Case Report

HCC vs ICC: A Diagnostic Dilemma Unwrapped

Muthusubramanian Rajasekaran[1], Salil Pandey[2], Suresh Ashwathappa[3], Praveen Mathew[4], Prashant Y Kanni[5]

[1]Senior Resident, Department of Radiology, [2]Associate Professor, Department of Radiology, [3]Professor & HOD, Department of Radiology, [4]Professor & HOD, Department of Medical Gastroenterology, [5]Associate Professor, Department of Medical Gastroenterology, Vydehi Institute of Medical Sciences and Research Centre, Whitefield, Bangalore, India

Corresponding author: Muthusubramanian Rajasekaran, Senior Resident, Department of Radiology, Vydehi Institute of Medical Sciences and Research Centre, Whitefield, Bangalore, India

DOI: http://dx.doi.org/10.21276/ijcmsr.2021.6.2.13

How to cite this article: Muthusubramanian Rajasekaran, Salil Pandey, Suresh Ashwathappa, Praveen Mathew, Prashant Y Kanni. HCC vs ICC: A Diagnostic Dilemma Unwrapped. International Journal of Contemporary Medicine Surgery and Radiology. 2021;6(2):B67-B69.

A B S T R A C T

Introduction: As clinical radiologists, we encounter challenging diagnostic puzzles quite frequently. One such kind is the dilemma of diagnosis between hepatocellular carcinoma(HCC) and intrahepatic cholangiocarcinoma(ICC) in triphasic contrast enhanced Computed Tomography(CT). In this case report, we like to emphasize on the rare deviant pattern of occurrence of ICC in the context of Budd Chiari Syndrome(BCS) and raised serum alpha feto protein levels(AFP).

Case Report: 33 year old female came to the hospital with complaints of vague abdominal pain. Initial blood work up showed deranged liver parameters and abdominal ultrasonography showed cirrhotic liver with multiple space occupying lesions in both lobes of liver and intraductal lesion with dilated intrahepatic biliary radicles. Diagnostic quandary was set in when the triphasic CT findings and biochemical findings were concordant with inferior veno cavo graphic findings and histopathology. Till date, very few case reports have been documented from the East literature.

Conclusion: We like to strongly highlight the importance of being updated with unusual patterns of occurrence of such frequently encountered pathologies.

KEYWORDS: Hepatocellular carcinoma (HCC), Budd-Chiari Syndrome (BCS), Intrahepatic Cholangiocarcinoma (ICC), Serum alpha feto protein (AFP)

INTRODUCTION

Diagnostic dilemma of Cholangiocarcinoma vs Hepatocellular carcinoma is commonly encountered in day to day practice[1]. Even though characteristic radiological features defining either of them have been well established, a significant proportion of cases present with unusual clinical background and surprising radiological features. Hence it's noteworthy to enlighten the readers on such peculiar diagnostic dilemmas. We like to showcase our startling case of intrahepatic cholangiocarcinoma (ICC) in the background of Budd Chiari syndrome (BCS) and raised alpha feto protein (AFP) levels disputing the usual patterns of occurrence.

CASE REPORT

33-year-old female presented with complaints of diffuse dull aching abdominal pain for the past three months. Her baseline blood workup showed deranged liver function parameters with elevated total, direct and indirect bilirubin levels. Clinical examination revealed abdominal fullness and no tenderness pertaining to specific quadrant. Abdominal ultrasonography(USG) showed cirrhotic features of liver with dilated intrahepatic biliary radicles and multiple space occupying lesions in both lobes of liver warranting further assessment with contrast enhanced CT abdomen.

Radiological features

Triple phase contrast enhanced CT abdomen revealed multiple arterial phase enhancing lesions with venous phase wash out in both lobes of liver and intraductal lesion at the level of confluence of primary biliary radicles causing dilatation of bilateral intrahepatic biliary radicles.[Fig 1] Moderate ascites was present, in addition to multiple enhancing nodules in both lung lower lobes signifying to be metastasis. Considering the enhancement pattern of the lesions in the cirrhotic background, we thought more in favour of multifocal hepatocellular carcinoma and ordered Serum AFP levels for biochemical correlation which turned out be in high levels(>3000ng/mL) as contemplated. Henceforth, treatment strategy depends upon the tissue diagnosis and interventional radiological opinion was sorted for image guided biopsy.

