Medical Case Report

Chronic C Hepatitis with Hepatocellular Carcinoma – A Case Report

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Abstract

Nowadays chronic C hepatitis is a common infectious disease worldwide. Complications of this disease include: liver cirrhosis, acute and subacute live failure (hepatic encephalopathy, portal vein hypertension, ascites, hepatorenal syndrome), hepatocellular carcinoma (HCC). Since 2015 there is C-elimination program in Georgia, in which patients with chronic C hepatitis can be treated with antiviral drugs for 3,6 or 12 months. Although after antiviral therapy majority of patients get rid of the C hepatitis virus, due to liver damage (high, moderate or low) it is possible for patients to develop complications of chronic C hepatitis, including hepatocellular carcinoma. In our case report we present you 58-year-old patient, who was diagnosed with chronic C hepatitis in 2016 complicated with liver cirrhosis. Antiviral treatment was performed. Virus was eliminated, i.e. a solid viral respond was obtained. Due to liver damage he was hospitalized in the Center of infectious diseases, AIDS and clinical immunology, where he was diagnosed with HCC. The patient has been under constant monitoring until and AFP (alpha-fetoprotein), which is a marker of hepatocellular carcinoma, has always been within the normal range at <5.8 IU/ml. And with the last determination of AFP in the blood, the result was obtained >1000 IU/ml.

Keywords: C Hepatitis; liver cirrhosis; Hepatocellular carcinoma (HCC); Solid viral respond (SVR); Alfa feto-protein (AFP).

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Introduction

Hepatitis C virus (HCV), is a hepatotropic RNA virus, it is one of the leading causes of chronic hepatitis and chronic liver disease. Hepatocellular carcinoma (HCC) is one of the major complication that is associated with chronic C hepatitis, with significant mortality and morbidity rates. HCV-induced development of HCC is a gradual process and the duration and viral genotype has an influence on the development of the disease. HCC development includes many stages, for developing HCC is needed over 20 to 40 years (Fig. 1).

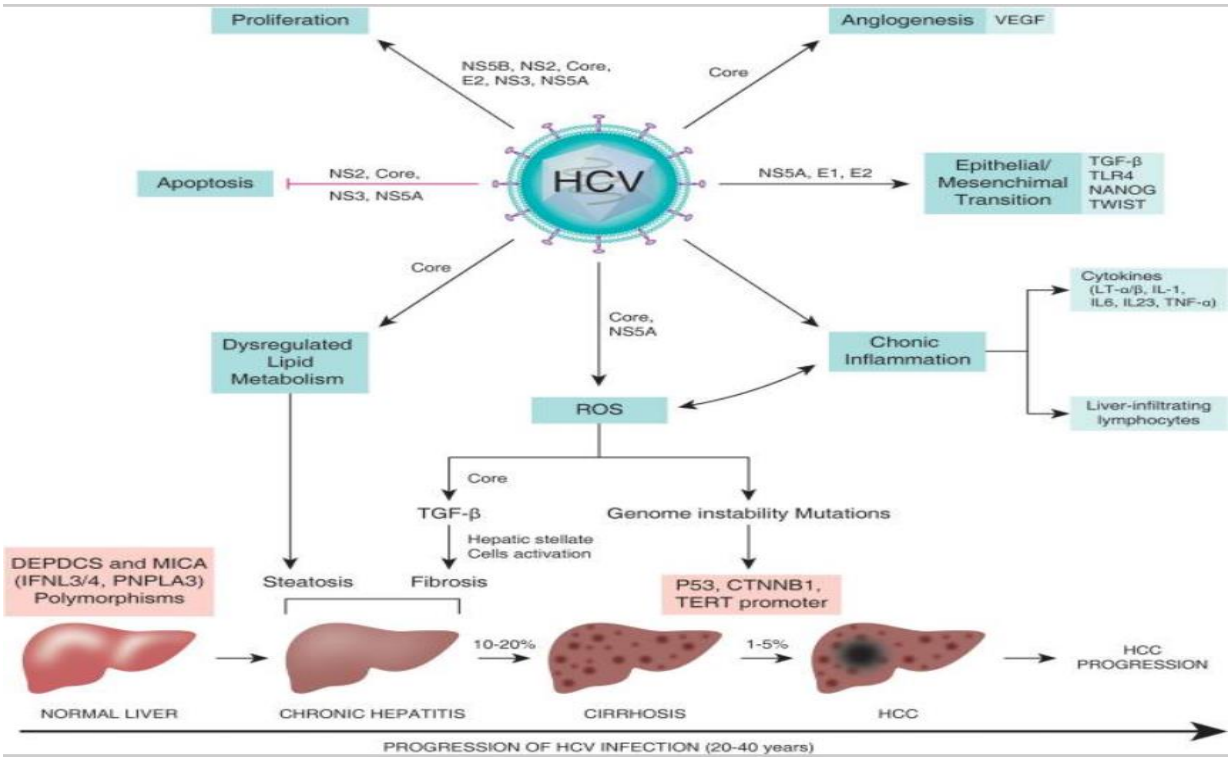

Figure 1. Hepatitis C Virus and Hepatocellular Carcinoma: A Narrative Review, Page Axley, Zunirah Ahmed, Sujan Ravi , Ashwani K Singal; National Library of Medicine (NIH).

