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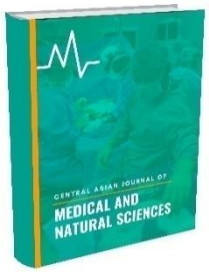

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Incidence and Histopathology of Hepatocellular Carcinoma in Iraqi Patients

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Abstract: This study aimed to Know the Incidence and Histopathology of hepatocellular carcinoma in Iraqi patients. A study was conducted on 41 patients diagnosed with hepatocellular carcinoma (HCC) between February 2022 and March 2023. The study cohort consisted of 32 male and 9 female patients with different ages. The study participants were obtained from medical and surgical units across multiple hospitals and subsequently referred to a specialized pathological laboratory located in the Baghdad Province. Liver biopsy can be performed through various methods such as Trucut needle biopsy, Chiba needle biopsy directly on liver tissue or under ultrasound guidance, or open liver biopsy through diagnostic laparoscopy or explorative laparotomy. Histological slides were done and stained with H&E stain. The findings of the present study or data analysis indicate a discrepancy in disease rates between genders, with males exhibiting higher rates compared to females. The current findings exhibited that age group (51-60 years) were highly diseased than other groups. On histopathology, the growth patterns of tumoral hepatocytes can be classified into three distinct types: trabecular, acinar or pseudoglandular, and compact or solid. The trabecular pattern is distinguished by the disposition of hepatocytes in plates of diverse thickness, which are demarcated by vascular spaces known as sinusoids. The acinar or pseudoglandular configuration is distinguished by the expansion of canaliculi between neoplastic cells, resembling glandular structures, with luminal spaces that may harbour bile, or the central deterioration of trabeculae, with luminal spaces predominantly occupied by fibrin. The compact or solid pattern comprises of dense trabeculae that are compressed into a compact entity. In conclusion, males were more diseased than females especially at age 50-61

years and histopathology can aid in diagnosis and differentiate HCC from other liver diseases.

Key words: HCC, male, female, age, histopathology.

Introduction:

Hepatocellular carcinoma (HCC), also known as primary liver cancer (1), hepatic tumor, or hepatoma, is the most common kind of primary liver tumor, accounting for 80–90% of all cases (2). A significant issue with regard to global health is the growth of HCC (3).

HCC, the disease's most prevalent type, has a dismal prognosis despite new treatments and efforts to diagnose primary liver cancer early (4).

In line with the high incidence, HCC has the third-highest cancer death globally (5) while having the fifth-highest cancer incidence. HCC was projected to be the 14th most frequent cancer in Europe in 2006 but had the 7th highest fatality rate (4). Europe is regarded as a low endemic region.

Primary HCC is the most prevalent malignant tumor in endemic regions, such as Sub-Saharan Africa, South East Asia, and Japan, despite its lower prevalence in North America (3).

This tumor's genesis is complex (6, 7). Hepatitis B and C viruses are the most common causes of chronic liver disease, which is widely recognized around the globe. However, some viral, environmental, and genetic causes of cirrhosis have a high link with HCC (8).

The utilization of alcohol is a prevalent factor in the development of cirrhosis, which can subsequently result in the onset of HCC (9). Several chemicals, some originating from plants, others from industrial pollution, and still others from synthetic pharmaceutical compounds, have been linked to measurable increases in the risk of developing hepatocellular carcinoma (HCC). Vinyl chloride is one of the most prominent industrial carcinogens, and aflatoxin B has been linked to an increased risk of hepatocellular carcinoma. Hormones including oestrogen and androgen, found in birth control and anabolic steroids, respectively, have also been related to HCC (10).

Hepatocellular carcinoma (HCC) is a cancer of the liver, and it is possible for it to develop in people with haemochromatosis even if cirrhosis is not present (11). Liver flukes, such as schistosomiasis and clonorchiasis, are common in some countries and may contribute to the development of HCC. Alpha-1 antitrypsin deficiency and primary biliary cirrhosis are other risk factors for HCC (12,13).

Currently available treatments are generally ineffective because the neoplasm is detected too late (14).

