



## Spectrum Of Histo-Morphological Changes In Liver At Autopsy In A Tertiary Health Care Hospital

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### Abstract

**Background:** As liver to be the custodian of milieu interior most of the silent liver diseases are diagnosed only on autopsy examination. Most of the chronic liver diseases remain asymptomatic and many are diagnosed incidentally on post mortem examination.

**Objectives:** To study the spectrum of histo-morphological changes in liver at autopsy.

**Material and methods:** This is a retrospective study wherein 56 postmortem cases over a period of 4 years were studied. The case details were collected from hospital record section. The tissue sections of the liver stained with Hematoxylin and Eosin stain were examined and analyzed in an algorithmic approach and conclusion drawn. Orcein stain was done wherever necessary.

**Results:** Males (67.9%) were commonly affected with male:female ratio of 2.1:1. The age ranged from infant to 78 years. The commonest liver lesion was steatosis (32.2%) followed by chronic hepatitis (30.5%), congestion (21.4%), steatohepatitis (5.3%), cirrhosis (5.3%), and hepatic necrosis (5.3%). A detailed histopathological evaluation and grading of the lesions were done for steatosis, steatohepatitis and chronic hepatitis by Ishak scoring and METAVIR staging for fibrosis.

**Conclusion:** Steatosis was the most common liver pathology followed by chronic hepatitis. Autopsy findings emphasize the need of further studies for early detection, treatment and prevention of vulnerable groups.

**Keywords:** Liver, histomorphology, autopsy

### Introduction

Liver is one of the major organs which is vulnerable to a wide variety of insults. In some instances, the disease is primary while in others the hepatic involvement is secondary to cardiac decompensation, alcoholism or extra-hepatic infections.<sup>1,2</sup> Most of the chronic liver diseases, even in advanced stages, may cause no prominent clinical signs or symptoms.<sup>3,4</sup> Many of these silent liver diseases are diagnosed only at autopsy.

### Material And Methods

This is a retrospective study wherein 56 postmortem cases as a part of examination of multiple viscera over a period of 4 years were studied. The details of the cases were collected in the hospital medical record section. The tissue sections of the liver stained with Hematoxylin and Eosin stain were examined and analyzed in an algorithmic approach and conclusion drawn. Special stain i.e Orcein stain was done for specific cases wherever required. The data was entered in the excel sheet and analyzed by descriptive analysis.

### Results

A total of 56 liver specimens were studied. Males (67.9%) were commonly affected than females (32.1%) with a male:female ratio of 2.1:1 (Table 1). The age ranged from infant to 78 years, of which most of the deaths occurred in 3rd decades of their lives (Table 2). The commonest liver lesion was steatosis (32.2%). The second commonest lesion was chronic hepatitis (30.5%), followed by congestion (21.4%), steatohepatitis (5.3%), cirrhosis (5.3%), and hepatic necrosis (5.3%) (Table 3). A detailed histopathological evaluation and grading of the lesions were done for steatosis, steatohepatitis, and

chronic hepatitis by Ishak scoring and METAVIR staging for fibrosis. Most of the cases of steatosis were of grade-1(11cases) followed by grade-2 (6cases) and grade-3 (1case). The 17 cases of chronic hepatitis were scored based on portal inflammation, interface hepatitis, confluent necrosis and focal necrosis/apoptosis wherein the portal inflammation by lymphocytic infiltrate was the predominant feature. Three cases of steatohepatitis, of which 2 were of grade-1and one of grade-3 disease were seen. Cirrhosis and Hepatic necrosis were seen in 3 (5.3%) of cases each respectively.

**Table 1: Showing sex distribution**

Sex	No of cases	Percentage%
Males	38	67.9%
Females	18	32.1%
Total	56	100%

**Table 2: Age wise distribution of all cases**

Age group (years)	No of cases	Percentage%
< 10	2	3.6%
11-20	8	14.3%
21-30	18	32.2%
31-40	11	19.7%
41-50	4	7.1%
51-60	5	8.9%
61- 70	4	7.1%
>70	4	7.1%

**Table 3: Distribution of Liver lesions**

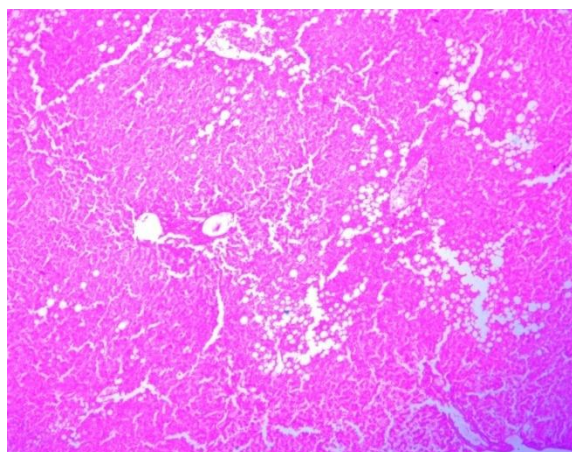
Sl no	Liver lesions	No of cases (%)
1	Steatosis	32.2%
2	Chronic Hepatitis	30.5%
3	Venous congestion	21.4%