Interventional Radiology:

In view of moderate ascites, percutaneous approach for the image biopsy was deferred and transjugular route was strategized. 7Fr vascular sheath was placed in right internal jugular vein. Using 5Fr Head hunter catheter and 0.035" guidewire combination, cannulation of the hepatic veins was attempted. In this process, to our surprise, one of the collateral vein was cannulated and venogram showed venous collateral network draining into the inferior vena

ISSN (Online): 2565-4810; (Print): 2565-4802 | ICV 2019: 98.48 |

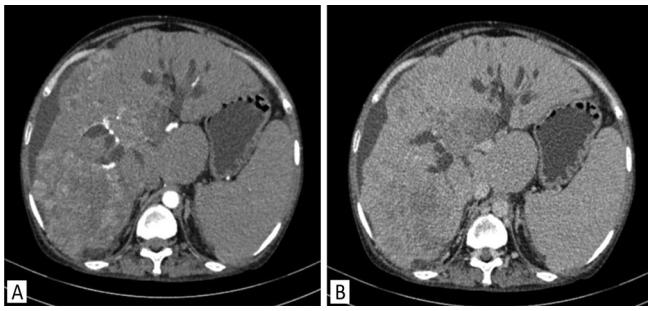

Figure-1: A&B. CECT triphasic contrast study of abdomen showing multiple arterial phase enhancing lesions with venous phase washout in both lobes of liver and intraductal lesion at the level of confluence. Bilateral intrahepatic biliary radicle dilatation noted. We can also appreciate the cirrhotic features of liver by surface irregularity and caudate lobe enlargement. A. Arterial phase. B. Venous phase

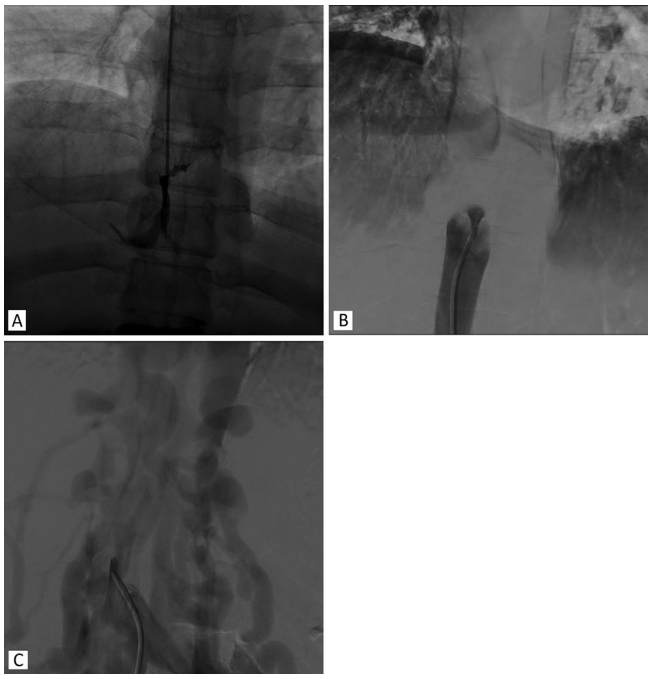

Figure-2: A. Catheterisation of hepatic veno-venous collaterals and venogram showing the drainage into the suprahepatic IVC. B. Catheterisation of infrahepatic IVC through femoral approach and venogram showing the retrograde flow with tight obstruction at the level of intrahepatic IVC. C. Dilated and tortuous azygos and hemiazygos venous collateral plexus.

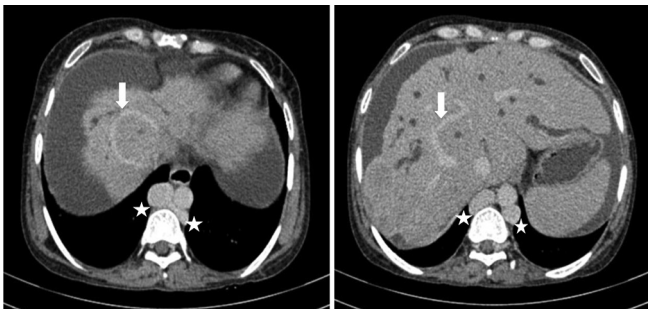

Figure-3: Retrospective analysis of CECT images revealed intrahepatic veno-venous collaterals (Arrows) with dilated tortuous azygos and hemiazygous venous plexus (Asterix)