The number of confirmed cases is rising, despite the paucity of epidemiological studies undertaken in Iraq. The condition's prevalence is rising, as seen in other nations, and its link to chronic liver disease is becoming more known.(15)

The purpose of this research was to learn more about hepatocellular carcinoma in Iraqi patients, including its prevalence and histopathology.

Materials and Methods:

Between February 2022 and March 2023, researchers analysed data from 41 people who had been diagnosed with hepatocellular carcinoma (HCC). Thirty-two men and nine women of varying ages made up the study population.

The study participants were obtained from medical and surgical units across multiple hospitals and subsequently referred to a specialized pathological laboratory located in the Baghdad Province.

Liver biopsy can be performed through various methods such as Trucut needle biopsy, Chiba needle biopsy directly on liver tissue or under ultrasound guidance, or open liver biopsy through diagnostic laparoscopy or explorative laparotomy. Histological slides were done and stained with H&E stain.

Results and Discussions:

The findings of the present study or data analysis indicate a discrepancy in disease rates between genders, with males exhibiting higher rates compared to females (Table 1).

Table 1. Number & percentages of HCC according to gender

Gender	Number	Percentage
Male	30	73.2%
Female	11	26.8%
Total	41	100%

The current findings exhibited that age group (51-60 years) were highly diseased than other groups (Table 2).

Table 2. Number & percentages of HCC according to age

Age groups (year)	Number	Percentage
30-40	2	4.9
41-50	3	7.3
51-60	16	39
61-70	12	29.3
Above 70	8	19.5
Total	41	100%

The present study reveals that males are more frequently affected than females, with a ratio of 3:1 and a prevalence of 73.2% and 26.8%, respectively. The age group most commonly affected was individuals between 61-70 years old, which is in line with previous studies by (9, 16), who reported a male to female ratio of approximately 4:1 and a similar age incidence between 61-70 years.

In a Japanese study, it was found that men had a higher likelihood of developing HCC compared to women, especially among individuals aged 70 years and above. This finding is consistent with previous research (17). Similarly, Brunocilla et al. (18) observed comparable results in their investigation, where the majority of the subjects were male with a median age of 67 years (18). The observed results could be accounted for by the fact that males exhibit a higher prevalence of viral hepatitis infections, alcohol consumption, cigarette smoking, and body mass index compared to females. Moreover, there exists a correlation between elevated levels of testosterone or the utilization of anabolic steroids and an increased prevalence of hepatocellular carcinoma (HCC) in males (19).

On histopathology, the growth patterns of tumoral hepatocytes can be classified into three distinct types: trabecular, acinar or pseudoglandular, and compact or solid. The trabecular pattern is distinguished by the disposition of hepatocytes in plates of diverse thickness, which are demarcated by vascular spaces known as sinusoids. The acinar or pseudoglandular configuration is distinguished by the expansion of canaliculi between neoplastic cells, resembling glandular structures, with luminal spaces that may harbour bile, or the central deterioration of trabeculae, with luminal spaces predominantly occupied by fibrin. The compact or solid pattern comprises of dense trabeculae that are compressed into a compact entity (Figure 1,2).

