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Original Research Article.

Histopathological Diagnosis amongst Subjects of Liver Diseases Reporting to the Pathology Department at a Tertiary Care Centre

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ABSTRACT

Background: Chronic liver diseases are one of the greatest cause death around the world, representing around 1.03 million deaths each year. The aim of the present study was to evaluate the histopathological diagnosis of subjects with liver disease.

Materials and Methods: The present study was conducted in a prospective fashion enrolling 120 subjects reporting to the Department of Pathology, Hi-Tech Medical College & Hospital, Rourkela, Odisha (India) with liver disorders. There were 60 cases of hepatitis either viral or non-viral and 60 cases of cirrhosis of mixed etiology. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Percentage and frequency distribution were used to describe the results.

Results: The present study enrolled 120 subjects, out of these 80 were males and 40 were females. The mean age of the study population was 40.23+/- 7.89 years. Ductopenia was shown by single subject of liver cirrhosis. Blood stasis was observed by 3.3% liver cirrhosis and 1.7% hepatitis subjects. Focal type of necrosis was seen amongst 68.3% (n=41) liver cirrhosis subjects and 73.3% (n=44) hepatitis subjects. Inflammatory infiltrate was seen amongst 36.7% (n=22) liver cirrhosis subjects and 16.7% (n=10) chronic hepatitis subjects.

Conclusion: In present study; portal inflammation was most common mesenchymal change in liver cirrhosis and hepatitis. Focal type of necrosis was seen in both the cases.

Keywords: Hepatic, Inflammation, Mesenchymal.

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INTRODUCTION

Liver disorders represent a crucial part of digestive disorders, that affect almost 12% of the population of our country.[1] Chronic liver diseases are one of the greatest cause death around the world, representing around 1.03 million deaths each year.[2, 3] Morbidities associated with chronic hepatic disorder has elevated in the last 30 years. This is due to more efficient and better possibilities for diagnosis in order to a decrease the age of subjects at the time of diagnosis of liver disorder and the increased cost of certain treatments, which require an exacting diagnosis of the pathology. The etio pathology of chronic liver disease is an associated interaction between various toxic factors like alcohol intake, viral factors and autoimmune factors.[4,5] Alcohol is concerned in about more than 50% of liver associated deaths in the United States of America and complications of alcohol are responsible for quarter of million deaths annually.[6]

Alcohol abuse usually leads to three pathologically different liver diseases e.g. Fatty liver, alcoholic hepatitis and cirrhosis. They can also occur at the same time and in same patient.[7] Fatty steatosis is a very frequent finding in biopsies and during post mortem examination of such patients. The involvement of liver cell may be focal, diffuse, or zonal.[8] The aim of the present study was to evaluate the histopathological diagnosis of subjects with liver disease.

MATERIALS AND METHODS

The present study was conducted in a prospective fashion enrolling 120 subjects reporting to the Department of Pathology, Hi-Tech Medical College & Hospital, Rourkela, Odisha (India) with liver disorders. There were 60 cases of hepatitis either viral or non-viral and 60 cases of cirrhosis of mixed etiology. All the subjects were informed about the study and a written consent was obtained from them in their vernacular language. The study was approved by the institute's ethical board. Puncture biopsy of liver using echo guided technique is used for obtaining the specimens. Fixation of the tissues was done in 8% formalin which was followed by embedding in paraffin block. 4 micrometer sections were cut and stained using H and E staining technique. GS trichrome staining was used to assess liver fibrosis. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Percentage and frequency distribution were used to describe the results.

RESULTS

The present study enrolled 120 subjects, out of these 80 were males and 40 were females. The mean age of the study population was 40.23+/- 7.89 years.