cava(IVC). Guidewire was not able to negotiated across the intrahepatic IVC into the infrahepatic segment signifying the possibility of obstruction at this level. Hence, through the right common femoral vein approach, we catheterised the suprarenal segment of IVC and venogram showed retrograde flow of contrast in the IVC filling up the large tortuous azygos and hemiazygos venous collateral plexus draining into the systemic circulation characterising the diagnosis of Budd Chiari Syndome(BCS) due to IVC obstruction. Retrospectively we thoroughly inspected the preoperative CT, which threw light on these easily overlooked subtle findings. Furthermore, we performed percutaneous USG guided biopsy of liver lesions after dry tapping the ascitic fluid. In the background of cirrhosis likely due to BCS with raised serum AFP levels, we were strongly contemplating it to be a hepatocellular carcinoma. But histopathological reports astonished us confirming it to be cholangiocarcinoma. Treatment options of PTBD followed by metallic biliary stenting was advised but patient denied further management and lost to follow up.

DISCUSSION

Budd chiari syndrome(BCS) embraces the variety of disorders which occur due to venous outflow obstruction of the liver ranging from inferior vena cava webs, hepatic vein stenosis to sinusoidal obstruction syndrome[2]. Hepatocellular carcinoma(HCC) is the most common malignant neoplasm which tend to occur in the background of BCS[3]. HCC is characterized by its arterial phase enhancement and venous and/or delayed phase washout in the background of cirrhotic liver in triphasic CT study. Capsular retraction, intrahepatic biliary radicle dilatation and progressive enhancement are the classical features of Intrahepatic Cholangiocarcinoma(ICC)[4,5]. Diagnostic perplexity arises in instances with overlapping attributes. Serum Alpha Fetoprotein(AFP) and Carbohydrate antigen(CA 19-9) are the commonly employed tumour markers to comprehend HCC vs ICC. Raised levels of AFP is typical of HCC and few case reports in previous literature have pointed out the unusual occasions of raised AFP levels with underlying ICC[6]. Till date, the exact mechanism of how AFP is synthesized in ICC is unclear. To the best of the authors' knowledge, very few similar case reports have been documented in English literature and our case is probably the third of its kind from the East[7]. From our notable experience, we like to highlight the importance of retrospective analysis of imaging which adds up a great value to one's knowledge turf. We also like to emphasize on the importance of bolus tracking and timing of contrast which plays the major role in obtaining the optimal images for definite diagnosis in such challenging scenarios.

CONCLUSION

In our day to day practice, we all come across such unusual instances quite frequently which warrants updating one's knowledge on diverse occurrence patterns of such peculiarities.

REFERENCES

1. Lo E, N. Rucker A, Federle M. Hepatocellular

Carcinoma and Intrahepatic Cholangiocarcinoma: Imaging for Diagnosis, Tumor Response to Treatment and Liver Response to Radiation. Seminars in Radiation Oncology. 2018;28(4):267-276.
2. Valla D. Primary Budd-Chiari syndrome. Journal of Hepatology. 2009;50(1):195-203.
3. Paul S, Shalimar, Sreenivas V, Gamanagatti S, Sharma H, Dhamija E et al. Incidence and risk factors of hepatocellular carcinoma in patients with hepatic venous outflow tract obstruction. Alimentary Pharmacology & Therapeutics. 2015;41(10):961-971.
4. Li R, Cai P, Ma K, Ding S, Guo D, Yan X. Dynamic enhancement patterns of intrahepatic cholangiocarcinoma in cirrhosis on contrast-enhanced computed tomography: risk of misdiagnosis as hepatocellular carcinoma. Scientific Reports. 2016;6(1):23-30.
5. Wang Y, Yang Q, Li S, Luo R, Mao S, Shen J. Imaging features of combined hepatocellular and cholangiocarcinoma compared with those of hepatocellular carcinoma and intrahepatic cholangiocellular carcinoma in a Chinese population. Clinical Radiology. 2019;74(5):407.e1-407.e10.
6. Tao L, Cai L, He X, Liu W, Qu Q. Comparison of Serum Tumor Markers for Intrahepatic Cholangiocarcinoma and Hepatocellular Carcinoma. The American Surgeon. 2010;76(11):1210-1213.
7. Elhence A. Budd Chiari Syndrome and Intrahepatic Cholangiocarcinoma, An Unusual Combination: Case Report and Review of the Literature. The Permanente Journal. 2020;24(5): 34-40.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 25-04-2021; **Accepted:** 26-05-2021; **Published online**: 28-06-2021