ROLE OF CONTRAST ENHANCED COMPUTED TOMOGRAPHY IN THE EVALUATION OF HEPATIC METASTASES OF GASTROINTESTINAL ORIGIN

Yehia Halim Zaki, Doaa Mokhtar Emara, Khaled Ibrahim Mustafa
Department of Radiodiagnosis and Intervention, Faculty of Medicine, University of Alexandria

INTRODUCTION

The liver is a one of the most common sites receiving metastases from many cancers especially those of gastrointestinal origin. Early diagnosis and differentiation from other hepatic pathologies is crucial as liver metastases are usually asymptomatic and can completely change management protocol.
Many imaging modalities can spot hepatic focal metastases. Differentiating hepatic metastases from other hepatic focal lesions can be problematic especially when a single liver lesion is discovered in a patient without a known original tumor. So accurate imaging characterization and identification of hepatic metastases is mandatory.

AIM OF THE WORK

The aim of the study was to evaluate the application of contrast enhanced computed tomography in the characterization of hepatic metastases from GIT origin.

PATIENTS AND METHODS

Patients:
Our study was conducted on twenty patients known with primary GIT malignancy and having hepatic deposits.
Methods:
•Full history taking.
•Revision of clinical examination.
•Laboratory studies.
•Imaging
- ▪Pelvi-abdominal ultrasound.
- ▪Triphasic CT of the liver: performed using Siemens 64 slices and Philips 16 slices in the twenty patients.
- ▪Triphasic MRI of the liver: performed in one patient.

RESULTS

Demographic Data: The study included twelve male patients (60 %) and eight females patients (40%).
Imaging Findings:
•Primary GI malignancies included in the study were colorectal and pancreatic cancer, gastric and small bowel carcinomas as well as gastrointestinal stromal tumor.
•Three patients had only one focal hepatic lesion; while seventeen patients showed two or more hepatic metastases.
•Different degrees of hepatic metastases enhancement were identified in triphasic CT including hypo, hyper and non-enhancement. Most of hepatic metastases from primary GIT neoplasm showed hypo enhancement (fifteen patients). (Fig.1)

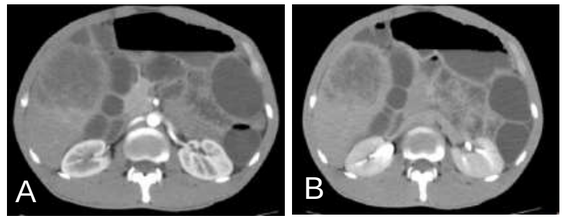

Figure1: Contrast CT axial cuts; (A) Arterial phase CT axial cuts showing hypo enhancing right hepatic lobe metastatic lesion in a male patient known with colon cancer. (B) PVP shows progressive enhancement.

Three patients showed hyper enhancing hepatic metastases. (Fig.2)

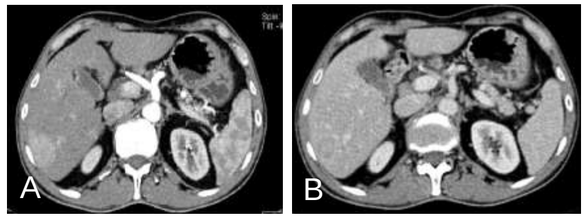

Figure2: Contrast CT axial cuts; hyper enhancement seen at arterial phase (A), with wash out noted at PVP phases(B).

Only two patients showed non enhancing hepatic metastases (Fig.3)

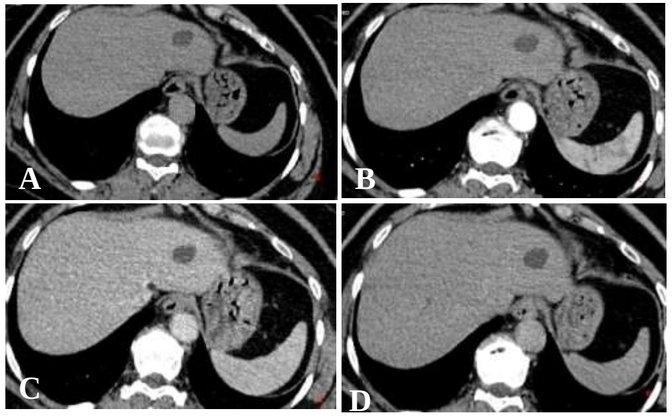

Figure 3: Triphasic CT showing cystic lesion at left hepatic lobe, (a) hypo dense lesion, with no appreciable enhancement (b) arterial, (b) venous or (d) delayed phases.

•Different patterns of enhancement were seen. The most common pattern of enhancement identified on the arterial phase was peripheral ring enhancement, which was identified in thirteen patients. Heterogeneous enhancement was seen in three patients. Homogenous enhancement was seen in two patients.

CONCLUSION

Hepatic metastases from the gastrointestinal tract can be detected and characterized by triphasic CT.
Significant imaging criteria include focal hepatic lesion enhancement patterns in different phases of triphasic CT.