Table 1 shows the mesenchymal changes in liver cirrhosis and chronic hepatitis subjects. Ductopenia was shown by single subject of liver cirrhosis. Blood stasis was observed by 3.3% liver cirrhosis and 1.7% hepatitis subjects. There were 33.3% subjects with liver cirrhosis and 6.7% subjects with hepatitis that showed hyperplasia of canaliculi. Portal fibrosis was seen in 25% liver cirrhosis subjects and 73.3% chronic hepatitis subjects. Majority of subject i.e. 85% with cirrhosis and 90% with hepatitis had portal inflammation. Table 2 shows the type of necrosis amongst subjects of chronic hepatitis and cirrhosis. Focal type of necrosis was seen amongst 68.3% (n=41) liver cirrhosis subjects and 73.3% (n=44) hepatitis subjects. Periportal type of necrosis was seen amongst 43.3% (n=26) liver cirrhosis subjects and 31.7% (n=19) hepatitis subjects. Periportal and bridging type of necrosis was seen amongst 11.7% (n=7) liver cirrhosis subjects and 11.7% (n=7) hepatitis subjects.

Table 3 shows the type of parenchymal lesions in chronic hepatitis and liver cirrhosis. Inflammatory infiltrate was seen amongst 36.7% (n=22) liver cirrhosis subjects and 16.7% (n=10) chronic hepatitis subjects. Necrosis was seen amongst 23.3% (n=14) liver cirrhosis subjects and 25% (n=15) chronic hepatitis subjects. Both were seen amongst 40% (n=24) liver cirrhosis subjects and 5.3% (n=35) chronic hepatitis subjects.

Table 1: Mesenchymal changes in liver cirrhosis and chronic hepatitis

Changes	Liver Cirrhosis	Chronic Hepatitis
Ductopenia	1(1.7%)	0
Blood statsis	2(3.3%)	1(1.7%)
Hyperplasia of canaliculi	20(33.3%)	4(6.7%)
Biliary stasis	2(3.3%)	2(3.3%)
Post portal fibrosis	25(41.7%)	9(15%)
Portal fibrosis	15(25%)	44(73.3%)
Portal inflammation	51(85%)	54(90%)

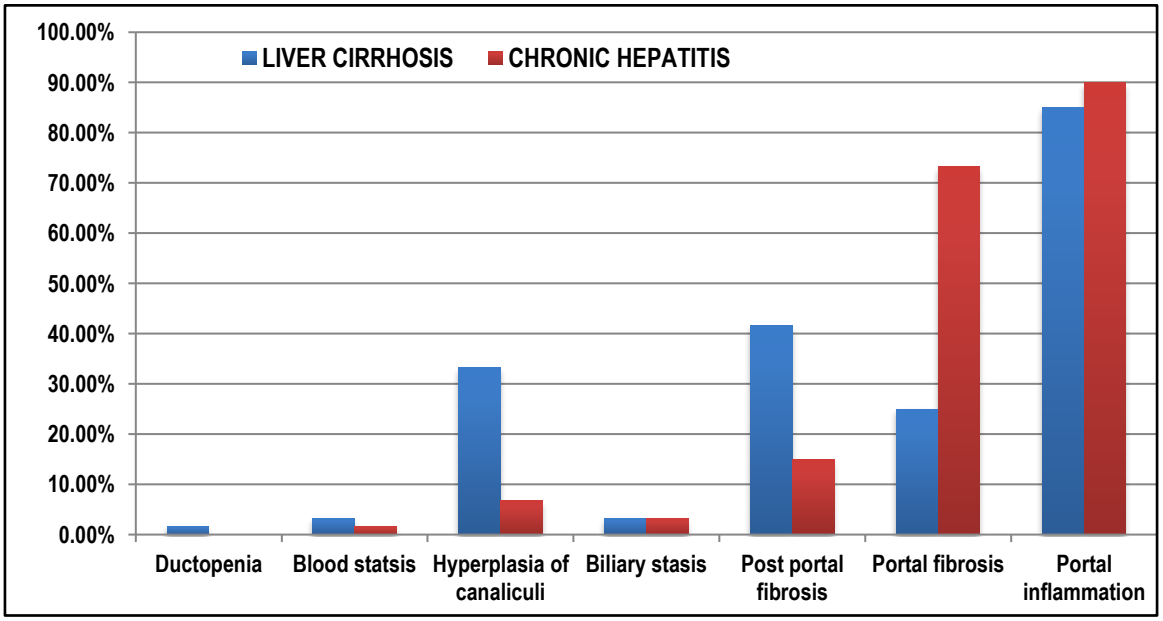
Table 2: Type of necrosis in chronic hepatitis and liver cirrhosis

