

## Evaluation of focal hepatic lesions by using ultrasound evaluation

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### Abstract

The aim of the present study is to evaluate the role of ultrasound in evaluation of focal hepatic lesions. Also to study the relative prevalence of different focal hepatic lesions detected by ultrasound during the study period.

The study is conducted in North Indian Hospital in Radiology department, From Dec 2016 to July 2017. The approval of ethical committee had been taken along with the consent from the patients were also taken. Total 25 patients having are group of 20-60 year were enrolled in to the study. Liver was scanned in various planes. Various ultrasono graphic features of focal liver lesions were observed.

There are total 15 solitary type and 10 multiple type of focal lesions were observed. According to distribution of the lob there are 14 cases of right, 4 cases of left and 7 cases of both sides were reported.

From the present study it can be concluded that there is a significant association between USG findings and CT diagnosis.

**Keywords:** focal liver lesions, liver abscess, metastasis, ultrasound

### Introduction

Liver disease is any disturbance of liver function that causes illness. The liver is responsible for many critical functions within the body and should it become diseased or injured, the loss of those functions can cause significant damage to the body. Liver disease is also referred to as hepatic disease. Liver disease is a broad term that covers all the potential problems that cause the liver to fail to perform its designated functions. Usually, more than 75% or three quarters of liver tissue needs to be affected before a decrease in function occurs.

The most common causes of chronic liver failure (where the liver fails over months to years) include <sup>[1]</sup>:

- Hepatitis B
- Hepatitis C
- Long-term alcohol consumption
- Cirrhosis
- Hemochromatosis (an inherited disorder that causes the body to absorb and store too much iron)
- Malnutrition

It is important to consider not only malignant liver lesions, but also benign solid and cystic liver lesions such as hemangioma, focal nodular hyperplasia, hepatocellular adenoma, and hepatic cysts, in the differential diagnosis. Focal lesions are circumscribed areas of injury to brain tissue following brain injury. Such lesions may be created when an object penetrates the skull and directly injures an area of the brain. A variety of lesions occur in the normal liver. This review will describe the most common benign, malignant, and infectious lesions. Illustration will be made of the magnetic resonance imaging (MRI) appearance of the most common of these. Lesions can be categorized according to whether or not they are caused by cancer. A benign lesion is non-cancerous whereas a malignant lesion is cancerous. For example, a biopsy of a skin lesion

may prove it to be benign or malignant, or evolving into a malignant lesion (called a premalignant lesion). Benign lesions, as cyst, hemangioma, focal nodular hyperplasia, FNH or adenoma, can be distinguished from malignant lesions. In a non-cirrhotic liver, the most common malignant lesions are metastases which may be hypovascular or hypervascular.

Liver tumors or hepatic tumors are tumors or growths on or in the liver (medical terms pertaining to the liver often start in hepato- or hepatic from the Greek word for liver, hepar). Several distinct types of tumors can develop in the liver because the liver is made up of various cell types. These growths can be benign or malignant (cancerous). They may be discovered on medical imaging (even for a different reason than the cancer itself), or may be present in patients as an abdominal mass, hepatomegaly, abdominal pain, jaundice, or some other liver dysfunction.

Focal liver lesions (FLLs) are a common reason for consultation to a hepatobiliary service, they often need further work up, and investigations. They are often discovered in patients with a cirrhotic liver or colorectal cancer but can be found incidentally during work up for abdominal pain and sometimes in the trauma setting <sup>[2]</sup>.

The aim of the present study is to evaluate the role of ultrasound in evaluation of focal hepatic lesions. Also to study the relative prevalence of different focal hepatic lesions detected by ultrasound during the study period.

### Methodology

The study is conducted in North Indian Hospital in Radiology department, From Dec 2016 to July 2017. The approval of ethical committee had been taken along with the consent from the patients were also taken. Total 25 patients having are group of 20-60 year were enrolled in to the study. Liver was

scanned in various planes. Various ultrasonographic features of focal liver lesions were observed.

Following are the inclusion and exclusion criteria of the study:

#### Inclusion criteria

Cases of focal hepatic lesions detected by ultrasound during the study period.

#### Exclusion criteria

Diffuse fatty infiltration, Storage disorders, Cirrhosis of liver and Diffuse infiltrative malignancies, lymphoma and leukemia.

#### Results & Discussion

The study was planned to collect the data from the 25 patients. The focal liver lesions studied by ultrasound technique.

**Table 1:** Distribution of Cases diagnosed by Ultrasound with CT scan

Ultrasound diagnosis	No. of Cases	CT Scan
Liver abscess	10	8
Metastases	4	2
Hemangioma	4	4
Cysts	3	2
Hydatid lesion	3	3
Primary malignant liver tumors	2	1
Contusion	3	3
Total	25	23

The maximum ultrasound diagnoses were confirmed by the CT scan. The age group in the enrolled study groups were ranging from 20-65 years.

**Table 2:** Age distribution of focal liver lesion

Age group	Number of cases
20-30	3
31-40	8
41-50	5
51-60	6
61-65	3
Total	25

**Table 3:** Distribution of cases based on number of focal lesions

Lesions	No. of cases
Solitary	15
Multiple	10
Total	25

There are total 15 solitary type and 10 multiple type of focal lesions were observed. According to distribution of the lob there are 14 cases of right, 4 cases of left and 7 cases of both sides were reported.

**Table 4:** Distribution of cases based on lobar involvement

Lobe	No. of cases
Right	14
Left	4
Both	7
Total	25

Ultrasonography has been an accepted method for the diagnosis of focal liver lesions because of its rapidity of diagnosis and its high sensitivity. Ultrasound features of focal liver lesions were studied and diagnosis was confirmed by fine needle aspiration cytology or CT scan. The various focal liver lesions encountered in the study were liver abscess, metastasis, primary malignant liver tumors, haemangioma as, cystic and hydatid lesions, Liver contusions and lacerations [3-5].

Ultrasound is a safe and effective method of detecting focal liver lesion. Its flexibility, easy availability and lack of dependence on organ function makes it most ideal for imaging the liver and also serves as an object of defining therapeutic decision quickly. Ultrasonography when adopted as an initial imaging modality was seen as a method which reduced the cost and time to arrive at a diagnosis [6-8]. By this rapid method, even small lesions with subtle difference in reflectivity can be detected. The liver can be scanned in multiple planes enabling us to know the exact location of lesions and study their echo pattern. Apart from detecting lesion, other valuable information like ascites, vessel involvement, primary source of malignancy in abdomen and pelvis can be easily obtained.

#### Conclusion

From the present study it can be concluded that there is a significant association between USG findings and CT diagnosis. High degree of sensitivity and specificity of USG diagnosis in the present study confirms the value of ultrasonographic evaluation of focal liver lesions and suggests that it can be effectively used in the routine diagnostic work.

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