4	Steatohepatitis	5.3%
5	Cirrhosis	5.3%
6	Hepatic Necrosis	5.3%

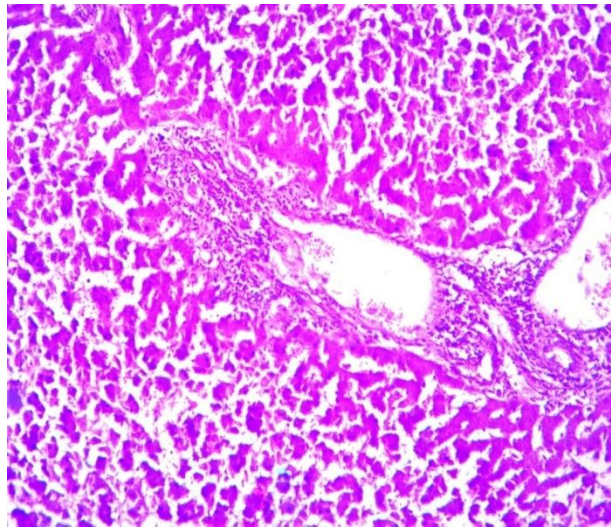
**Table 4: Comparison of histopathological findings with the present study**

Histopathological findings %	Bal et al <sup>5</sup> %	Selvi et al <sup>7</sup> %	Porwal et al <sup>6</sup> %	Umesh babu et al <sup>2</sup> %	Present study%
Steatosis	39	26.9	39.72	22.9	32.2
Chronic hepatitis	3	13.9	38.35	20.9	30.5
Congestion	9	16.7	49.31	9.52	21.4
Cirrhosis	14	7.4	3.42	1.9	5.3
Steatohepatitis	-	-	-	-	5.3
Hepatic necrosis	-	-	-	-	5.3
Tumors	3	1.9	-	-	-
Normal	30	25.9	6.84	4.7	-

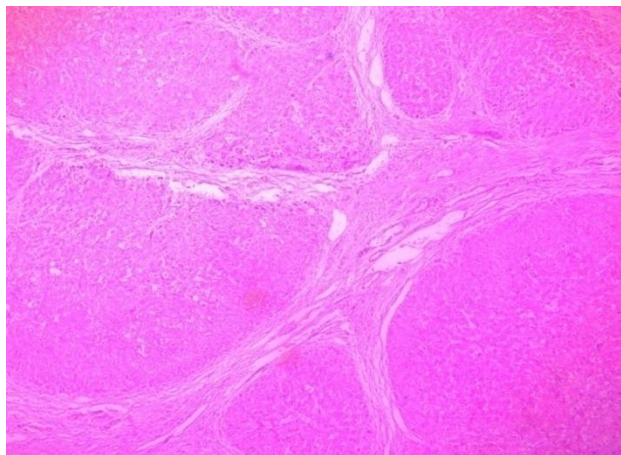
**Fig 1: Microphotograph of steatosis showing fat vacuoles in hepatocytes (H & E 10X)**



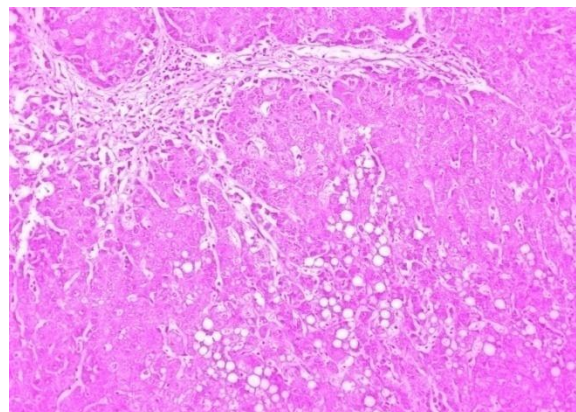
**Fig 2: Microphotograph of Interface hepatitis showing lymphocytes at the junction of portal tract and hepatic parenchyma. (H & E 20X)**



