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Profile of Uncommon Primary Adult Hepatic Malignancies at a Tertiary Care Centre

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Abstract

Context: Hepatocellular carcinoma has been the most common primary malignancy of the liver in adults, followed by cholangiocarcinoma. The less common malignancies arise from the vascular endothelial cells, neuroendocrine cells, hematolymphoid tissues, and mesenchymal tissues. Imaging studies alone may pose a diagnostic challenge due to variable appearances. Histological review of the tissue specimen, along with immunohistochemical stains is imperative for diagnosis. However, a multidisciplinary approach is necessary to make an accurate diagnosis and help in management. Out of the 24 liver malignancies encountered, six unusual primary malignancies were seen. Radiologic impression and biochemical parameters helped arrive at a definitive opinion as the lesions were not typical of this location. A high index of suspicion along with the immunohistochemical profile finally facilitated the diagnosis.

Aims: To study unusual adult primary hepatic malignancies in a 2-year study period with clinic-radiological and biochemical correlation and also determine the age and sex distribution.

Methods and Material: This study was performed in 2 years in the Department of Pathology. Ethics approval was obtained. A total of 24 liver malignancies were encountered. Metastatic tumors and tumor-like lesions were excluded. The patient's clinico-radiological findings and laboratory investigations were noted. A total of 6 unusual non-hepatocellular malignancies were seen and identified based on morphology and special stains. Statistical analysis used: SPSS version 23.0.

Results: Out of 6 non-hepatocellular malignancies, 3 were neuroendocrine carcinomas, 2 were leiomyosarcomas and 1 was a hematolymphoid malignancy.

Conclusion: The cases of primary non-hepatocellular malignancies are unexpected. A multidiciplinary approach is mandatory.

Keywords: Hepatopathology; non-hepatocellular liver malignancy; liver cancer; Primary non-hepatocellular malignancies.

Key Messages: Unusual primary non-hepatocellular liver malignancies in adult.

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1. Introduction

Primary liver cancers are rare. Because the liver is made up of several different types of cells, several types of tumors can form there.

Hepatocellular carcinoma has been the most common primary malignancy of the liver in adults, followed by cholangiocarcinoma. The less common are those arising from the vascular endothelial cells, neuroendocrine cells, hematolymphoid tissues, and mesenchymal tissues. [1]

Many times, imaging studies alone may pose a diagnostic challenge due to the variable appearances of the tumors. Histological review of the tissue specimen along with immunohistochemical stains is imperative for definitive diagnosis. A multidisciplinary approach is necessary for accurate diagnosis and management.

2. Materials and Methods

2.1 Ethics statement

Approval from the Institutional Human Ethics Committee (IHEC) was obtained (Approval number – 19/137). Consent from patients was not applicable.

2.2 Study design

A retrospective study for a period of 2 years was conducted in a tertiary care center. The study included the collection of data from the patients' record sheets available in the Medical Records Department. Information pertaining to the cases was recorded and tabulated.

All investigated cases of primary non-hepatocellular hepatic malignancies of 2 years were included in the study. Metastatic tumors and tumor-like lesions were excluded.

2.3 Statistical analysis

All the data were analyzed using SPSS version 23.0 (Armonk, NY: IBM Corp.). It is represented as proportions and percentages.

3. Results

We encountered a total of six unusual cases of primary non-hepatocellular hepatic malignancies, which included three neuroendocrine carcinomas, two leiomyosarcomas, and one hematolymphoid malignancy. All were biopsies.

3.1 Age:

The mean age at presentation for the patients was 56 years, the majority of them being males. No cases were reported in childhood or adolescence.

3.2 Symptoms at presentation

There were varied symptoms at presentation, ranging from abdominal pain to asymptomatic presentation. The most common presenting symptoms were abdominal pain and loss of appetite. Other presentations include yellowish discoloration of eyes, tiredness and nausea. Almost all the cases had palpable mass in the right hypochondrium.

3.3 Liver function test

The liver enzymes were deranged in all the cases.

3.4 Imaging Studies

Imaging studies done were ultrasound, computed tomography (CT) scan or both. Diagnosis of malignancy was established for all the cases with most favouring a hepatocellular carcinoma.

3.5 Histopathology

Of the six non-hepatocellular primary hepatic malignancies, three were neuroendocrine carcinomas, two were leiomyosarcomas and one was a hematolymphoid malignancy. Search for primary origin elsewhere was negative, and metastasis was ruled out.

The diagnosis was established with the help of immunohistochemical markers.

