(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

ANALYSIS OF VARIOUS HEPATIC PATHOLOGIES IN AUTOPSY CASES: A RETROSPECTIVE STUDY

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ABSTRACT:

Background: Liver is vulnerable to a wide variety of metabolic, toxic, microbial and circulatory insults. Liver involvement due to various etiologic agents can either be primary in nature or can be secondary to cardiac de-compensation, alcoholism or extrahepatic infections. For assessing the cause of the death and for planning the medical strategies, autopsy study is useful. Hence, we planned the present study to evaluate various patterns of hepatic diseases which are morphologically reflected at the time of autopsy.**Materials & methods:** The present study included assessment of 200 autopsy viscera cases examined during 2011 to 2016. Gross examination of liver and other organs was done in the present autopsy study. After fixing all the specimens with 10 percent formalin solution, paraffin embedded wax blocks were made. All the sections were stained with H and E. All the demographic details, age, sex and other clinical findings of the cases were recorded and analyzed.**Results:** Out of total of 200 cases, majority of the pathologies were due to circulatory disorders. Hepatitis and cirrhosis were responsible for 37 and 11 cases respectively. Only three cases were of neoplastic pathology. Steatosis was responsible for 14 percent of the cases. Out of 200 cases, 107 were males and 93 were females. Circulatory disorders were the most common liver pathology among males. Among cases with age group of 40 to 50 years, the most common pathology detected was circulatory disorders.**Conclusion:** Various circulatory disorders, cirrhosis, hepatitis and steatosis are among the most commonly encountered liver pathologies.

Key words: Autopsy Viscera, Liver, Pathology, Cirrhosis, Fatty change.

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This article may be cited as: Puri A, Garg P, Tayal I, Singh N, Rupam. Analysis of various hepatic pathologies in autopsy cases: A Retrospective Study. J Adv Med Dent Scie Res 2017;5(4):103-107.

Access this article online	
Quick Response Code	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.3.23

INTRODUCTION

Liver is a very important internal organ of the human body. It is vulnerable to a wide variety of metabolic, toxic, microbial and circulatory insults. Liver involvement due to various etiologic agents can either be primary in nature or can be secondary tocardiac de-compensation, alcoholism or extrahepaticinfections. For assessing the cause of the death and for planning the medical strategies, autopsy study isuseful.[1, 2]

Various abnormal findings associated with liver autopsy can befatty change, hepar lobatum, glycogen storagedisease, acute phosphorus poisoning, infarcts,amyloidosis, abscess, hydatid cyst, malignancy,cirrhosis etc.[2, 3] Following are the consequencies resulting from chronic alcohol abuse:

- Fattyliver,
- Hepatitis, and
- Alcoholic cirrhosis

Liver being the principle site of many metabolic activities, it is the most frequently injured organ in the body.[4] Hence; we planned the present study to evaluate various patterns of hepatic diseases which are morphologically reflected at the time of autopsy.

MATERIALS & METHODS

The present study was conducted in the department of general pathology of the medical institute and included assessment of 200 autopsies cases from June 2014 to July 2016. Ethical approval was taken from the institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. Gross examination of liver and other organs was done in the present autopsy study. After fixing all the specimens with 10 percent formalin solution, paraffin embedded wax blocks were made. Uniform sectioning of all the specimens was done and 4 to 5µm sections of each wax embedded block were done. All the sections were stained with H and E. All the demographic details, age, sex and other clinical findings

of the cases were recorded. All the data were complied and analyzed by using SPSS software.

RESULTS

Distribution of cases of liver pathologies is shown in **Table 1** and **Graph 1**. Out of total of 200 cases, majority of the pathologies were due to circulatory disorders. Hepatitis and cirrhosis were responsible for 37 and 11 cases respectively. Only three cases were of neoplastic pathology. Steatosis was responsible for 14 percent of the cases. Out of 200 cases, 107 were males and 93 were females. Circulatory disorders were the most common liver pathology among males (**Table 2**). **Table 3** shows the distribution of liver pathology cases according to age. Among cases with age group of 40 to 50 years, the most common pathology detected was circulatory disorders.

