



Biphasic & triphasic computed tomography (CT) scan in focal tumoral liver lesions

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Abstract

Objective: To assess the diagnostic accuracy of biphasic & triphasic spiral CT in differentiating benign from malignant focal tumoral liver lesions in the patients of Gujranwala region.

Methods: The study was conducted in Department of Radiology of Medcare International Hospital and GINUM cancer hospital, Gujranwala from 11 March 2015 to December 2015.

Results: Among 60 patients, 60 liver lesions (11 benign and 49 malignant) were detected with the help of different enhancement patterns. Out of these, 49 (81.67%) patients had malignant in which 26 patients suffered from multifocal HCC, 15 patients had single focal lesion, 5 patients had secondary mets and 3 had cholangiocarcinoma. while 11 (18.33%) had benign lesions. Then I compared results of 41 patients including, suspected of or diagnosed with HCC. Who depicted elevated AFP levels and diagnosed with HCC.

Conclusion: Biphasic & triphasic CT scan is a good non-invasive tool in characterizing and differentiating benign from malignant liver lesions.

Received: Nov 08, 2018

Accepted: Dec 21, 2018

Published Online: Dec 31, 2018

Journal: Journal of Radiology and Medical Imaging

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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Keywords: Liver lesions; Biphasic; Triphasic-CT scan

Introduction

Focal liver lesions can be defined as any lesion in the liver other than the normal parenchyma with or without causing structural and functional abnormality of hepatobiliary system and can be of variable size.

These lesions can be benign or malignant

Hepatocellular carcinoma is the fourth most common hepatic disorder in Pakistan with prevalence of 8-10%. This prevalence rate is high when compared to western data.

Histopathology is the gold standard, biopsy is always not possible as it is an invasive technique. Computed Tomography (CT) is the imaging modality most often used to evaluate focal liver lesions.

The liver receives approximately 30% of its blood supply from the hepatic artery and 70% from the portal vein, most primary and secondary liver neoplasms receive 80-95% of their blood supply from the hepatic artery.

Characterization of these lesions is essential

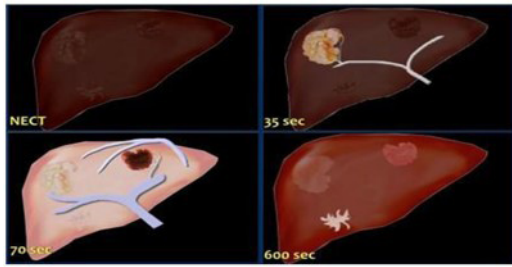
Recent studies have also reported an improvement in lesion detection if arterial phase imaging is performed in addition to portal venous imaging especially in the presence of hyper vascular neoplasms, such as hepatocellular carcinoma

Most metastases to the liver are hypo vascular and consequently are best detected during the portal venous phase.



Histopathology is the gold standard; biopsy is always not possible as it is an invasive technique. Computed Tomography (CT) is the imaging modality most often used to evaluate focal liver lesions.

Single focal lesion



Phases of triphasic ct scan

Objective

To assess the diagnostic accuracy of biphasic & triphasic spiral CT in differentiating benign from malignant focal tumoral liver lesions in the patients of Gujranwala region

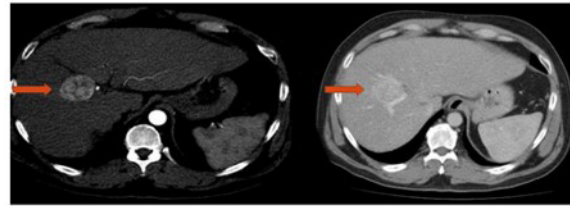
Methods

The study was conducted in Department of Radiology of Medcare International Hospital and GINUM cancer hospital, Gujranwala from 11th March 2015 to December 2015.

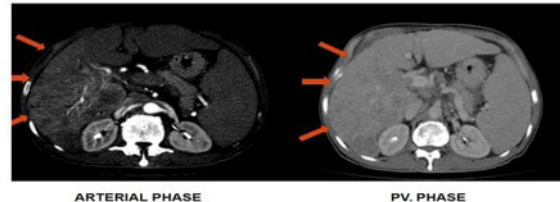
Results

Among 60 patients, 60 liver lesions (11 benign and 49 malignant) were detected with the help of different enhancement patterns. Out of these, 49 (81.67%) patients had malignant in which 26 patients suffered from multifocal HCC, 15 patients had single focal lesion, 5 patients had secondary mets and 3 had cholangiocarcinoma. while 11 (18.33%) had benign lesions.

HCCA in segment 5



Typical HCC replacing right lobe of liver with extensive macrovascular invasion-Okuda 1

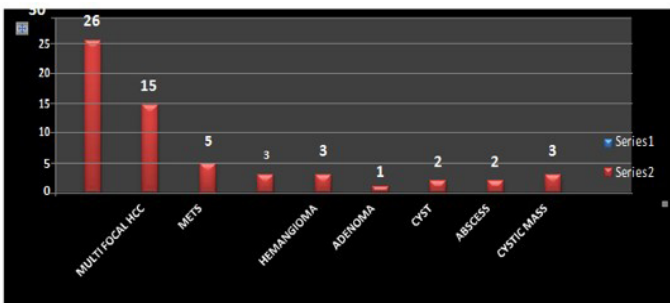


Conclusion

Triphasic CT scan is a good non-invasive tool and can be used as first line imaging modality for differentiating benign and malignant focal liver lesions to avoid unnecessary biopsies of benign lesions e.g. haemangioma.

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Then I compared results of 41 patients including, suspected of or diagnosed with HCC. Who depicted elevated AFP levels and diagnosed with HCC. Mean elevated AFP levels in all HCC patients were, 421 +/- 59 microg/ml (range 157-4019 microg/ml) in males and 163 +/- 32 microg/ml (range 101-2341 microg/ml) in females. It was also noted that 41 males and female patients, exhibited elevated levels of AFP. Then I follow these patients clinically & confirm the presence of HCC in 41 out of 60 patients.

45mm Hemangioma in segment 5 of liver

