Brief Report

Classic Techniques for Pathological Liver Analyse

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Classic techniques for pathological liver analyse

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Abstract: The purpose of this article is to identify the results of structural analyze from liver samples. In the study were used both normaly and pathologicaly liver samples. Also good to mention that in this study were used liver samples, collected during necropsy, from healthy patients and from patients diagnosed with cirrhosis .This previously mentioned, are known as routinally found methods, in medical practice, used for hepatitis C diagnosis, which conduct to hepatic cirrhosis Folowing steps from the classic structural study, it is possible to analyse normal and alterate liver structure, on the colored preparates with specific stainings.

Keywords: liver, samples; laboratory; technique; diagnosis

Introduction

Currently , HCV infection could be consider as one of bad results after percutaneous blood administration to ill patients. Also good to mention that HCV infection it is known as one of the most commonly through injection drug use. [1] The first and most important step in the care cascade is testing for HCV. Actually, is an enlarge number of expansion of populations eligible for testing for HCV prevention. [1–3]

It is know about *care cascade,* including multiple key points in diagnosis HCV infection. An HCV *care cascade* is consider as a model for identifying opportunities and barriers in order to improve laboratory tests, linkage to care, and proper treatment access. [4,5]

Relativelly recently, there have been increases in HCV detection among women of childbearing age. [6,7] Reinfection with HCV after curative therapy in illness status in different patients, is an important key point for medical team. [8–10] The proper laboratory techniques include immunoglobulin (Ig) G antibody enzyme immunoassays (anti-HCV) and nucleic acid tests (NAT), as modern methods, in conection with blood tests.[11] In case that need to distinguish between two directions such as true or false positivity of the anti-HCV antibody result, previously mentined tests, may be done with a second FDA-approved HCV antibody assay that is different from previously used for testing [11,12] Morphologically, HCV is an enveloped, positive-sense, single-stranded RNA virus of the *Flavivirdae* family.[13–15]

The great key point knowing as a start of the direct-acting antiviral (DAA) era was in 2011. The important role in this direction was the introduction of two NS3/4A protease inhibitors. Both previously mentioned were used in combination with interferon-based regimens for chronic HCV treatment to ill patients diagnosed.[16] Results of studies show that the HCV replication process is error prone. Finally results practically could be observe in variant viruses knowing as quasispecies.[17,18] Nowadays there are 7 genotypes of HCV. So there are known 6 major genotypes and the recent addition of genotype 7. This last 7 genotip has been found only in a few cases diagnosed to HCV positive patients. [19] Hepatitis C virus (HCV) infection is a great cause of various liver diseases as cirrhosis and hepatocellular carcinoma. Following promising news, significant scientific discovering things remain in attention for reducing morbidity and mortality, associated to HCV. [20,21] Understanding the properties of hepatitis C virus (HCV) viral RNA and proteins facilitates the development of diagnosis methods and also a proper treatment, including antivirals.[22–24] In addition we can mention that HCV genotyping assays approved for *in vitro* diagnostic use are commercially available[25,26] Cirrhosis, as a nowadays disease, is characterized by fibrosis and nodule formation of the liver. In the secondary plan, it is known as

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a chronic injury, which leads to alteration of the normal lobular organization of the liver. A complex of factors, such as life style, or environmentals, can injure the liver, and beside also including viral infections, toxins.

With each injury, the liver suffer alterations as fibrosis. Finally but after a long-standing injury, liver functionalteration, develop in time cirrhosis as a complex diseases. Ethiology of the chronic liver diseases usually progress unfortunately in cirrhosis, following pathological mechanisms.[27] Scientific knowledges referring to the severity of liver cirrhosis, as a disease with a bad prognostic on the public health, is still not well characterized. [28] Liver diseases are without doubts, the most common in the world. [29] Researchers must be carefully to ideea refering to demonstration that drug injury is present in liver structure injury that conduct to pathology. [30]

Material and Methods

In order to assist medical staff in understanding the concerns outlined, a series of digital images have been prepared. The operative pieces are intended to bring in the pathological anatomy service for macroscopic examination for diagnostic purposes. This are examined by performing the optical microscopic analysis. Using an optical microscope, could be possible liver structure analyze. We can observe hepatocytes and interlobular spaces and septa.[Figure 1] On a normal liver structure but using another specific stain known as *Argentic impregnation Gomori.*