Figure 1: Neuroendocrine tumor. The tumor cells show immunopositivity with synaptophysin (C) and chromogranin (D)

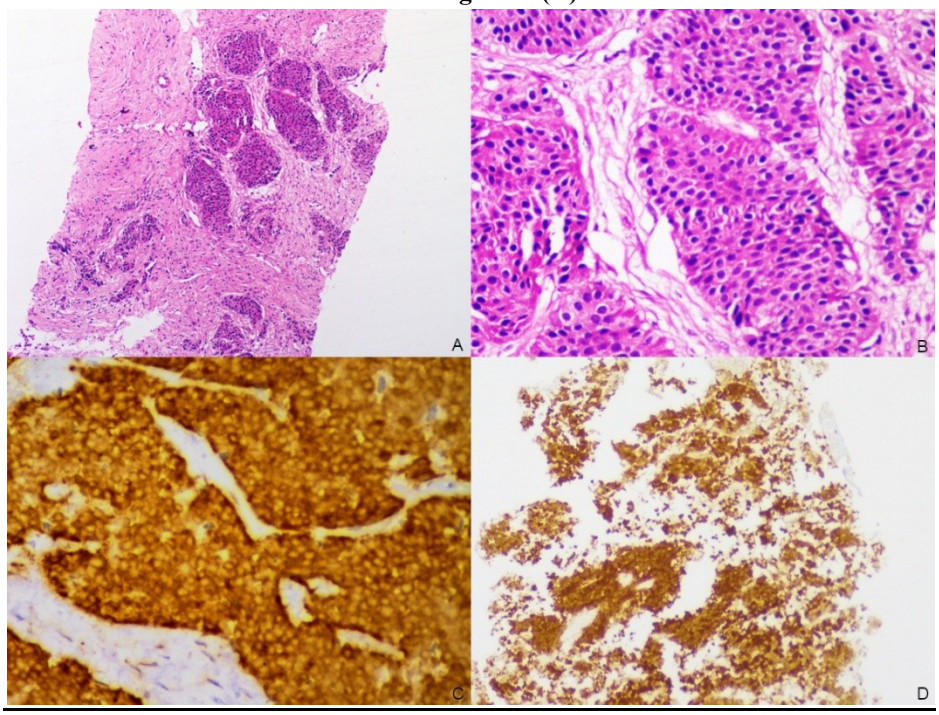


Figure 2: Leiomyosarcoma. The tumor cells show strong immunopositivity with sma (C) and vimentin (D).

