignant ascites using imaging techniques indicate that there is no a single symptom with a decisive discriminatory value.¹

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.² Under normal conditions, the peritoneum contains 25 up to 100 mL of transparent fluid, with its daily replacement of about 5 mL. Even pelvic fluid volume of 0.8 mL is detectable during transvaginal ultrasonography.³ A small amount of pelvic fluid is a permanent symptom in healthy women of childbearing potential. 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 use of high-frequency transducers may detect small amounts of fluid in the right iliac fossa of young healthy men, which should not be considered a symptom of pathology.⁴ The present study was to determine utility of USG in detection of ascites.

MATERIALS & METHODS

This study was conducted in department of Radiodiagnosis. It comprised of 64 patients with ascites of both genders. All were informed regarding the study and written consent was obtained. Ethical approval was obtained prior to start of study from institutional ethical committee.

Data such as name, age, gender etc. was recorded. All patients were subjected to USG Scan with Aloka SSD-500 with frequency convex probe and Honda SSD-500 with frequency convex probe. The ultrasound images in both transverse and longitudinal planes were taken. All scans were evaluated. Results were subjected to statistical analysis. P value < 0.05 was considered significant.

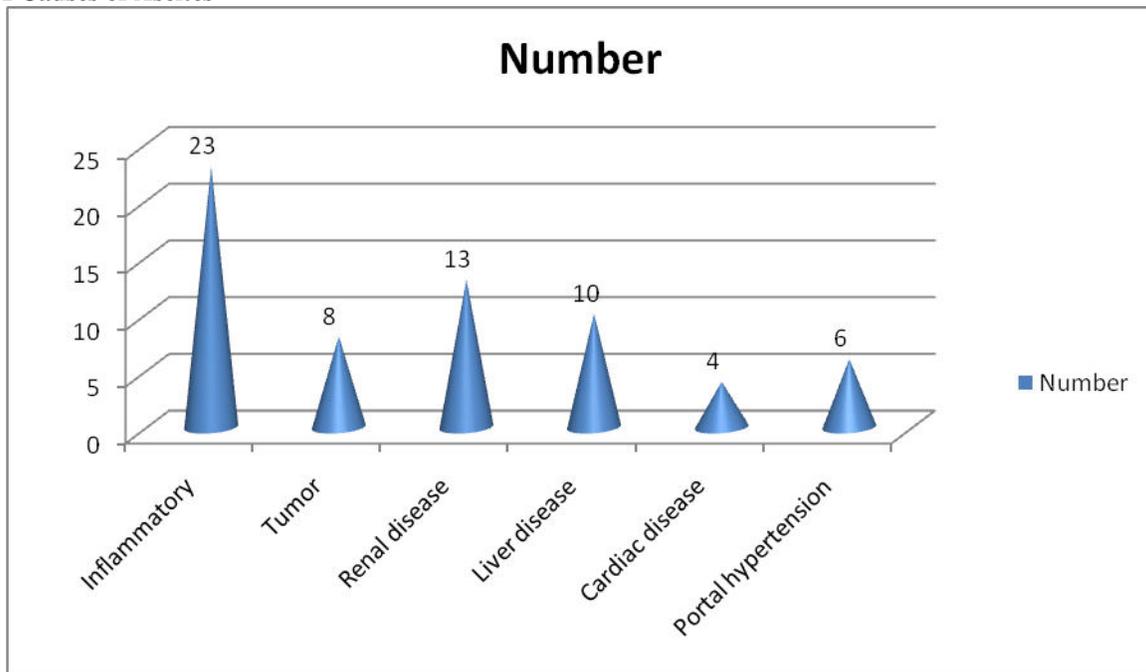
RESULTS

Table I Distribution of patients

Total- 64		
Gender	Males	Females
Number	40	24

Table I shows that out of 64 patients, males were 40 and females were 24.

Graph I Causes of Ascites



Graph I shows that common causes were inflammatory seen in 23 patients, tumor in 10, renal diseases in 13, liver diseases in 10, cardiac disease in 4 and portal hypertension in 6. The difference was significant ($P < 0.05$).

Table II Sensitivity & Specificity of USG

Parameters	Percentage
Sensitivity	98%
Specificity	87%

Table II shows that sensitivity of USG was 98% and specificity was 87%.

DISCUSSION

It has been found that 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.⁵ 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.⁶ The present study was to assess cases of ascites with USG.

In present study, out of 64 patients, males were 40 and females were 24. Yoshikawa et al⁷ detected the presence of small amounts of pelvic fluid in 3.8% of healthy men and 16.8% of postmenopausal women using magnetic resonance. In this situation, the presence of fluid in the Morison’s pouch, epigastrium, between the loops of the small intestine and, in larger amounts, in the pelvis of young women, should be considered as its secondary nature. The presence of fluid in this area will typically be an abnormal symptom in men.

We found that common causes were inflammatory seen in 23 patients, tumor in 10, renal diseases in 13, liver diseases in 10, cardiac disease in 4 and portal hypertension in 6. We

found that sensitivity of USG was 98% and specificity was 87%. Ultrasound investigation is often performed prior to attempts to remove fluid from the abdomen. This may reveal the size and shape of the abdominal organs, and Doppler studies may show the direction of flow in the portal vein, as well as detecting Budd-Chiari syndrome (thrombosis of the hepatic vein) and portal vein thrombosis. Additionally, the sonographer can make an estimation of the amount of ascitic fluid, and difficult-to-drain ascites may be drained under ultrasound guidance.⁸

Alnumeiri et al⁹ found that the etiology of ascites was liver cirrhosis 23 (43.4%) followed by cancers 10 (18.9%), inflammations 8 (15.1%), renal diseases 7 (13.2%), heart diseases 3 (5.7%), portal hypertension 1.0 (0.53%) and urinary bladder Schistosomiasis 1.0 (0.53%). The ascites was detected in sub hepatic area in one patient, in the hepato renal in 9 patients, in the vesico ureteric in 16 patients and occupying the intra-peritoneal space with fully distention was found in 27 patients. Khalife et al¹⁰ observed in their study that normal patients had total protein 8.2 g, total albumin 3.6 g and serum ascites albumin gradient was 0.3. Moderate had, 7.8 g, 2.6 g and 0.9 respectively. The SAAG ratio was significant ($P < 0.01$). Allah et al¹¹ included the following aspects in the differentiation between benign and malignant ascites: the nature and location of fluid, the presence of peritoneal wall and parietal peritoneum thickening, tumor implants, greater omental thickening and structure, mesenteric thickening and structure as well as abdominal lymphadenopathy

CONCLUSION

Authors found Ultrasonography to be a useful tool in detection of ascites.

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