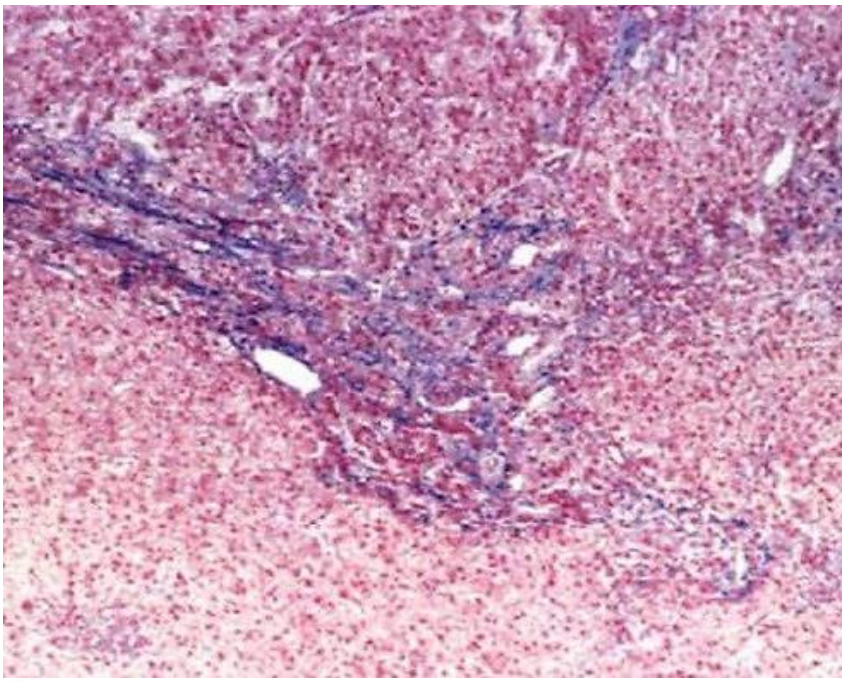

Figure 1. histopathological slide shows Characteristics of hepatocellular carcinoma (HCC) stromal invasion and pseudo-invasion (H&E) 400X

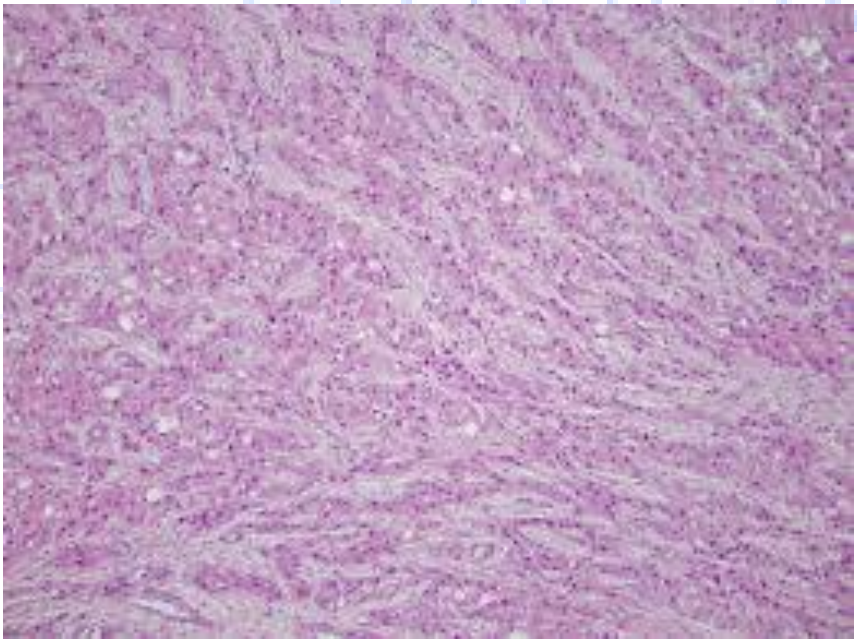

Figure 2. Hepatocellular carcinoma metastasizes and invades a tiny lymph vessel in the portal system (H&E) 10X

Polygonal in shape, with granular eosinophilic cytoplasm, rounded nuclei, and conspicuous nucleoli, tumoral hepatocytes are easily identified by cytology. Cell pleomorphism is of varying significance depending on the stage of development. HCC is classified into subtypes based on the cytological profile of the proliferation of hepatocytes. In the case of the clear cell kind, the cells themselves may be composed of fat or glycogen. Tumour cells in scirrhous HCC tend to be smaller in size, and they have granular eosinophilic cytoplasm, vesicular nuclei, and prominent nucleoli(20).

A subset of spindle-shaped or large tumour cells characterises sarcomatoid HCC (21). Sclerosing HCC is an extremely uncommon subtype of HCC that has malignant hepatocyte compression and an abundance of fibrous stroma. This kind of tumour is more common in the elderly, affects both sexes similarly, and has been linked to hypercalcemia (20).

Conclusion:

Males were more diseased than females especially at age 50-61 years and histopathology can aid in diagnosis and differentiate HCC from other liver diseases.

