

ROLE OF ULTRASOUND IMAGING IN EVALUATION OF CYSTIC HEPATIC LESIONS**Jogireddy Asrith Charan 1*, Kunal Solanki 2 , Prashant Tiwari 3**

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ABSTRACT:

Background: In addition to helping to detect interior body structures, ultrasonography is very sensitive in identifying cystic lesions of the liver. One has the chance to assess further data regarding other abdominal organs that may alter the patient's prognosis and treatment plan.

Aim: To assess the cystic lesions of the liver using ultrasonography, taking into account the demographic characteristics, symptomatology, ultrasonographic features, and diagnostic accuracy.

Materials and methods: 40 patients with liver cystic lesions presenting with clinical symptoms were included in the study. They were assessed using abdominal ultrasonography, which revealed cystic lesions in the liver and indicated the necessity for interventional treatment and follow-up. The research was a descriptive, observational study conducted at a hospital.

Results: Due to a variety of unhealthy habits, 40 patients—50% of whom were male and 50% of whom were female—were evaluated. These patients had complained of pain and swelling in their right hypochondrium. Ultrasonography was used to properly diagnose and assess the liver cystic lesion for future care.

Conclusion: The study of choice in liver pathology is ultrasound since it is non-invasive, radiation-free, and can show structural changes in the organ. It can also quickly identify solid to cystic lesions and characterize their size, shape, and extent.

KEYWORDS: Hydatid cyst, Liver cyst, Hepatocellular cyst, Ultrasonography.

INTRODUCTION:

Liver plays a vital role in the metabolism of Amino Acids, Carbohydrates, Lipids and protein synthesis. The failure of one of these metabolic pathways is considered the basic pathophysiology of cystic hepatic lesions [1]. Newer imaging modalities, laboratory investigations, and physical examinations are the mainstays of the diagnosis of these lesions. A role for radiological techniques such as ultrasonography is in the assessment of liver disorders [2].

Liver lesions can be found with high precision using ultrasonography [3]. It plays a crucial role in assessing liver pathology and provides information on the organ's internal structure, extent, and potential for evaluation [4].

When ultrasonographic results are correlated with clinical information and laboratory results, a definitive and precise diagnosis can be made, which will aid in the patient's proper management [5]. It is an inexpensive, readily accessible, non-invasive diagnostic tool [6].

This study aimed to assess the role of ultrasonography in the evaluation of hepatic cystic lesions by means of its symptomatology, demographic characteristics, ultrasonographic features, and diagnostic accuracy.

MATERIALS AND METHODS:

Study area

The study was carried out in the Department of Radiodiagnosis, S.B.K.S. Medical Institute and Research Centre, Waghodia, Vadodara.

Study design

Type of the study: An Observational, Descriptive Hospital Based Study.

Sample size: 40 patients.

Selection of subject

Inclusion criteria

- Patients willing to participate in the study were included.
- Patients who were sent to the Radiodiagnosis Department for Abdominal Ultrasonography and whose liver cystic lesions were discovered were included in the research.
- The study covered cases of diagnosed liver cystic lesions that require interventional procedures and follow up care.

Exclusion criteria

The study excluded patients with various other liver pathologies who presented to the radiodiagnosis department.

Study tools

Ultrasonography machine of GE - LOGIQ P9 with multi-frequency abdominal probes and Color Doppler analysis were obtained a 3.5/5-MHz curvilinear array.

Study protocol

There were 40 patients evaluated, with the same proportion of male and female patients, where the patients had complaints of right hypochondrial pain and swelling. Accurate diagnosis of the hepatic cystic lesions were assessed using ultrasonography.

The following cystic lesions were observed.

- Simple Liver Cyst (Figure - 1)
- Polycystic disease of liver (Figure - 2)
- Hydatid Cyst (Figure - 3)
- Hepatocellular Carcinoma (Figure – 4)
- Liver Metastasis (Figure - 5)