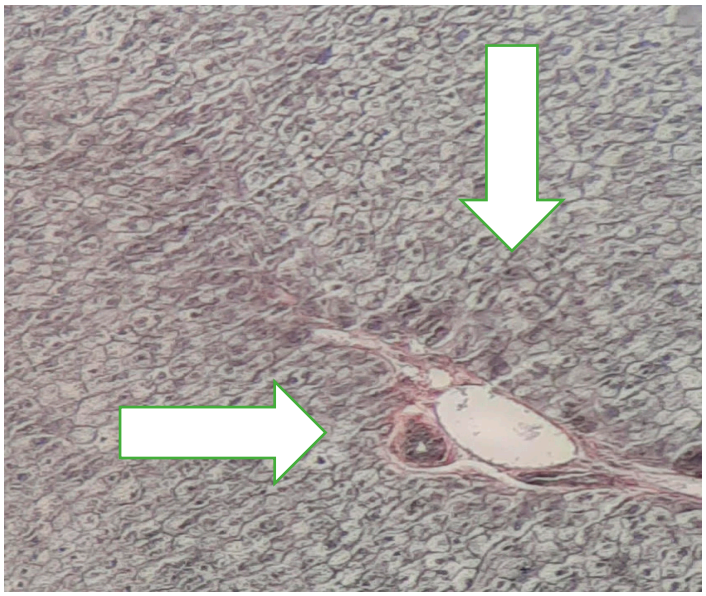

Figure 1. Normal liver x10. *Argentic impregnation Gomori.*

The functional unit of the liver is the lobule with hexagonal form. Kienann space is specific for liver strucutre, including a portal triad (portal vein, hepatic artery, bile duct) sits at each corner of the hexagon. Mitochondri as points observing with lens x40, using Goldner Szekely stain. [Figure 2]

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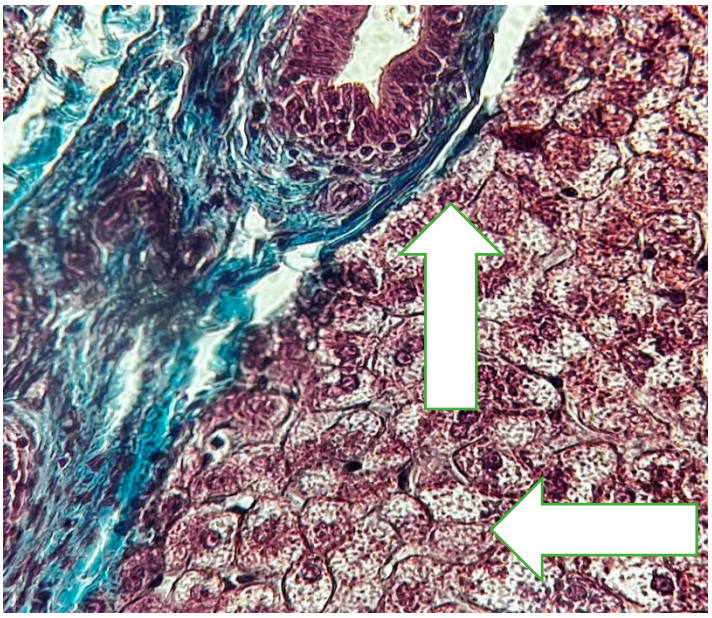

Figure 2. Normal liver x 40 Goldner Szekely stain.