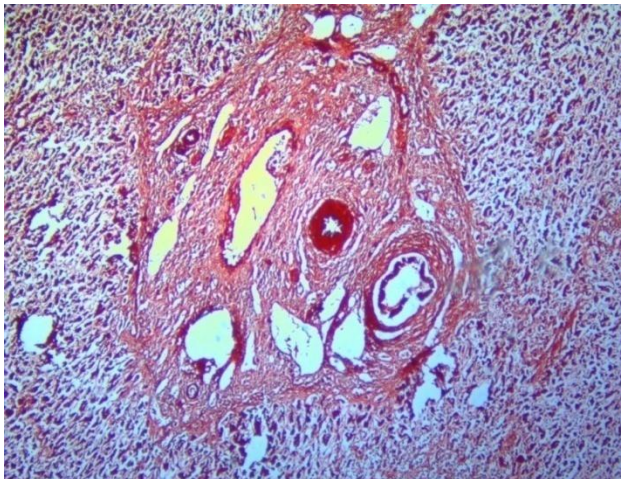
**Fig 3: Microphotograph of Cirrhosis showing parenchymal nodules separated by fibrosis (H&E 4X)**



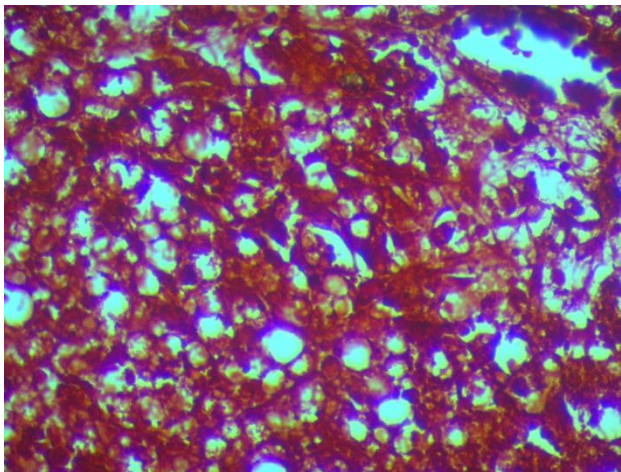
**Fig 4: Microphotograph of Steatohepatitis Grade III showing steatosis, hepatocyte ballooning and inflammatory infiltration (H & E 10X)**



**Fig 5: Microphotograph depicting fibrosis of portal tract with bridging (Orcein 10 X)**



**Fig 6: Microphotograph showing clumps of HBsAg material in Orcein Stain (40 X)**



### Discussion:

As Liver is one of the important organ wherein the chronic liver diseases occur frequently, some may remain silent and some are diagnosed only at the time of autopsy. Histopathology is the most important and useful way of diagnosing these kind of lesions. The present study has shown that steatosis/fatty liver (32.2% of cases) (Fig.1) is the most common silent liver disease. Alcohol consumption is major causative factor for developing fatty change. Other studies done by Bal *et al*<sup>5</sup> and Porwal *et al*<sup>6</sup> also showed similar findings (Table 4). The next common finding was Chronic hepatitis followed by Congestion and Cirrhosis which were similar to the findings of studies done by Selvi *et al*<sup>7</sup> and Umesh Babu *et al*<sup>2</sup>. Chronic hepatitis was found in 17(30.5%) of cases in our present study and most commonly seen in young adults. This finding is in accordance to the studies

conducted by Selvi *et al* (13.90%), Madhu bala devi *et al*<sup>8</sup> (22%), and Umesh babu *et al* (20.90%). All the 17 cases of chronic hepatitis were scored by Ishak scoring based on portal inflammation, interface hepatitis (Fig. 2), confluent necrosis and focal necrosis/apoptosis wherein the portal inflammation by lymphocytic infiltrate was the predominant feature in most of the cases.

Venous congestion was seen in 12 (21.4%) of liver autopsies. This is similar to the studies by Umesh babu *et al* (9.52%), Selvi *et al* (16.70%) and Bal MS *et al* (9%). Venous congestion of liver is terminal end stage of the death seen in most of the liver autopsies.

Cirrhosis was seen in 3 (5.3%) of cases (Fig.3). Special stain i.e Orcein stain was done for these cases and depicted the fibrosis and clumps of HBsAg (Figs.5 & 6) material in the hepatocytes indicating prior Hepatitis-B virus infection. Studies by Selvi RT

et al and Bal MS et al reported 7.40% and 14% incidence of cirrhosis respectively. Cirrhosis represents one end of the spectrum featuring diffuse fibrosis and formation of regenerative nodules. Advanced fibrosis of the liver has been traditionally taken as an irreversible state, and by itself is a risk factor for hepatocellular carcinoma.<sup>11</sup>

Steatohepatitis was seen in 3 cases (5.3%) (Fig.4) of which two had grade-1 and one had grade-3 disease. Hepatic necrosis was seen in 3 (5.3%) of cases.

**Conclusion:** Histopathological study of liver is an excellent learning tool in the hands of pathologists to study the spectrum of liver diseases which is of great value in improving diagnostic setup for clinical assessment. In our study steatosis was the most common liver pathology followed by chronic hepatitis. Although autopsy based studies do not reflect the actual pattern of liver diseases but emphasizes the need of further studies for early detection and treatment of vulnerable groups.

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