|| ISSN(online): 2589-8698 || ISSN(print): 2589-868X ||
International Journal of Medical and Biomedical Studies
Available Online at www.ijmbs.info
NLM (National Library of Medicine ID: 101738825)
Index Copernicus Value 2019: 79.34
Original Research Article
Volume 5, Issue 1; January: 2021; Page No. 388-390

TO ASSESS ITS ROLE IN CHARACTERIZING THE FOCAL LIVER LESIONS INTO THE VARIOUS TYPES USING THE MORPHOLOGY AND CONTRAST ENHANCEMENT PATTERNS OF THE LESIONS

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Article Info: Received 09 December 2020; Accepted 27 January 2021
DOI: https://doi.org/10.32553/ijmbs.v5i1.1774
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Conflict of interest: No conflict of interest.

Abstract

Background & Method: This prospective study was done in the Radio diagnosis Department of Government Medical College, Nagpur, Maharashtra, India. A total of 200 patients who were referred to our department with strong clinical suspicion of focal liver lesion and those diagnosed by ultrasonography underwent multiphasic contrast enhanced CT evaluation of abdomen using 64 Multi slice Spiral CT scanner.

Result: Final diagnosis was obtained by surgery/ biopsy/ follow up imaging. Among the cystic lesions simple cyst and hydatid cyst had 100% accuracy. One lesion diagnosed as liver abscess turned out to be cystic metastases from GB mass. Metastases, hemangioma and HCC were themost common of the solid lesions seen in decreasing order of frequency. Among metastases diagnosed by CT, one case turned out to be FNH and one turned out to be granulomatous (tubercular) lesion. Among HCC diagnosed by CT, one turned out to be regenerative nodule and another turned out to be hemangioma.

Conclusion: In our investigation found among strong injuries, the most well-known irregularity distinguished was metastases seen in around a large portion of the cases followed by HCC & hemangioma. The exactness of Contrast Enhanced Multiphasic Multi Detector Computed Tomography in detecting and characterizing focal liver lesions is high and it should be considered in the imaging work up of any patient with focal liver lesions.

Keywords: liver, morphology, lesions & focal.

Introduction

The liver is the biggest organ in the mid-region involving the vast majority of the correct upper quadrant. The left flap stretches out across epigastrium and tasks a variable distance into the left hypochondrium. It has 2 significant surfaces: a prevalent or diaphragmatic surface and a second rate or instinctive surface[1]. The liver is lined medially by the stomach, duodenum and cross over colon, poorly by the hepatic flexure of the colon and posteriorly by the correct kidney and unrivaled segment of the correct adrenal organ.

CT is the best technique for distinguishing hepatic abscesses with an affectability as high as 97%. The trademark CT appearance of hepatic abscesses is that of a round or unpredictably formed hypo lessening mass with fringe case that goes through contrast enhancement[2]. Regularly a tight change zone of somewhat diminished constriction esteem is available between the low lessening focal bit of the mass and the higher weakening edge.

HCC is the most widely recognized essential dangerous neoplasm of the liver. HCC represents 90% of essential threatening hepatic neoplasms and is the fifth most regular around the world. Men are influenced multiple times more regular than ladies. 80 to 90% of HCC happens in patients with basic cirrhosis[3]. The significant danger factors for HCC are contamination with hepatitis C and B infections and substantial liquor utilization.

HCC regularly goes through rot and discharge. Vascular attack is normal. It habitually attacks the gateway vein (in around 40 % of cases) and less regularly the hepatic veins and mediocre vena cava (IVC). Indications are treacherous incorporate disquietude, fever and stomach torment. Jaundice is uncommon.

Material & Method

This prospective study was done in the Radio diagnosis Department of Government Medical College, Nagpur, Maharashtra, India from Sep 2018 to Aug 2019. A total of 200 patients who were referred to our department with strong clinical suspicion of focal liver lesion and those diagnosed by ultrasonography underwent multiphasic contrast enhanced CT evaluation of abdomen using 64 Multi slice Spiral CT scanner.

A detailed history of the patient including signs and symptoms, detailed physical examination, biochemical investigations and radiological investigations which included chest x-ray and ultrasonography of the abdomen were recorded. The patient was then placed on the gantry table in supine position with arms placed above the head. Patient was explained to hold his/her breath on verbal instruction and to resume breathing on reinstruction. In case patient was dyspneic or was unable to hold breath for reasonably long time, he/she was advised to maintain shallow breathing.