In liver cirrhosis, on samples could be observe tissue fibrosis and alterations in the normal liver architecture in abnormal structural nodules. [Figure 3]

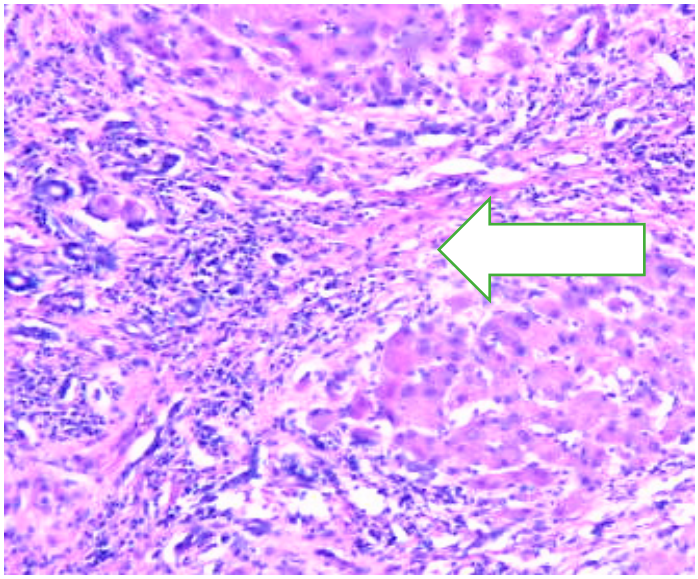

Figure 3. Cirrhosis liver x10 H&E stain.

A similar coming image with specific structural changes in liver structure and with vascularized fibrotic septa in cirrhosis More than , we can mention in this disease, about portal hypertension. [Figure 4]

Prevention and treatment of liver cirrhosis are best done by an interdisciplinary medical team.

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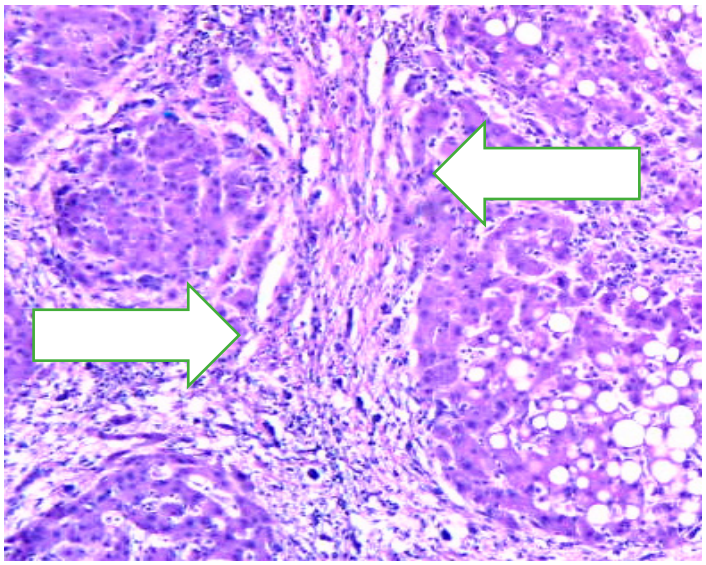

Figure 4. Cirrhosis liver x10 H&E stain.

Animal models play a significant role in liver pathology diagnosis for example in rats with cirrhosis. Cirrhosis, as a nowadays disease, is characterized by fibrosis and neoformation noduls in the liver architecture. In addition, cirrhosis it is known as a chronic injury, which leads to alteration of the normal lobular organization of the liver. [29–31] A complex of factors, such as life style, or environmental factors, can affect the liver, for better or for worse. [32] [33] In addition to optimal management of cirrhosis complications per the recent EASL guidelines, patients with advanced liver disease also require support and management for substance/alcohol abuse, nutrition and frailty. [34,35]

4. Complications in Cirrhosis

Hepatic encephalopathy (HE) is an important major neuropsychiatric disorder in liver cirrhosis. There are known two types. So minimal hepatic encephalopathy (MHE), known as a cognitive deficit found in the ealier past time using specific psychological tests and Grade I HE. More than, also it is known about overt hepatic encephalopathy (OHE), with specific clinical symptoms.[36,37]

Ascites is knowing as a common complication in hepatic cirrhosis. Ascites is accompanied with portal hypertension. This previously mentioned complication in cirrhosis, it is known as a specific one, defined as an accumulation of a fluid quantity in the peritoneal cavity.[38]

Ascites infection is a possible accompaning event for ill persons diagnosed with cirrhosis. Infection in ascitis is often known as a bacterial peritonitis (SBP) somethimes with accompaning fungal infections.[39,40]