There are factors that have an influence on HCV carcinogenesis. These factors include: viral-induced factors and host-induced immunologic response. For this time a direct oncogenic effect of HCV on liver cells has been only approved in animal models, but there are also studies, the results of which have shown that the HCV core protein may induce lipogenesis and disrupt oxidative stress metabolism.

The viral proteins of HCV can act directly on cell signaling pathways to promote the developing of HCC by inhibiting tumor suppressor genes and cell cycle check points. Also, by causing activation of signaling pathways that up-regulate growth and division HCV also can promote HCC development. There are some specific tumor suppressor genes inhibited by HCV core protein: retinoblastoma protein and p53 tumor suppressor. The loss of p53 and retinoblastoma is synergistic, that leads to a greater stage of carcinogenesis [1].

On 6.10.2024 a 58 year male referred to the

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Center of Infectious Pathology, AIDS and Clinical Immunology with complaints: severe general weakness, anorexia, bloating, difficulty urinating. He denied the use of alcohol, toxic substances and tobacco. In 2016 patients was diagnosed with chronic C hepatitis, liver cirrhosis (grade of liver damage F- with Metavir). Antiviral therapy was performed within the C-elimination state program, for 24 weeks sofosbuvir+ribavirin. A solid viral respond was obtained (SVR). The patient underwent laboratory and instrumental studies during hospitalization.

It should be noted that the patient was continuously monitored after receiving SVR. In 2022 patient was hospitalizes in the Center of Infectious diseases, AIDS and Clinical immunology, due to progression of liver damage with complaints: severe general weakness, anorexia, bloating, nausea, heaviness in epigastrium. Studies were conducted, as a result of which free fluid was found in the abdominal cavity. AFP conducted on 25/10/2022 – 1.46 IU/ml (N-<5.8). Subsequently, an abdominal ultrasound performed on 02/2024 revealed hepatosplenomegaly, portal vein thrombosis. A small amount of free fluid in the pelvic cavity. Sings of hepatocellular carcinoma were not present. 05/02/2024 AFP was again negative (2.38 IU/ml).

It also should be noted that radiological sings of HCC and elevated AFP revealed in the second half of 2024.

Results (2024/11)

1. Complete blood count (CBC) – Platelets - 84 *10^9/L, Rod neutrophils - 8% (N - 1-6 %), lymphocytes – 9% (N – 19-37%), total serum protein – 60 g/L (N65-58 g/L).
2. Coagulogram - PI 65% (N 70-100%), PT- 19.4sec (N 9-15sec)
3. CRP- 15 mg/L (N<6).
4. Biochemistry Blood Test: alkaline phosphatase – 174,1 U/L (N 30-115 U/L), total bilirubin – 57.6 umol/L (N<18.8 umol/L), bilirubin direct -25.4 umol/L (N<5 umol/L), Aspartate aminotransferase (AST) – 91.4 U/L (N- <41 U/L, alanine aminotransferase - 49,8 U/L (N <41 U/L), ammonium – 107.3 (N- 25-94), albumin – 25g/L (N35-50g/L). gamaglutamine transferase – 109.6 U/L (N<49U/L).
5. AFP ->1000 IU/ml (N<5.8 IU/ml).

6.07.11.2024 – Abdomen ultrasound: liver – Oblique-vertical size 142mm (N<140mm), craniocaudal size 121mm (N<100mm), anteroposterior midline size 72mm (N<50mm). The edges of the liver are irregular, the corners are thickened, the parenchyma is inhomogeneous. The structure is medium and coarse-grained. Echogenicity increased unevenly. Echo conductivity - impaired. Portal vei – intrahepatic – 14mm (N<11mm). A picture of complete thrombosis of the portal vein is shown. In the parenchyma, a hypoechoic nodule measuring 43X 36X 25 mm is visualized in the 8th segment, and an isoechoic nodule measuring 36X16 mm is visualized in the 8th segment. Spleen size - 154X70mm, structure – homogeneous, splenic vein in door 12mm, dilated, anastomoses are visualized. Free fluid in

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the abdominal cavity is found near the edge of the liver, in the lateral grooves and in the pelvic cavity in medium amounts.

14.10.2024 Abdominal MRT with contrast was performed. Result- In the first, third, fourth and seventh segments, hypervascular foci of small to 1 cm size in the arterial phase are revealed, without significant diffusion limitation or washout - LIRADS 3, in the sixth segment, along the branches of the portal veins, hypervascular foci of irregular shape and opaque contours up to 2.6 cm in size without diffusion limitation or washout are revealed - LIRADS 3. In connection with the subsegmental branch of the seventh segmental portal vein, a 0.8 cm-sized center with a hypervascular and later fibrous capsule in the arterial phase is revealed - LIRADS 4. In the fourth segment, a single thin cyst of 1.7 cm size is revealed. There is a small amount of fluid in the abdominal cavity.