Inclusion criteria

1. Patients referred with strong clinical suspicion of focal lesion of liver including those with primary malignancy elsewhere.

2. Patients already diagnosed with focal liver lesion by ultrasonography.

Exclusion criteria

1. Patients with diffuse liver diseases.
2. Patients with mass lesions infiltrating the liver from outside the liver.
3. Patients with traumatic injury to liver.

Results

Table 1: distribution of inflammatory lesions

SL NO	LESION	NO OF CASES	% OF CASES
1.	LIVER ABSCESS	22	57.8%
2.	HYDATID CYST	16	42.2%
	TOTAL	38	100

Among the inflammatory lesions the most common diagnosis was liver abscess seen in 57.8% of cases followed by hydatid cyst seen in 42.2% of cases.

Table 2: CYSTIC LESIONS- CT DIAGNOSIS VS FINAL DIAGNOSIS

SL NO	LESION	NO OF CASES	
		CT	FOLLOW UP
1.	SIMPLE CYST	36	36
2.	HYDATID CYST	16	16
3.	LIVER ABSCESS	22	22
4.	CYSTIC METASTASES	00	00
	TOTAL	74	74

Final diagnosis was obtained by surgery/ biopsy/ follow up imaging. Among the cystic lesions simple cyst and hydatid cyst had 100% accuracy. One lesion diagnosed as liver abscess turned out to be cystic metastases from GB mass.

Table 3: SOLID LESIONS- CT DIAGNOSIS VS FINAL DIAGNOSIS

SL NO	LESION	NO OF CASES	
		CT DIAGNOSIS	FOLLOW UP
1.	METASTASES	62	58
2.	HEMANGIOMA	24	26
3.	HCC	28	24
4.	FNH	02	04
5.	FOCAL FAT	04	04
6.	IHE	02	02
7.	CHOLANGIOCARCINOMA	02	02
8.	HEPATOBLASTOMA	02	02
9.	GRANULOMATOUS	00	02
10.	REGENERATIVE NODULE	00	02
	TOTAL	126	126

Metastases, hemangioma and HCC were themost common of the solid lesions seen in decreasing order of frequency. Among metastases diagnosed by CT, one case turned out to be FNH and one turned out to be granulomatous (tubercular) lesion. Among HCC diagnosed by CT, one turned out to be regenerative nodule and another turned out to be hemangioma.

Discussion

HCC was analyzed by the presence of a heterogenous hypodense mass with hyper upgrade in the arterial phase with or without unusual interior vessels and waste of time in venous stage Fernandez M et al [4]. Utilizing these standards HCC was analyzed on the whole cases yet the explicitness was poor around 85%. One case of regenerative nodule in cirrhotic liver & an instance of hemangioma were wrongly analyzed as HCC (bogus positive). The affectability & PPV for recognizing HCC were between 88-92% and 97% separately in the examinations by Laghi Andrea et al [5] & Lanaconne R et al [6].

Cholangiocarcinoma was analyzed by the presence of a hypodense ill defined lesion with delayed and prolonged improvement Loyer M Evelyn et al [7]. As just a single injury of ICAC was seen, it was analyzed utilizing these standards.

IHE was distinguished by the presence of solitary/ multiple hypodense sores with arterial enhancement turning out to be isodense in the postponed stage Dachman AH et al [8]. One case was seen and analyzed effectively utilizing these rules. Different sores were seen disseminated all through the liver. Related cutaneous hemangiomas were additionally seen.

Metastases were analyzed by the presence of variable thickness injuries, variable improvement examples, putrefaction and h/o harm in the patient. Metastases established most of analysis in our examination including 31% of the general conclusion. The most well-known essential was from colorectal carcinoma (7 cases) trailed by metastases from GB (6 cases). The most widely recognized improvement design was hypo-hypo-hypo design seen in 65% of cases followed by hyper (edge)- hypo-hypo in 17% and blended example in 11 % of cases. This is like the investigation done by Van Leeuwen et al [9] where hypo-hypo-hypo design was most regular seen in half of cases.

Conclusion

In our investigation found among strong injuries, the most well-known irregularity distinguished was metastases seen in around a large portion of the cases followed by HCC & hemangioma. The exactness of Contrast Enhanced Multiphasic Multi Detector Computed Tomography in detecting and characterizing focal liver lesions is high and it should be considered in the imaging work up of any patient with focal liver lesions.

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