

SPECTRUM OF LIVER DISEASES DIAGNOSED IN LIVER BIOPSY- A STUDY IN TERTIARY CARE CENTRE

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Abstract

Background: Liver biopsy is done for diagnosing liver diseases and is the gold standard for managing liver disorders, giving details of diagnosis, progression of disease and response to treatment.

Aim: To study liver biopsies and to correlate them with different age groups and to evaluate different hepatic lesions.

Results: A retrospective study of 60 liver biopsies was done during the period May 2021 to May 2022. Staining was done with H & E and the slides were examined using light microscope. Among these, 41 cases were males and 19 cases were females. Out of 60 cases, 14(23.3%) cases each were of cirrhosis and hepatocellular carcinoma, 11(18.3%) cases were of chronic hepatitis, 6(10%) cases were of fatty liver, 3(5%) cases were of biliary atresia, 4(6.6%) cases were of liver abscess, 2(3.3%) cases were of glycogen storage disorder, 1 case each of degenerative liver disease, liver cell dysplasia and miliary tuberculosis. Liver biopsy was inadequate in 3(5%) cases.

Conclusion: Examination using microscopy done in liver biopsy presents a spectrum of pathological variations and helps to diagnose the diseases and guides the physicians for appropriate treatment.

Key words: Liver biopsy, Age group, Liver disorders

Introduction

Liver playing a vital role in various metabolic activities, is a primary organ of the body. It is susceptible to many metabolic, neoplastic, toxic and infectious effects.^[1] Hence, a variety of numerous primary and secondary disorders can affect liver. The usual primary liver disorders are hepatocellular carcinoma (HCC), non-alcoholic fatty liver disease (NAFLD), hepatitis and alcoholic liver disease (ALD). Secondary liver lesions can be a cause of extrahepatic infections, alcoholism or metastatic spread of various primary malignancies.^[2]

Erlich is prestiged with the first aspiration of liver in 1883 later on first percutaneous liver biopsy, the purpose being diagnosis was reported in 1923. The approach has been updated after that and brought a change in hepatology field.^[3,4] It is milestone in the diagnosis and treatment of patients having liver disorders and has since then been considered to be a vital part of the clinician's diagnosis.^[5] The importance of biopsy of liver is not only to evaluate the degree of fibrosis, but it gives details for many vital histological features like the degree of inflammation, distribution of inflammation, nature of inflammatory cells, status of bile ducts, presence of steatosis, vasculature and deposition and infiltration of liver with various materials like iron, copper, etc. Without any doubt, this unobtainable information of the structural integrity of liver parenchyma, the host response and the degree and type of injury has a definite impact on the diagnosis, response to treatment and prognosis.^[4] Since there is low difficulty and low mortality and quite less morbidity in this procedure, it has made to be used widely.^[3] Hence, liver biopsy has been considered as the gold standard for evaluating liver histology.^[4]

In our study, we aimed to study liver biopsies and to correlate them with different age groups and to evaluate different hepatic lesions.

Materials and Methods:

A retrospective study was done of 60 liver biopsies which were received in the department of pathology in the period of May 2021 to May 2022. The clinical details and radiological findings were correlated in all cases.

Processing was done in an automated tissue processor, after which paraffin embedded blocks were serially sectioned and later on were stained by Hematoxylin & Eosin.

Special stains like Masson trichrome, Reticulin, Congo red and periodic acid Schiff (PAS) were used whenever necessary.

The slides were then examined for microscopic features and the slides which showed less than three portal spaces were considered as inadequate specimens.

Results

Table 1- Age and gender distribution in liver diseases

Age (in years)	Male	Female	Number of cases
0-10	8	6	14(23.3%)
11-20	1	2	3(5%)
21-30	1	1	2(3.3%)
31-40	2	1	3(5%)
41-50	4	2	6(10%)
51-60	10	3	13(21.6%)
61-70	11	2	13(21.6%)
71-80	4	2	6(10%)
Total	41(68.3%)	19(31.7%)	60(100%)

A total of 60 liver biopsies were studied with male to female ratio of 2.15:1. The age range was from 9 months to 80 years. Patients below 10 years composed the most frequent age group (23.3%) followed by age group of each 51 to 60 years and 61 to 70 years (21.6%).

Table 2- Frequency of numerous liver diseases diagnosed

Sr No.	Liver disease	Number of cases
1	Liver cirrhosis	14(23.3%)
2	Chronic hepatitis	11(18.3%)
3	Fatty liver	6(10%)
4	Hepatocellular carcinoma	14(23.3%)
5	Biliary atresia	3(5%)
6	Liver abscess	4(6.6%)
7	Glycogen storage disorder	2(3.3%)
8	Degenerative liver disease	1(1.6%)
9	Miliary tuberculosis	1(1.6%)
10	Liver cell dysplasia	1(1.6%)
11	Inadequate	3(5%)
Total		60 (100.0%)

The most common histological diagnosis was hepatocellular carcinoma (23.3%) and liver cirrhosis (23.3%), followed by chronic hepatitis (18.3%). 6(10%) cases were of fatty liver, 3(5%) cases were of biliary atresia, 4(6.6%) cases were of liver abscess, 2(3.3%) cases were of glycogen storage disorder, 1 case each of degenerative liver disease, liver cell dysplasia and miliary tuberculosis. Liver biopsy was inadequate in 3(5%) cases.

Discussion

Liver is afflicted by many primary and secondary disorders and hence demands a precise diagnosis resulting in good management of patient. Hence, histopathology of liver is the most vital tool for diagnosis.^[7] The variety of lesions of liver varied from females to males as well as from adults to infants. In our study, the highest incidence was seen in fifth decade in males. This might be because of high intake of alcohol, viral infections, obesity and other conditions during third to fifth decade of life.^[8,9] In the present study, liver cirrhosis and hepatocellular carcinoma 23.3% (n=14) each were the commonest liver disorder seen. This was similar with the findings of Chawla et al, who evaluated and concluded that hepatocellular carcinoma is the commonest hepatic lesion. Metastatic liver involvement is more usual than the primary tumors of liver.^[6]

The second commonest pathology of liver was hepatitis 18.3% (n=11) with equal distribution among males and females during their fourth and fifth decade of life. This probably can be because of high intake of alcohol and hepatotropic infection of virus. Majority of the cases contributed to chronic hepatitis. Some cases also showed concurrent cirrhosis. It was comprised by inflammatory infiltrate which was confined to portal tracts having margins which were intact.^[12] Similar result was seen in the study conducted by Kringsholm B et al and Passarino G et al.^[10,11]

Glycogen storage disease was seen in 3.3% of the cases. Koshy *et al*^[13] reported 17 cases from Southern India and concluded that in India, it might not be rare. Glycogen metabolism related inherited disorders has an effect on liver, heart and muscle and other systems. These disorders mainly affect children and infants. The types of glycogen storage disease which usually affect the liver are types I, III, VI and IX. The best way to know the difference between these types is by doing enzyme studies of tissue of liver which is extracted by wedge biopsy. Proper and early diagnosis of the glycogen storage disease is important for dietary treatment consisting of raw cornstarch and frequent high-starch feeds which can prevent the disease progression.^[13,14]

Conclusion

Examination of biopsy of liver through microscope produces a variety of pathological findings. It is a vital investigation in concluding diagnosis that is accurate, find out the cause and evaluate severity of liver disorder and to provide best option for treatment. Giving priority to the value and safety of procedure of liver biopsy, non-invasive tests for liver biopsy will always continue to remain the gold standard test for evaluation of liver diseases.

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