The patient was consulted by oncologist. Due to multiple masses in liver parenchyma surgical intervention was not considered as an appropriate treatment. Patient was consulted by Transplantology specialist. Liver transplantation was planned. For now, patient is on the waitlist of liver transplantation, under the supervising of oncologist.

Discussion

There are several ways to diagnose Diagnose hepatocellular carcinoma. Periodic monitoring of patients at high risk for HCC is important. Early HCC screening uses abdominal ultrasound and AFP determination in the blood (AFP>400 μg/L - presence of HCC is suspected). We can also use computed tomography and magnetic resonance imaging to diagnose HCC, which are used in patients with abnormal ultrasound and AFP levels. Liver biopsy is also one of the diagnostic methods of hepatocellular carcinoma, but biopsy is not necessary in patients with typical manifestations of HCC by other instrumental or laboratory studies. The treatment of hepatocellular carcinoma involves many methods that require multi-discipline. Surgical treatment includes hepatectomy and carcinectomy. One of the treatment methods can also be liver transplantation, tumor ablation, etc. Conservative treatment includes radiation therapy, external or implantable radiotherapy, systemic treatment [2]. Successful treatment of chronic hepatitis C has significantly reduced the risk of developing hepatocellular carcinoma. At the same time, some patients, especially those with liver cirrhosis, remain at risk of developing HCC despite a robust viral response [3].

Conclusion

- By reviewing the case of a 58-year-old patient, we can conclude that hepatocellular carcinoma may develop due to progression of liver damage, despite antiviral treatment and solid viral response.
- Liver cirrhosis is an irreversible process, and despite the removal of its underlying cause, it is possible to develop

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its complications over time due to the the increase in liver damage during decompensation of cirrhosis.

- It is important for both medical staff and patients to understand that high-risk patients require constant monitoring.

Nota Bene for doctors

- The case described above shows that despite antiviral treatment and elimination of the virus, due to the progression of irreversible liver damage, liver cirrhosis complications may occur over time.
- Also, our goal is to emphasize the importance of monitoring after eliminating of the etiological factor, because from this case it is clear that in the case of constant monitoring after receiving a solid viral response, liver cirrhosis complications can be detected at an early stage.

ქრონიკული C ჰეპატიტი ჰეპატოცელულარული კარცინომით - ა ქეის-მოხსენება

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აბსტრაქტი

C-ქრონიკული ჰეპატიტი დღესდღეობით საკმაოდ გავრცელებული ინფექციური დაავადებაა მსოფლიო მასშტაბით. დაავადების გართულებებს წარმოადგენს ღვიძლის ციროზი, ღვიძლის მწვავე და ქვემწვავე უკმარისობა (ღვიძლისემიერი ენცეფალოპათია, პორტული ჰიპერტენზია, ასციტი, ჰეპატორენული სინდრომი), ჰეპატოცელულური კარცინომა (HCC). საქართველოში 2015 წლიდან მოქმედებს C-ელიმინაციის პროგრამა, რომელის ფარგლებშიც C - ქრონიკული ჰეპატიტის მქონე საქართველოს მოქალაქეებს შეუძლიათ 3, 6 და 12 თვიანი ანტივირუსული მკურნალობის ჩატარება. მიუხედავად იმისა, რომ ანტივირუსული მკურნალობის შემდეგ პაციენტების უმრავლესობა C ჰეპატიტის ვირუსისგან თავისუფლდება, ღვიძლის დაზიანების გამო (მაღალი, საშუალო თუ დაბალი) პაციენტთან შეიძლება განვითარდეს C ქრონიკული ჰეპატიტის გართულებები, მათ შორის ჰეპატოცელულური კარცინომა.

ჩვენს შემთხვევის განხილვაში წარმოგიდგენთ 58 წლის პაციენტს, რომელსაც C ქრონიკული ჰეპატიტის დიაგნოზი, გართულებული ღვიძლის ციროზით, დაესვა 2016 წელს. ჩაიტარა ანტივირუსული მკურნალობა. განთავისუფლდა ვირუსისგან, ანუ მიღებულ იქნა მყარი ვირუსული პასუხი (SVR). 2024 წელს კი ღვიძლის

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დაზიანების ხარისხიდან გამომდინარე იქნა ჰოსპიტალიზებული ინფექციური პათოლოგიის, შიდსის და კლინიკური იმუნოლოგიის ცენტრში, სადაც დაესვა ჰეპატოცელულური კარცინომის დიაგნოზი. პაციენტი ამ დრომდე მუდმივად იმყოფებოდა მონიტორინგის ქვეშ და წინა წლებში ჩატარებული AFP (ალფა-ფეტოპროტეინი), რომელიც არის ჰეპატოცელულური კარცინომის მარკერი, ყოველთვის იყო ნორმის ფარგლებში <5,8-ზე IU/ml. ხოლო AFP -ს ბოლო განსაზღვრით სისხლში შედეგი მიღებულ იქნა >1000 IU/ml.

საკვანძო სიტყვები: C ჰეპატიტი, ღვიძლის ციროზი, ჰეპატოცელულური კარცინომა (HCC), მყარი ვირუსული პასუხი (SVR), ალფაფეტოპროტეინი (AFP).

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