Role Of Ultrasound Liver Imaging Reporting And Data System In Categorization Of Cirrhotic Patients

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Introduction

Cirrhosis is the main risk factor for the development of hepatocellular carcinoma, the most common primary liver malignancy. Ultrasound has been recommended as the primary imaging screening examination for HCC, as it is widely available, cheap, and has no radiation exposure but it lacks standardization. Therefore, The American College of Radiology developed the Ultrasound Liver Imaging Reporting and Data System (US LI-RADS) algorithm.

Aim of the work

The aim of this study was to provide a standardized system for ultrasound imaging, interpretation, reporting, and data collection for categorization of cirrhotic patients.

Methods

Our study included 250 patients with post hepatic cirrhosis, referred to the ultrasound unit of Radiology Department of Alexandria University Hospitals. A systemic ultrasound scan was done according to ACR parameters.

Patients were categorized according to the ultrasound category into; category US-1 given to patients with no observations or with definitely benign observations, category US-2 given to patients with observations less than 1 cm, and category US-3 given to patients with observation more than 1 cm, areas of parenchymal heterogeneity or thrombus in vein. Patients with category US-3 underwent further contrast enhanced study.

Patients were given visualization score as follows; VIS- A given to patients with no limitations, VIS- B given to patients with moderate limitations, and VIS-C given to patients with severe limitations.

Results

According to the ultrasound category; 221 patients were given ultrasound category US-1 (88.4 %), 3 patients with given ultrasound category US-2 (1.2 %) and 26 patients given ultrasound category US-3 (10.4 %). (Figure 1, 3)

According to the visualization score 173 patients were given visualization score A (69.2 %), 54 patients with were given visualization score B (21.6 %) and 23 patients were given visualization score C (9.2%). (Figure 2, 4)

Patients of US-1 returned to normal surveillance, US-2 had short term follow up and proved benign. Patients of US-3 underwent contrast enhanced study and accordingly; 57.6 % had HCC, 84.5 % had malignant lesions and 3.8% given LR3, and 11.5% had benign lesions.
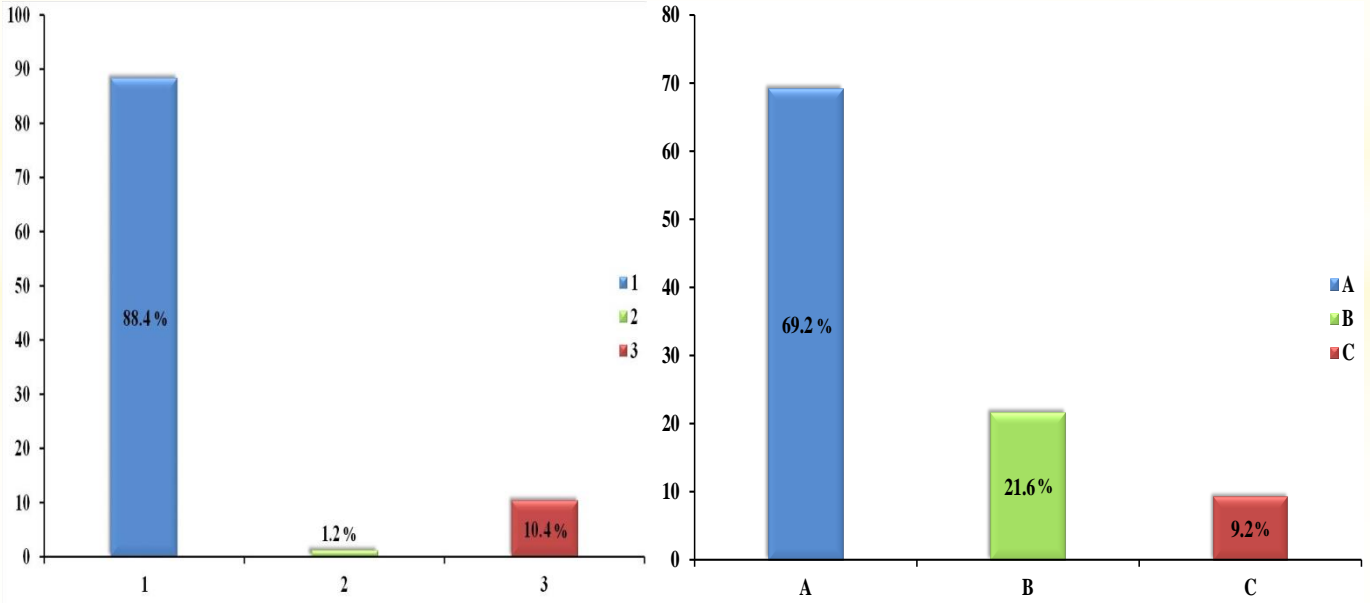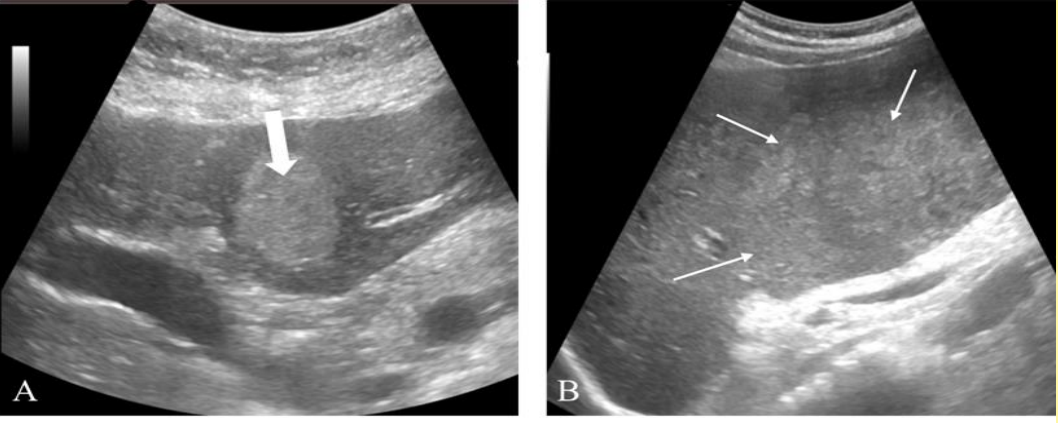

Figure 3 : US-3 observations:
A. solid observation measuring 3 cm. (white thick arrow)
B. an area of focal parenchymal heterogeneity. (white thin arrows)

Figure 1: Distribution of the studied cases according to US category(n=250)

Figure 2: Distribution of the studied cases according to visualization score (n=250)

Figure 4 : Visualization scores.
A: Adequate visualization of all liver segment given **VIS-A.**
B: Moderate limitations of liver segments given **VIS-B** .
C: Severe limitations of liver given **VIS-C .**

Conclusion

The US LIRADS algorithms offers a framework for liver ultrasound screening examinations. The algorithm should be applied in daily practice.

Size threshold is the main predictor of follow up recommendations. Observation echogenicity does not alter decision-making.

The visualization score helps convey the degree of sensitivity of the examination and level of confidence of the examiner.

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