References:

1. Carr, B.I., Lotze, M.T. and Flicking, T.C.: Hepatobilliary cancers, Devita, V., Hellman, S. and Rosenberg, S.A. Principles and practice of Oncology, Lippincott 1997: 1087-128.
2. Scott Howard , M.D. , M.S. , Memphis TN . : Review provided by veri Med. Health care Net work. Review Date 2002 .
3. Sabiston, D.C.: Textbook of surgery: The biological basis of modern surgical practice . 15th ed. WB. Saunders , Philadelphia. 1997 .
4. Yuen M , Hou J and Chutaputti A . HCC in the Asia pacific region . J Gastroenterol Hepatol 2009;24: 346-53.
5. Ferlay J , Autier P , Boniol M , Heanue M , Colombet M and Boyle P . Estimates of the cancer incidence and mortality in Europe in 2006. Ann Oncol 2007;18:581-92 .
6. Hardell L. , Bengtsson No. Jonsson U.etal. : Etiological aspects of primary liver cancer with special regard to alcohol , organic solvents and acute itermitant porphyria : An epidemiological study. Br. J. Cancer 1984; 50 : 389– 92 .
7. Eriksson S., Carlson J. , and velez : Risk of cirrhosis and primary liver cancer in alpha -1 antitrypsin deficiency . N.Engl. J. Med. 1986; 314 :736 – 39 .
8. Van damme P. , Kane M. , Meheus A. : for the viral hepatitis , prevention board integration of hepatitis B vaccination into national immunization programs BMJ. 1997;314:1033 – 6 .
9. Sherlock S. : Hepatic tumors in Disease of the liver and biliary system 8th ed. , London : Blackwell scientific , 1989:558.
10. Akriviadis EA. , liovet JM. , Efremidis SC. et al : HCC. Brit J. Surgery 1998;85: 1319 – 31 .
11. Niederani C. , Fischer R. , Sonneberg A. et al : Survival and causes of death in cirrhotic and in non cirrhotic patients with primary hemochromatosis N. Eng J. Med . 1995;313 : 1256 – 62 .
12. Purtillo DT. : chlonorchiasis and hepatic tumors. Geop. Med. 1976;28:21-27 .
13. Jay, H.S.: Internal Medicine, little Brown and company Boston, Toronto, 6th ed . 1997:1804 .
14. Abou – shady – M . :Molecular aspects of HCC , department of visceral & transplantation surgery, University of Bern . Inselspital switzerland . Swiss Surg. 1995;5 : 102 – 6.
15. Zuhair Alkassir , Ziad M . Juredini : HCC. in Iraq . J- Fac. Medicine Baghdad – 1986 ;28.
16. Flickinger JC . , Carr BI . , Lotz MT. : cancer of the liver . In Devita Vt. , Hellman S., Rosenberg SA. , eds cancer : principles and practice of oncology . 5th ed . Philadelphia : Lippincott – Raven , 1997:1087–97 .
17. Shomura, M., Kagawa, T., Okabe, H., Shiraishi, K., Hirose, S., Arase, Y., Tsuruya, K., Takahira, S. and Mine, T., 2016. Longitudinal alterations in health-related quality of life and its impact on

the clinical course of patients with advanced hepatocellular carcinoma receiving sorafenib treatment.BMC cancer,16(1), 1-9.

18. Brunocilla, P.R., Brunello, F., Carucci, P., Gaia, S., Rolle, E., Cantamessa, A., Castiglione, A., Ciccone, G. and Rizzetto, M. (2013). Sorafenib in hepatocellular carcinoma: prospective study on adverse events, quality of life, and related feasibility under daily conditions.Medical Oncology,30(1), 1-8.
19. Balogh, J., Victor III, D., Asham, E.H., Burroughs, S.G., Boktour, M., Saharia, A., Li, X., Ghobrial, R.M. and Monsour Jr, H.P. (2016). Hepatocellular carcinoma: a review.Journal of hepatocellular carcinoma,3, 41.
20. Omata M, Peters RL, Tatter D (1981) Sclerosing hepatic carcinoma: relationship to hypercalcemia. Liver 1:33–49.
21. Kojiro M, Sugihara S, Kakizoe S et al (1989) Hepatocellular carcinoma with sarcomatous change: a special reference to the relationship with anticancer therapy. Cancer Chemother Pharmacol 23:4–8.