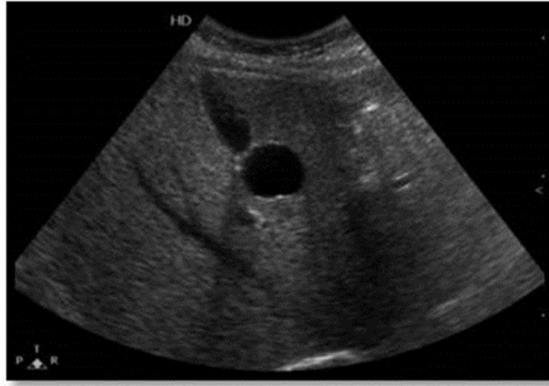


Figure – 1 : Simple Liver Cyst

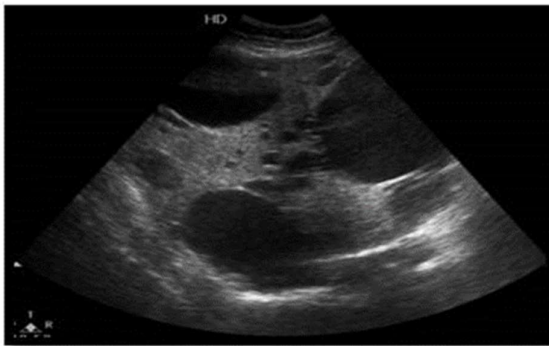


Figure – 2 : Polycystic disease of liver



Figure – 3: Hydatid Cyst

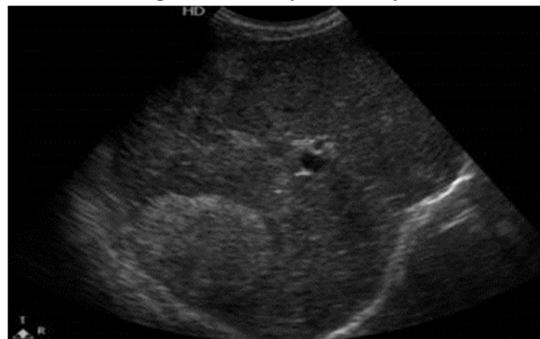


Figure – 4 : Hepatocellular Carcinoma



Figure – 5 : Liver Metastasis

RESULTS:

40 patients in all were inspected, and a comparison between the histopathological and surgical diagnoses was made. The following were the key findings.

Demographic profile:

Majority of patients were in the age group of 41 – 50 years and minimum number of patients were in age the group of 61 – 70 years (Table – 1)

Table – 1: Demographic profile

Age group (Years)	No. of patients	%
31 – 40	03	7.5
41 – 50	20	50
51 – 60	16	40
61 – 70	01	2.5

Lobe wise distribution:

When it comes to the evaluation of focal liver pathology, the right lobe is more frequently affected (45%) than the left (15%), with both lobes being involved in 40% of instances.

Table – 2: Lobe wise distribution

Lobe involvement	No. of patients	%
Right	18	45
Left	06	15
Both	16	40

Clinical presentation:

The most frequent presentation, accounting for 40% of cases, was pain in the right hypochondrium with abdominal distention, followed by an abdominal lump in 20% of patients.

Table – 3: Clinical presentation

Symptoms	No. of Patients	%
Pain in Right hypochondrium	16	40
Lump in abdomen	08	20
Abdominal distention	16	40

Incidence based on echogenicity pattern: The majority of patients (50%) had hypoechoic lesions, which were followed by mixed echogenic lesions in 20% of cases. 30% of the patients had echogenic lesions.

Table – 4: Incidence based on Echo pattern

Echo pattern	No. of patients	%
Hypoechoic	20	50
Echogenic	12	30
Mixed Echogenic	08	20

Incidence based on benign and malignant lesions: Compared to malignant tumors, benign lesions were more prevalent. Of all the patients, 80% had benign lesions and 20% had malignant lesions.

Table – 5: Incidence based on Benign and

Type of lesions	No of patients	%
Benign	32	80
Malignant	08	20
Total	40	100

Comprehensive analysis of focal liver lesions

Hydatid cyst of liver was more common out of all (35%) (Table – 6)

Table – 6: Comprehensive analysis of focal liver lesions

Nature of lesion	No. of patients	%
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Simple liver cyst	4	10
Polycystic disease of liver	6	15
Hydatid cyst of liver	14	35
Hepatocellular carcinoma	7	17.5
Liver metastases	9	22.5

DISCUSSION:

In this investigation, ultrasonography was used to examine 40 cases of hepatic cysts.

Comparative study for age distribution

The age group of 51 to 60 years old had the highest number of patients in one study [3]. The age group of (41–50 years) had the highest number of patients in the current study. This comparative analysis demonstrates that middle age is associated with a higher incidence of liver diseases than either childhood or old age.

Comparative study for sex distribution

Male to female ratio in one set was 1.5:1 [3]. In a different series, the ratio of men to women was 4:1 [4], whereas in the current study, it was 1:1.

Comparative study for lobe distribution

In the previous research [4, 6] and in the current study the right lobe is most usually impacted, followed by both lobes, and left lobe involvement was least common. In one study the right lobe was most commonly affected, followed by the left lobe [5]. The larger surface area and higher blood flow to the right lobe compared to the left lobe may be contributing factors to the right lobe predominance.

Comparative study for analysis of focal liver lesions

The majority of the hepatic cysts found in this investigation were hydatid cysts(35%), with liver metastases coming in second (22.5%). Simple hepatic cysts were less frequent.

Comparative study for incidence of benign and malignant lesions

It is clear from the data above that benign lesions are more common (80%) than malignant lesions (20%).

CONCLUSION:

The preferred study in liver pathology is ultrasound since it is non-invasive, radiation-free, and can show structural alterations in the organ. It can quickly identify lesions ranging from solid to cystic and describe the size, shape, and extent of the lesion. Ultimately, ultrasonography has

advantages and disadvantages of its own. Ultrasound is the first line of imaging since it is non-invasive, non-hazardous, radiation-free, rapid to perform, and reasonably priced.

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