Type	Liver Cirrhosis	Chronic Hepatitis
Focal	41(68.3%)	44(73.3%)
Periportal	26(43.3%)	19(31.7%)
Periportal and bridging	7(11.7%)	7(11.7%)

Table 3: The type of parenchymal lesions in chronic hepatitis and liver cirrhosis

Type	Liver Cirrhosis	Chronic Hepatitis
Inflammatory infiltrate	22(36.7%)	10(16.7%)
Necrosis	14(23.3%)	15(25%)
Both	24(40%)	35(5.3%)

Graph 1: Mesenchymal changes in liver cirrhosis and chronic hepatitis



DISCUSSION

Liver is susceptible to various metabolic, polymicrobial and circulatory trauma. In some cases, the disorder is primary while in some others the involvement of liver is secondary, which may be due to cardiac decompensation or extra hepatic infections. As per the study conducted by Ghosh CK et al[9] the most common cause of hepatomegaly was liver abscess and it was most commonly due to amoebiasis, second to it was congestive cardiac failure. There were few cases of hepatitis and hepatocellular carcinoma also.

According to the study conducted Kringsholm B et al[10] and Passarino G et al[11] chronic hepatitis was the second most frequent cause of liver disease. In our study, Focal type of necrosis was seen amongst 68.3% (n=41) liver cirrhosis subjects and 73.3% (n=44) hepatitis subjects. Periportal type of necrosis was seen amongst 43.3% (n=26) liver cirrhosis subjects and 31.7% (n=19) hepatitis subjects. Periportal and bridging type of necrosis was seen amongst 11.7% (n=7) liver cirrhosis subjects and 11.7% (n=7) hepatitis subjects. According to a study conducted by DAINA et al[12], mesenchymal changes and dystrophy were present in more than 90% of the patients, parenchymal alterations were seen in 85% of the subjects and fibrosis amongst 50% of the patients. The alterations thus observed was similar to study conducted by Craig et al, Łapiński et al and Walsh et al.[13-15] Fibrosis of liver is generally seen in response to liver disorder independent of the etiology.[16-18] Fibrosis of liver is because of synthesis and deposition of extracellular material that is rich in collagen secreted by fibroblasts and myofibroblasts of liver.[19-21]

As per our study, Ductopenia was shown by single subject of liver cirrhosis. Blood stasis was observed by 3.3% liver cirrhosis and 1.7% hepatitis subjects. There were 33.3% subjects with liver cirrhosis and 6.7% subjects with hepatitis that showed hyperplasia of canaliculi. Portal fibrosis was seen in 25% liver cirrhosis subjects and 73.3% chronic hepatitis subjects. Majority of subject i.e. 85% with cirrhosis and 90% with hepatitis had portal inflammation. Majority of studies have shown that chronic inflammation, is present in most chronic liver disorders (hepatitis, non-alcoholic steatohepatitis, autoimmune disorders of liver) and it is the major cause of fibrogenesis in liver.[22,23] According to certain studies, perisinusoidal dendritic cells present the chief effective cells that responsible for the initiation of liver fibrosis.[24,25] Untreated liver fibrosis proceeds into liver cirrhosis and high portal blood pressure with organ failure and deatH.[26,27]

CONCLUSION

Liver diseases are very common in today's world. It has a multifactorial etiology. In present study; portal inflammation was most common mesenchymal change in liver cirrhosis and hepatitis. Focal type of necrosis was seen in both the cases.

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