Variceal bleeding represent a relatively comon accompanied complication to patients diagnosed with cirrhosis. [41] In liver damage as cirrhosis, esophageal and gastric variceal bleeding together with rectal variceal bleeding.[42]

Hepatorenal syndrome and kidney injury represent a common complication to patients diagnosed with hepatic cirrhosis. [43]

Infections are also relatively commons in hepatic cirrhosis. In differents parts of the body could be find after signs and simpotoms, infections as tissues infections,bacteremia, pneumonia, urinary tract infections. [44,45] From years ago,till nowadays, infections caused by multidrug-resistant organisms (MDRO) play a significant role in liver damages such them from hepatic cirrhosis.[46]

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5. Cellular and Molecular Key Points

Folowing embryogenesis stages, hepatic cells starting with progenitor cells namely hepatoblasts, during differentiation, become finally hepatocytes.

In the cellular and molecular mechanisms, signals play a great importance. So, hematopoietic cells, manage the hepatoblast proliferation prcess. In this direction, E-cadherin-mediated cell junction in hepatoblasts evolutive nechanism. Also are knowing other contributors in fibally hepatocytes evolution. It is useful to mention that the gradient of TGF-β secreted from the portal vein mesenchyme play also a great role in previously mentioned direction with finality hepatocytes. Cellular and molecular mechanism reffering to mechanistically, show a higher TGF-β signaling in portal vein in hepatic cells that drives cholangiocyte physiologically direction. Research studies, show the decreasing expression of CCAAT/ enhancer binding protein (C/EBP) α and which promoting expression of Hnf6 (aka Oc1) and Hnf1β. More that, also results of studies, show the transcription profile. In this direction it is good to mention a bit about cholangiocyte-specific gene transcription process. More exactly, by HNF6 and HNF1β, are implications in suppressing hepatocyte genes by decreasing C/EBPα levels.[47]

In the developmentally mechanism, the hepatocytes, and the cholangiocytes, emerge from the specific region in the definitive endoderm. In the initiations signals reffering to hepatic cells, include fibroblast growth factor (FGF), and also bone morphogenic proteins (BMPs). [47]

Studies also show as that non-alcoholic fatty liver disease (NAFLD) is a key point in liver diseases.In this direction, we can mention that the pathologically mechanisms, follow steps starting with steatosis having finally to cirrhosis Also good to mention that liver enzymes play also a role. In this mechanism, it is known about ALT:AST ratio. [48,49]

Nowadays, the Model for End Stage Liver Disease (MELD Score) and the MELD-Na are important in liver illness prediction.[50,51]

Discussions

Patient lifestyle changes, unfortunately cannot cure cirrhosis. Complications accompanying hepatic cirrhosis include, portal hypertension, edema in the abdomen and lower extremities, splenomegaly, infections, hepatic encephalopathy.

Behavioral modifications can prevent or at least delay disease progression and provide symptomatic relief.

Lifestyle changes, include factors, as eliminating ethanol consumption and dietary interventions as possible low-sodium diet, in order to reduce water retention. Regulate protein intake according to their doctor's directions and some medical recommandations, will be proper in the treatment of cirrhosis.

Cirrhosis secondary to HBV and HCV is one of the common risk factor for liver degeneration in cirrhosis.. Practically monitoring of cirrhotic patients is recommended, with at least six monthly screenings. Liver biopsy is the gold standard technique highly promising non-invasive methodology under development, that are used in diagnosis. Liver transplantation (LT) is also an effective therapeutic option for the management of cirrhosis end-stage. Relatively recently research investigations try to elucidate the signal transduction pathways that link hepatocytes alterations including cellular disfunctionality.

Conclusions

Research studies predict about not so a good prognosis of patients diagnosed with cirrhosis, knowing laboratory results and clinical points. Knowing the liver as a heterogeneous organ, t under a physiological control, the diagnostic in the ill patients, medical specialists could applay the proper treatment. Curently diagnostic methods and a proper control of liver functions conduct to a proper diagnostic. In idea that hepatic cirrhosis is hard or impossible to cure, we are waiting from future research dirrections and plans.

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