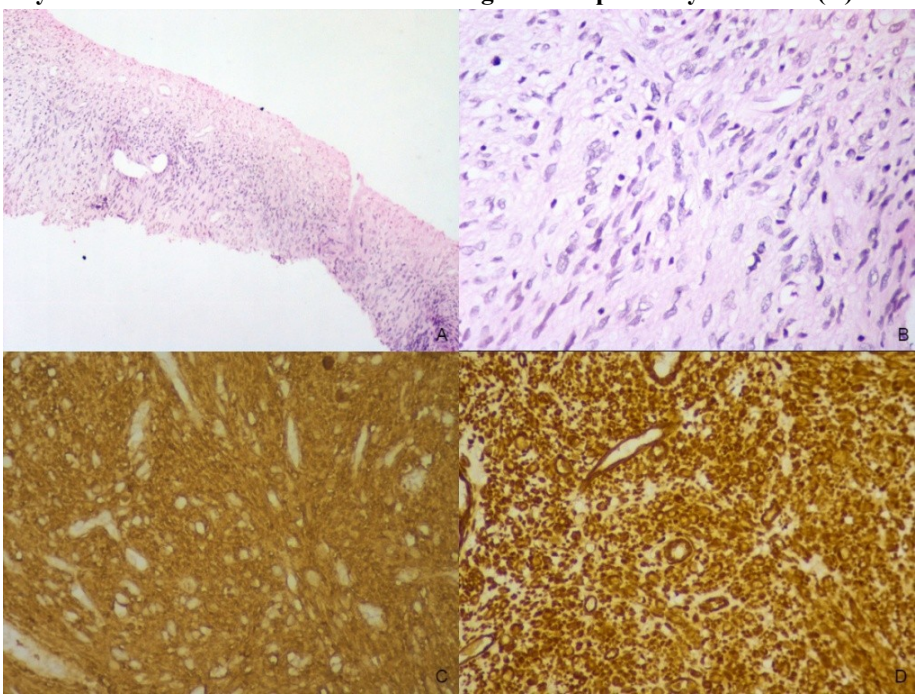
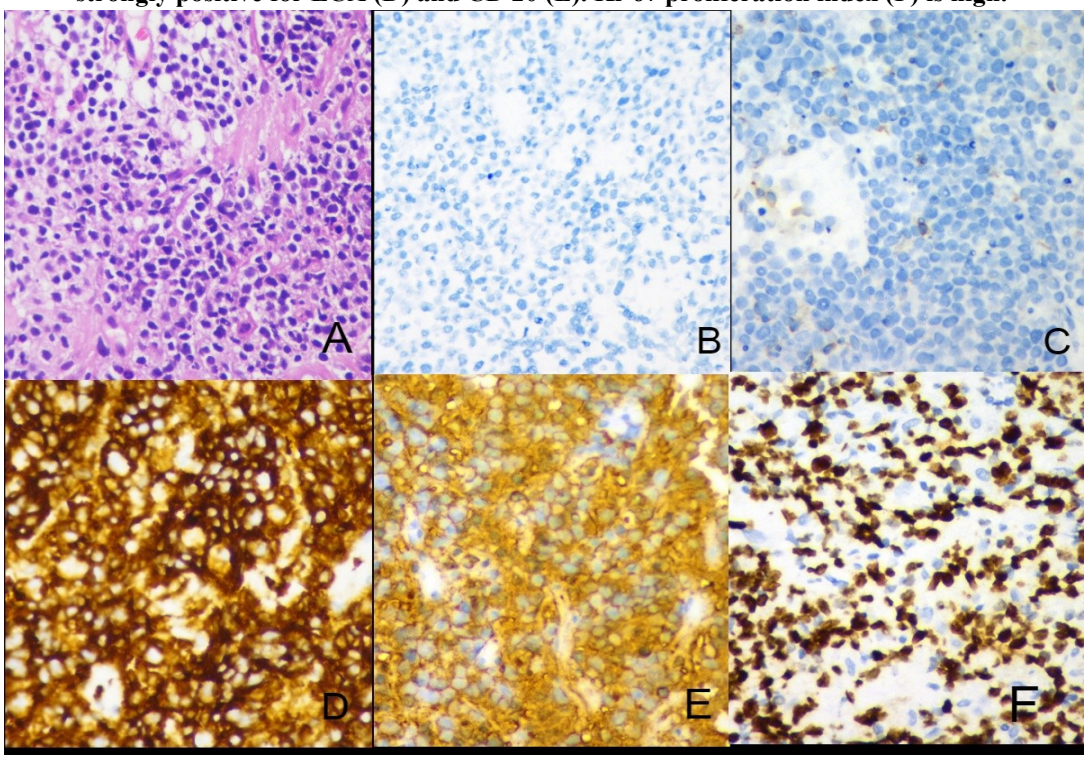


Figure 3: B-cell non-Hodgkin lymphoma. The tumor cells are negative for Heppar-1 (B) and CD 3 (C). They are strongly positive for LCA (D) and CD 20 (E). Ki-67 proliferation index (F) is high.



4. Discussion

A variety of hepatic lesions can present as hepatic masses. Amongst the malignant neoplastic lesions, primary hepatocellular carcinoma and cholangiocarcinoma are the most common. Primary non-hepatocellular hepatic malignancies although rare, are known to occur. [2,3] Prior to pathological examination for primary hepatic malignancies, misdiagnosis is frequent due to similar presentation and imaging findings in both hepatocellular and non-hepatocellular malignancies. [4,5]

Approximately 50- 90% of all neuroendocrine tumors cases are known to arise from the gastrointestinal

tract and the occurrence as primary hepatic location is rare (0.3%) [6].

Definitive diagnosis of primary neuroendocrine carcinoma is possible only after hepatic biopsy and ancillary tools like special stains and immunohistochemistry. Therefore, it can be established that biopsy and pathological examination are the gold standard for diagnosis.[2]

On histopathological examination, neuroendocrine tumors (NET) are composed of uniform round to polygonal cells with pale eosinophilic granulated cytoplasm, monotonous, round, centrally located finely stippled nuclei and small inconspicuous nucleoli. Mitosis and necrosis are infrequent.

The tumor cells show immunoreactivity with synaptophysin and chromogranin and are negative for Heppar-1. This was seen in all our cases reported as NET [Figure 1].

Mesenchymal tumors are also rarely encountered in adults. [7] Amongst the primary malignant mesenchymal tumors, hepatic angiosarcomas are most common. Primary hepatic leiomyosarcoma are again rare tumors and not many cases have been reported in the English literature.[8,9] It is often associated with immunodeficiency or viral infections (HCV, EBV, etc). [10] The cases in our study were not associated with any such underlying condition.

Histomorphology of leiomyosarcoma shows a spindle cell lesion with features of anaplasia which has to be distinguished from other spindle cell lesions of this region.

Our cases were confirmed to be primary, by ruling out metastases from other origin. Immunohistochemical markers helped in confirming the diagnosis [Figure 2].

