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Histopathological analysis of hepatic lesions

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Abstract
Background: A spectrum of various primary as well as secondary diseases can affect liver The present study was conducted to assess hepatic lesions.
Materials & Methods: 68 liver biopsies were stained with Hematoxylin and Eosin (H&E) and were examined under the microscope.
Results: Age group 0-10 years had 1, 11-20 had 12, 21-30 had 20, 31-40 had 25 and >40 years had 10 hepatic lesions. The difference was significant (P<0.05). Histopathological diagnosis were primary Hepatic Tumour in 5, hepatic Secondaries in11, Cirrhosis in 10, Secondary Biliary Cirrhosis in 4, Viral Hepatitis in 15, Alcoholic Hepatitis in 6, Glycogen Storage Disease in 2, Fatty liver in 14 and Cystic Hydatid Disease in 1 case. The difference was significant (P<0.05).
Conclusion: Histopathological examination of liver biopsy helps to diagnose and assess the severity of various hepatic diseases.

Keywords: biopsy, histopathological, liver

Introduction

Liver is a primary organ for various metabolic activities of the body. It is exposed to various metabolic, toxic, infectious and neoplastic insults. Thus, a spectrum of various primary as well as secondary diseases can affect liver [1]. The common primary liver diseases are hepatitis, nonalcoholic fatty liver disease (NAFLD), alcoholic liver disease (ALD) and hepatocellular carcinoma (HCC). Secondary hepatic involvement can be due to alcoholism, extrahepatic infections or metastatic spread of various primary malignancies [2].

Cysts of the hepatobiliary tree are a group of heterogeneous lesions with regard to the pathogenesis, clinical presentation, diagnostic findings, and therapeutic management.[3] Most of them are asymptomatic and incidentally detected on abdominal imaging such as ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI) [4]. A few of them, however, may be symptomatic, and rarely associated with serious morbidity and mortality [5]. The latter, are the larger cysts, which cause complications such as spontaneous hemorrhage, rupture into the peritoneal cavity or bile duct, infection and compression of adjacent biliary tree. Rarely, the ruptured cyst content can cause further complications, as anaphylactic shock [6]. The spectrum of the hepatobiliary cystic lesions might vary in different geographical regions, due to differences in etiological factors in different climatic conditions. The present study was conducted to assess hepatic lesions.

Materials & Methods

The present study was conducted among 68 liver biopsies obtained in the department of pathology. The clinical and radiological findings with LFT results were noted in all the cases. Formalin fixed liver biopsy tissues were processed routinely. These tissues were dehydrated with ascending grades of alcohol, cleared with xylene, and embedded in paraffin to prepare blocks. The blocks were then cut into sections of 2-5 micrometre thickness using a microtome. These sections were stained with Haematoxylin and Eosin (H&E) and were examined under the microscope. Some special stains like Reticulin, Periodic Acid Schiff (PAS), Masson Trichrome (MT), Prussian blue (Perl's) were used in selected cases. The findings were recorded and studied. P value less than 0.05 was considered significant (P<0.05).

Results

Table 1: Distribution of hepatic lesions

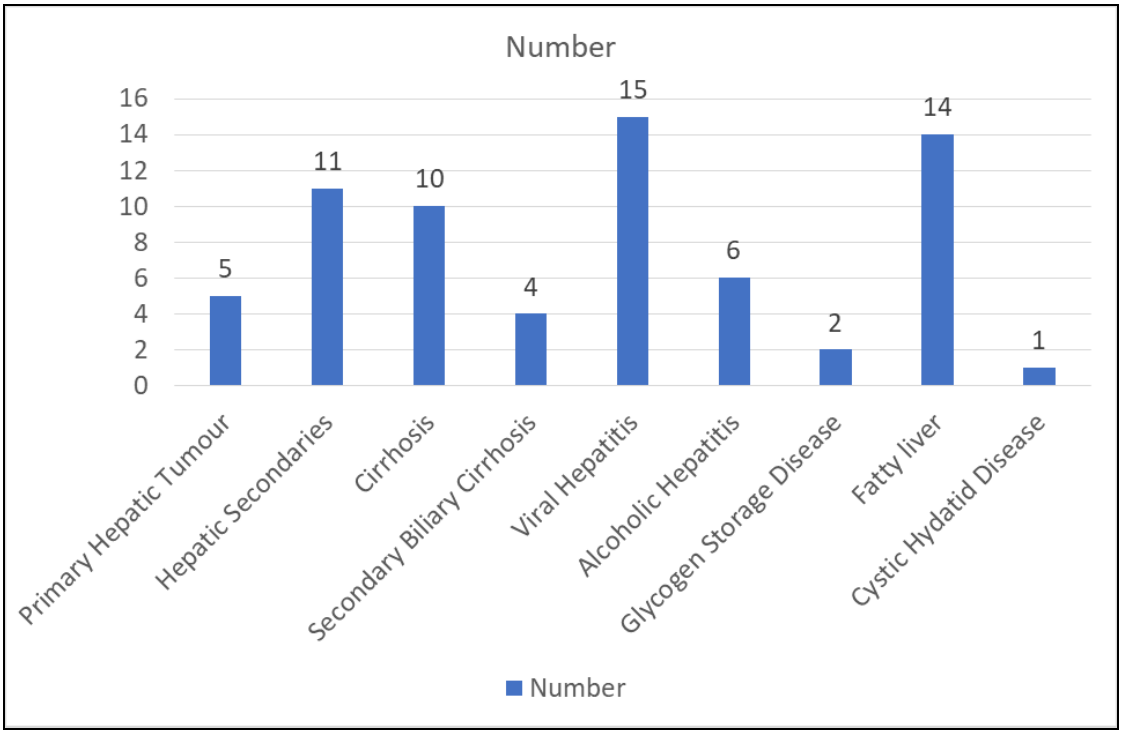
Age group (years)	Number	P value
0-10	1	0.01
11-20	12	
21-30	20	
31-40	25	
>40	10	