Table 1: Distribution of cases of liver pathologies

Hepatic pathology	Number of cases (n= 200)	Percentage
Hepatitis	37	18.5
Steatosis	28	14
Circulatory disorders	62	31
Cirrhosis	11	5.5
Granulomatous hepatitis	7	3.5
Metabolic disorders	8	4
Abscesses	5	2.5
Neoplastic pathology	3	1.5
No specific pathology	39	19.5

Graph 1: Distribution of cases of liver pathologies

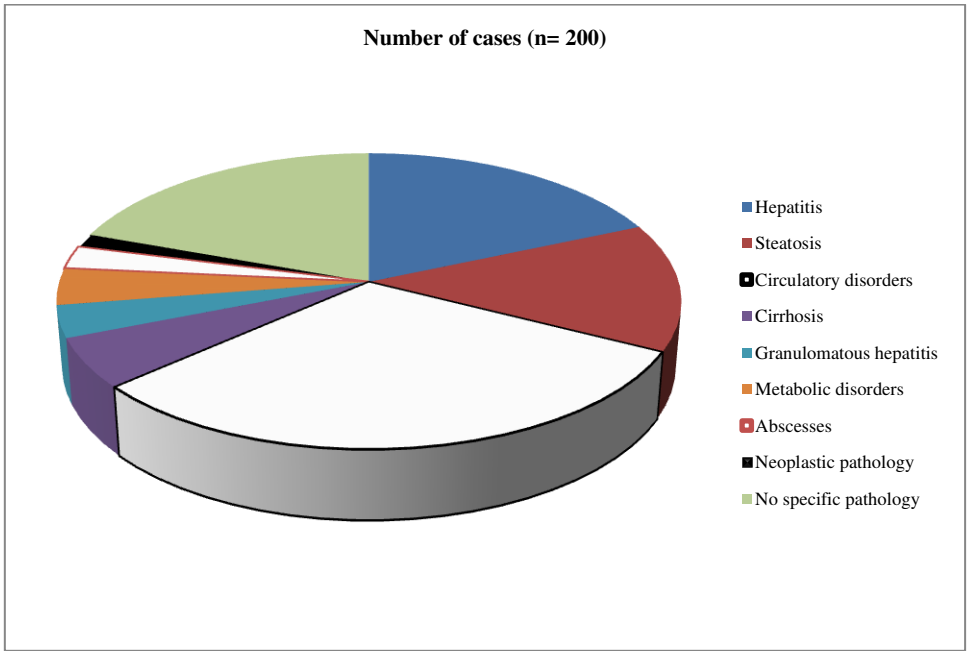
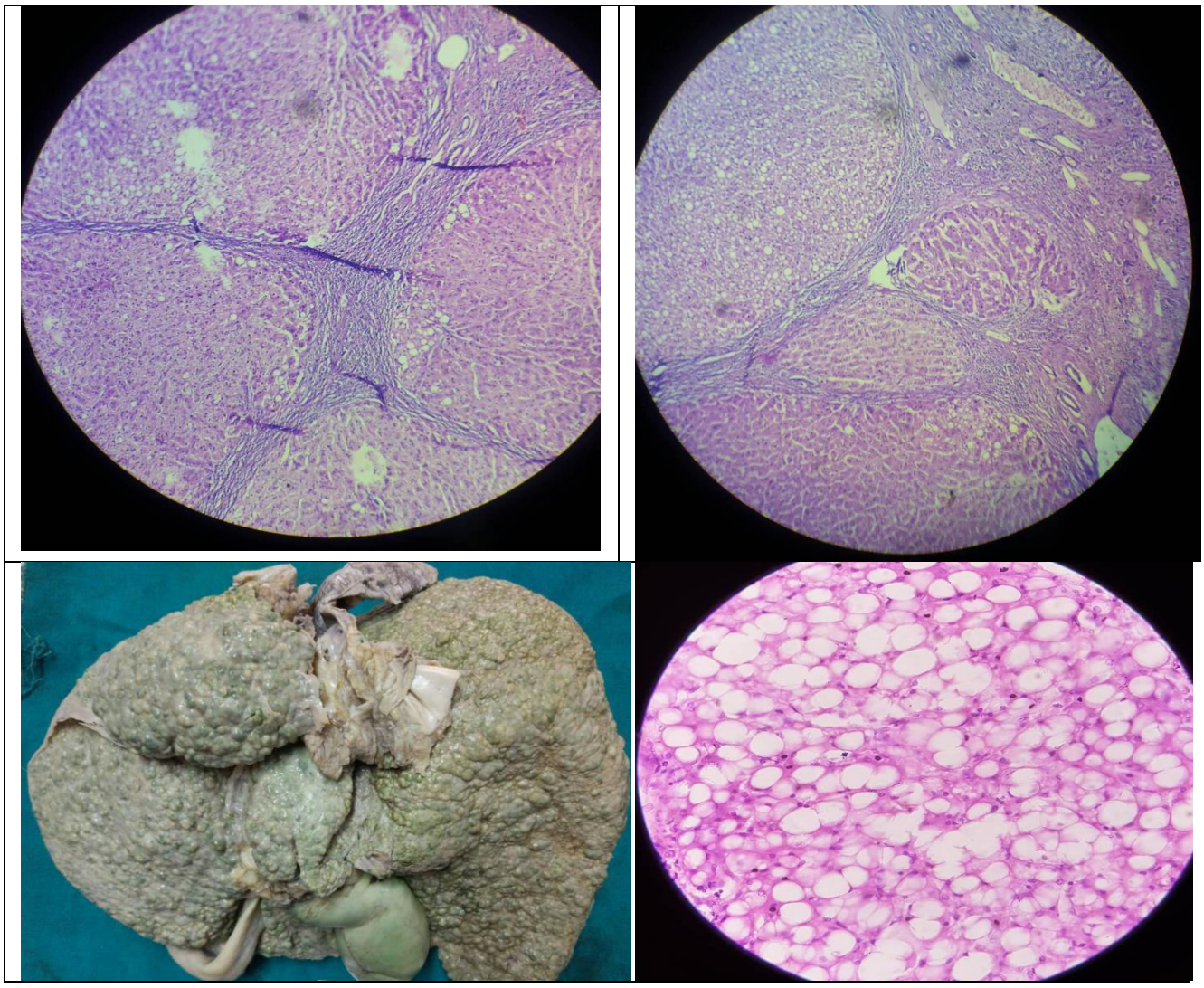