Hematolymphoid malignancies with hepatic involvement are a relatively common presentation of extranodal disease. Rarely, lymphomas can involve the liver exclusively (primary hepatic lymphomas). As defined by previous studies, primary hepatic lymphoma is to be considered when the patient gives negative history of prior or subsequent lymphoma diagnosis, nil biopsy-proven hematolymphoid neoplasm at a nonhepatic location, and no other reason for clinical concern for hematolymphoid malignancy elsewhere in the body. [11,12] Most common primary hepatic lymphoma reported so far, is diffuse large B-cell lymphoma (DLBCL) which is closely associated with HCV infection and immunocompromised states, including HIV infection. [13,14] Our case was diagnosed as primary non-Hodgkin lymphoma of B-cell type and further typing could not be done as the tissue was insufficient [Figure 3]. The patient was immunocompetent.

5. Conclusion

The correlation of clinical, serological, radiological and histopathological findings is helpful in the early detection, diagnosis, and management of hepatic masses. Imaging studies is a reliable tool to detect hepatic malignancy. However, histological examination with IHC remains gold standard for diagnosis and confirmation of different types of malignancies arising from the liver.

Ethics approval and consent to participate: Ethics approval was obtained and consents to participate was taken from the patient.

Availability of data and materials: The datasets during or analysed during the current study available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests**.**

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Authors' contributions: VA collected all the patient data from the records. TE analyzed and interpreted the patient data regarding the disease & the histolopathological examination of the biopsies. ET was a major contributor in writing the manuscript. All authors read and approved the final manuscript.

References

[1]. Jiang K, Al-Diffalha S, Centeno B. Primary Liver Cancers-Part 1. *Cancer Control* 2018; 25:107327481774462.

[2]. Chen Z., Xiao H.-E., Ramchandra P., Huang H.-J. Imaging and pathological features of primary hepatic neuroendocrine carcinoma: an analysis of nine cases and review of the literature. *Oncology Letters*. 2014; 7:956–962.

[3]. Baek S. H., Yoon J. H., Kim K. W. Primary hepatic neuroendocrine tumor: gadoxetic acid (Gd-EOB-DTPA)-enhanced magnetic resonance imaging. *Acta Radiologica Short Reports.* 2013; 2:6.

[4]. Scarsbrook A. F., Ganeshan A., Statham J., *et al.* Anatomic and functional imaging of metastatic carcinoid tumors. *Radiographics.* 2007; 27:455-76.

[5]. Kellock T, Tuong B, Harris AC, Yoshida E. Diagnostic Imaging of Primary Hepatic Neuroendocrine Tumors: A Case and Discussion of the Literature. *Case Rep Radiol* 2014; 2014:156491

[6]. Camargo ÉS, Viveiros Mde M, Corrêa Neto IJ, Robles L, Rezende MB. Primary hepatic carcinoid tumor: case report and literature review. *Einstein (Sao Paulo)* 2014; 12:505-8.

[7]. Ah Kim K *et al*. Unusual Mesenchymal Liver Tumors in Adults: Radiologic-Pathologic Correlation. *AJR* 2006; W481-W489.

[8]. Shivathirthan N., Kita J., Iso Y. Primary hepatic leiomyosarcoma: case report and literature review. *World J Gastrointest Oncol.* 2011; 3:148–52.

[9]. Iida T., Maeda T., Amari Y., Yurugi T., Tsukamoto Y., Nakajima F. Primary hepatic leiomyosarcoma in a patient with autosomal dominant polycystic kidney disease. *CEN Case Rep.* 2017; 6:74–8.

[10]. Ke-Lei Zhu and Xiu-Jun Cai. Primary hepatic leiomyosarcoma successfully treated by transcatheter arterial chemoembolization: A case report. *World J Clin Cases.* 2019:525–31.

[11]. Yang XW, Tan WF *et al*. Diagnosis and surgical treatment of primary hepatic lymphoma. *World J Gastroenterol*. 2010; 16:6016-9.

[12]. Agmon-Levin N, Berger I, Shtalrid M *et al*. Primary hepatic lymphoma: a case report and review of the literature. *Age Aging* 2004; 33:637–40.

[13]. El-Sharkawi D, Ramsay A, Cwynarski K *et al*. Clinicopathologic characteristics of patients with hepatic lymphoma diagnosed using image-guided liver biopsy techniques. *Leukemia Lymphoma* 2011; 52:2130-34.

[14]. Noronha V, Shafi NQ, Obando JA *et al*. Primary non-Hodgkin's lymphoma of the liver. *Crit Rev Oncol Hematol* 2005; 53:199-207.