Table 1 shows that age group 0-10 years had 1, 11-20 had 12, 21-30 had 20, 31-40 had 25 and >40 years had 10 hepatic lesions. The difference was significant (P<0.05).

Table 2: Histopathological diagnosis of lesions

Histopathological diagnosis	Number	P value
Primary Hepatic Tumour	5	0.02
Hepatic Secondaries	11	
Cirrhosis	10	
Secondary Biliary Cirrhosis	4	
Viral Hepatitis	15	
Alcoholic Hepatitis	6	
Glycogen Storage Disease	2	
Fatty liver	14	
Cystic Hydatid Disease	1	

Table 2, graph 1 shows that histopathological diagnosis were primary Hepatic Tumour in 5, hepatic Secondaries in11, Cirrhosis in 10, Secondary Biliary Cirrhosis in 4, Viral Hepatitis in 15, Alcoholic Hepatitis in 6, Glycogen Storage Disease in 2, Fatty liver in 14 and Cystic Hydatid Disease in 1 case. The difference was significant (P<0.05).



Graph 1: Histopathological diagnosis of lesions

Discussion

The value of liver biopsy is not merely to determine the degree of fibrosis, rather it draws a detailed map for many important histological findings such as the degree of inflammation, nature of inflammatory cells, distribution of inflammation, status of bile ducts, vasculature, presence of steatosis and deposition and infiltration of liver with different materials like iron, copper, etc. [7] Undoubtedly, this otherwise unobtainable information regarding the structural integrity of liver parenchyma, degree and type of injury and the host response, has a clear impact on the diagnosis, prognosis and response to treatment [8]. The ease and low mortality and relatively low morbidity of this procedure has made it to be widely used. Thus, liver biopsy been considered as the gold standard method for assessing liver histology [9]. The present study was conducted to assess hepatic lesions.

In present study, age group 0-10 years had 1, 11-20 had 12, 21-30 had 20, 31-40 had 25 and >40 years had 10 hepatic lesions. Agrawal *et al*. [10] conducted a prospective study

which included 65 liver biopsies. The sections were examined and the histopathological findings were recorded. Out of 65 liver biopsies, 4.6% were inadequate for histopathological study. The various histopathological findings included secondary tumour deposits (40.0%), primary hepatic tumours (12.3%), hepatitis (16.9%), cirrhosis (12.3%), extrahepatic biliary atresia (6.15%), secondary biliary cirrhosis (3.0%), glycogen storage disease (1.5%), cystic hydatid disease (1.5%) and fatty liver (1.5%).

We observed that histopathological diagnosis were primary Hepatic Tumour in 5, hepatic Secondaries in11, Cirrhosis in 10, Secondary Biliary Cirrhosis in 4, Viral Hepatitis in 15, Alcoholic Hepatitis in 6, Glycogen Storage Disease in 2, Fatty liver in 14 and Cystic Hydatid Disease in 1 case.

Hepatic metastasis can be seen either by direct spread or due to the dual nature of blood supply of liver from portal and systemic circulation. The common sites of primary tumours that frequently metastasizes to liver include lung, breast, gall bladder, stomach, pancreas, and large intestine. Gall et al. [11] has found the incidence of cirrhosis to be 6%. The incidence was common among females. This is most probably due to increased alcohol intake among females. Majority of cases showed interface hepatitis. Various other causes included hepatitis B infection, Wilson's disease and malnutrition. Two cases with secondary biliary cirrhosis were observed.

Murgod *et al*. [12] included 66 liver biopsies. Sections were stained with H & E and examined under light microscope. Special stains were done in specific cases. Among these, 45 cases were males and 21 cases were females. Out of 66 cases, 24 (36.3%) cases were hepatocellular carcinoma, 13 (19.69%) cases of glycogen storage disorder, 3 (4.54%) cases each of fatty liver, hepatitis, cirrhosis & degenerative liver disease. 2 (3.03%) cases of liver cell dysplasia and 1 (1.51%) case each of biliary atresia, amyloidosis, miliary tuberculosis and liver abscess. Liver biopsy was non-specific in 4 (6.06%) cases & inadequate in 7 (10.6%) cases.

Conclusion: Microscopic examination of liver biopsy yields a diverse range of pathological findings and helps to uncover diseases for which specific management is indicated.

The limitation of the study is small sample size.

Conclusion

Authors found that histopathological examination of liver biopsy helps to diagnose and assess the severity of various hepatic diseases.

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