Table 2: Distribution of liver pathology cases according to gender

Hepatic pathology	Gender		Total Number of cases (n= 200)
	Male	Female	
Hepatitis	20	17	37
Steatosis	15	13	28
Circulatory disorders	41	21	62
Cirrhosis	5	6	11
Granulomatous hepatitis	3	4	7
Metabolic disorders	5	3	8
Abscesses	2	3	5
Neoplastic pathology	1	2	3
No specific pathology	15	24	39
Total	107	93	200

Table 3: Distribution of liver pathology cases according to age

Hepatic pathology	Age group (in years)				Total Number of cases (n= 200)
	40-50	51-60	61- 71	>70	
Hepatitis	15	10	5	7	37
Steatosis	10	6	7	5	28
Circulatory disorders	22	14	16	10	62
Cirrhosis	3	2	2	4	11
Granulomatous hepatitis	2	1	1	3	7
Metabolic disorders	4	3	1	0	8
Abscesses	2	1	1	1	5
Neoplastic pathology	2	1	0	0	3
No specific pathology	12	10	5	12	39
Total	72	48	38	42	200



DISCUSSION

Liver is one of the important metabolic organs of the human body. Within the short period of time of alcohol abuse, fatty liver develops whereas more severe liver injury requires prolong alcohol abuse for a period of years.[5, 6] Spectrum of disease ranging from simple steatosis to steatohepatitis, advanced fibrosis and cirrhosis comes under the category of Non-alcoholic fatty liver disease (NAFLD).[7] Chronic hepatitis is usually due to hepatotropic viruses, or conditions like auto immune chronic hepatitis or chronic idiosyncratic drug-induced hepatitis. Similar features (like presence of piece meal necrosis) are also found in Wilson's disease, primary biliary cirrhosis and primary sclerosing cholangitis.[8-10] Hence; we planned the present study to evaluate various patterns of hepatic diseases which are morphologically reflected at the time of autopsy.

In the present study, we observed that circulatory disorders were the most commonly observed hepatic pathologies (**Table 1, Graph 1**). Our results were in correlation with the results obtained by Pudale et al.[4]Devi et al evaluated 100 medico-legal autopsy cases from 2010 to 2012. The liver specimens from these cases were examined grossly as well as microscopically to establish presence of liver diseases and also to find out the types of liver diseases in relation to the age and sex of the studied cases. Maximum number of cases was in the 41-50 years age group. Males predominated the study with a male: female ratio of 6: 1. Cirrhosis was the commonest finding comprising 25% of the cases, followed by chronic hepatitis 22%. Hepatomegaly was seen in 19% of the cases. Hepatic steatosis was the commonest cause of hepatomegaly followed by chronic hepatitis. The study was conducted only on specimens collected from the mortuary and may not reflect the actual pattern of liver diseases in the local population.[11]
Thamil Selvi et al determined the prevalence of silent liver diseases and to correlate it with age, sex, life style and its other risk factors. The study was conducted over a period of two years (2009-2011) as elective and prospective study. We collected samples from 120 cases for histopathology study. Samples from the right and left lobe and one in the centre of the liver as well as other morphological findings was observed and recorded. Tissue sections were made and stained with Haematoxylin and eosin were evaluated. Of the 120 cases were studied, 12 cases were excluded due to autolysis. 108 cases have analysed for study, the cases ranging from 6 years to 80years. Among 108 cases, Males were 82 & Females were 26, with the mean age of 46+/-9.52 years. Fatty changes were found in 26.9% followed by normal 25.9%, congestion 16.7%, hepatitis 13.9%, cirrhosis & abscess 7.4% and malignancy 1.9%. Causes of death were RTA -51, poisoning-15, hanging-15, suspecious-11, myocardial infarction-5, drowning-4, burns and electrocution each 3 and 1 in railway. From this study, the most common findings were fatty changes were more prone in the age of 50 – 70 years and starts with 40 years of age due to chronic consumption of alcohol in the Population of Salem district, Tamil Nadu.[12] Patel et al determined the spectrum of histopathological findings including neoplastic lesions related or unrelated to the cause of death. It was also aimed to highlight various incidental and interesting lesions in autopsies. A retrospective study of medicolegal autopsies for six years was undertaken in a tertiary care centre to determine the spectrum of histopathological findings including neoplastic lesions related or unrelated to the cause of death and to highlight various incidental and interesting lesions in autopsies. The study consisted of a series of 269 autopsy cases and histopathological findings were studied only in 202 cases. The commonest cause of death was pulmonary oedema. The most common incidental histopathological finding noted was atherosclerosis in 55 (27.2%) cases followed by fatty liver in 40 (19.8%) cases. Neoplastic lesions accounted for 2.47% of cases. This study has contributed a handful of findings to the pool of rare lesions in pathology.[13]
Zambrano E et al collected clinical data from 24 neonates with clinical history of receiving TPN who died at Yale-New Haven Children's Hospital and had autopsies performed, by medical record review without knowledge of liver pathology findings. Liver histological sections from these patients were evaluated for multiple parameters without knowledge of the clinical course. Different histopathological abnormalities with varying degrees of severity were observed. A progression in the severity of histopathological changes in relation to duration of TPN administration (DTPN) was found. While patients with DTPN of < 2 wk had no fibrosis or only mild degrees of fibrosis, patients with more than 6 wk of DTPN developed moderate-to-severe fibrosis. Similar results were observed for cholestasis and bile duct proliferation. We did not find significant differences for birth weight, gestational age, occurrence of necrotizing enterocolitis, sepsis, or enteral feedings between the group with normal-to-mild liver changes, and the group with moderate-to-severe liver changes. On the other hand, DTPN was significantly different between these two groups. Also, patients small for gestational age and patients with bronchopulmonary dysplasia were more commonly seen in the group with moderate-to-severe histopathological findings. Intracellular copper was detected in 12.5% of patients with moderate-to-severe liver changes, and was found in 50% of patients with normal-to-mild liver findings. Detection of copper from tissue sections also decreased with DTPN, being observed in 57% of patients with < 2 wk DTPN and in none of the patients with > 12 wk DTPN. Our findings confirm the known significant relationship between the duration of TPN and liver injury. While previously described associations with birth weight, gestational age, enteral feedings, necrotizing enterocolitis, and sepsis were not noted, our study suggests that poor intrauterine growth may be a significant clinical risk factor for TPN-induced liver injury. In addition, their findings suggest that copper may have a protective effect against the development of TPN-induced liver damage.[14]

CONCLUSION

From the above results, the authors concluded that various circulatory disorders, cirrhosis, hepatitis and steatosis are among the most commonly encountered liver pathologies. Hence, for studying the histopathological spectrum of diseases, autopsy is a useful tool.

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Source of support: Nil **Conflict of interest:** None declared