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RESEARCH ARTICLE

INCIDENCE OF LIVER DISEASES– A RETROSPECTIVE STUDY OF 1348 AUTOPSY CASES AT TERTIARY CARE CENTRE – JAIPUR

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ABSTRACT

Liver is acommon site for many primary as well as secondary diseases which may be symptomatic or remain silent and diagnosed only on autopsy many times. The present retrospective study was conducted in department of Pathology during the period of 3.7yr i.e. (January 2012 to September 2015).Total1348 cases were examined. This cross-sectional study was aimed to know the incidence of various (symptomatic or silent) liver diseases and also to find out the type of liver diseases in relation to age and sex of the studied cases. The liver may get involved secondary to cardiac, metabolic and social problems like alcoholism. Section from different representative areas of liver were studied with the help of H&E and special stains wherever required. In this study various hepatic lesion were venous congestion (48%), steatosis (21.30%), cirrhosis (5.11%) hepatitis (3.62%), necrotic diseases (1.70%), granulomatous hepatitis (0.95%), metastatic malignancies (0.38%) and primary malignancies (0.15%). Venous congestion was the commonest finding followed by steatosis.

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INTRODUCTION

Liver is the principal site of many metabolic and malignant (primary & secondary) insults which may be silent or symptomatic. Autopsy study is useful to monitor the cause of death and to plan medical strategy (Rezak, 1963). Abnormal findings in liver autopsy can be venous congestion, steatosis, hepatitis, cirrhosis, storage diseases, necrosis, abscess, malignancies etc. (Saphir, 1958). The purpose of this study was to know the incidences of various liver diseases in respect to age and sex. Alcoholism is a prevalent social problem which leads to three pathologically distinct liver disease. These are steatosis, steatohepatitis, micro and macronodular cirrhosis. Any one or all the three can occur at the same time in the same patient and can be the cause of death which is preventable. (John, 1985)

MATERIAL AND METHODS

1348 specimens of liver were examined from the deceased of 0- >79 yr of age received in the department of pathology, SMS Medical College, Jaipur (A tertiary care centre). Information regarding age, sex, marital status, region, religion, alcohol use and previous disease were collected from the postmortem records.

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For the present autopsy study liver were examined grossly and section from different representative areas were taken. After adequate formalin fixation paraffin blocks were made, 3-4 micro sections were cut and stained with hemotoxylin & eosin according to standard procedures. Special staining was done wherever required. The cases were analysed by descriptive statistics.

RESULTS

In this study it was observed that out of 1348 cases 1033 (76.64%) were males and 315 (23.36%) were females; the male to female ratio was 3.28:1. Weight wise distribution of liver showed increased weight in maximum number of cases i.e. 842 (64.46%) cases were having weight between 1500-2500 gm with male to female ratio 8.28:1. 443 (32.86%) cases were having normal weight (1000-1500 gm) with male to female ratio 4.68:1. Only 63 (4.68%) cases were having weight<1000 gm with male to female ratio 30.13:1 (Table 1).

Gross examination and observations were based on colour, consistency and cut surface; yellowish green 63 (4.68%), greyish brown 443 (32.86%), reddish brown 457 (40.58%), yellowish brown 295 (21.88%) (Table 2). On microscopic examination the pathological lesion were noted in 1095 (81.2%) cases while remaining 253 (18.8%) cases were having no specific pathology. Out of these 1095 cases the circulatory disturbances in form of chronic & acute congestion were the

most common finding seen in647 (48%) cases. 456 (33.82%) were males and 91 (14.17%) were females with male to female ratio (2.38:1). Most common age group affected was 20-39 yr i.e. 321 cases (23.81%).

Steatosis was second most common finding noted in 287 (21.30%) cases. 252 (18.7%) were males, females were 35 (2.6%) and male to female ratio 7.2:1. Most common age group affected was 40-59 yr. i.e. 151 cases (11.2%).

Table 1. Weight & Sex wise distribution

Weight (gm)	Male	Female	Total
<1000	61 (4.52)	2 (0.15)	63 (4.68%)
1000-1500	365 (27.07)	78 (5.78)	443 (32.86%)
1500-2500	607 (45.03)	235 (17.50)	842 (62.46%)
Total	1033 (76.64)	315 (23.36)	1348 (100%

Table 2. Gross Findings

Size	Weight (gm)	Colour	Consistency	Cut surface	Number	Percentage %
Reduced	<1000	Yellowish green	Firm to hard	Nodular	63	4.68%
Normal	1000-1500	Greyish brown	Soft	Smooth	443	32.86%
Increased	1500-2500	Reddish brown	Soft	Nut- meg	547	40.58%
	1500-2500	Yellowish brown	Soft	Greasy	295	21.88%

Table 3. Age Distribution

Age Group	Number	Percentage %
0-19 yr.	130	9.65%
20-39 yr	615	45.62%
40-59 yr	504	37.38%
60-79 yr	99	7.35%

Table 4. Correlation of histopathological findings with age and sex

Histopathological findings	Number (%)	Male	Female	Age distribution			
				0-19yr	20-39 yr	40-59 yr	60-79 yr
Congestion	647 (48%)	456 (33.82%)	191 (14.17%)	89 (6.6%)	321 (23.81%)	195 (14.46%)	42 (3.11%)
Steatosis	287 (21.30%)	252 (18.70%)	35 (2.6%)	7 (0.52%)	104 (7.71%)	151 (11.20%)	25 (1.85%)
Cirrhosis	69 (5.11%)	66 (4.9%)	3 (0.22%)	-	21 (1.56%)	42 (3.11%)	6 (0.46%)
Hepatitis	49 (3.62%)	39 (2.9%)	10 (0.74%)	6 (0.45%)	22 (1.63%)	16 (1.20%)	5 (0.38%)
Granulomatous hepatitis	13 (0.95%)	10 (0.74%)	3 (0.22%)	3 (0.22%)	3 (0.22%)	7 (0.52%)	-
Centriobular necrosis	19 (1.40%)	13 (0.96%)	6 (0.45%)	1 (0.075%)	13 (0.96%)	5 (0.38%)	-
Metastatis malignancies	5 (0.37%)	3 (0.22%)	2 (0.15%)	-	2 (0.15%)	3 (0.22%)	-
Primary malignancies	2 (0.15%)	2 (0.15%)	-	-	-	2 (0.15%)	-
Submassive necrosis	4 (0.30%)	3 (0.22%)	1 (0.075%)	2 (0.15)	1 (0.075)	1 (0.075)	-
No specific pathology	253 (18.8%)	189 (14.02%)	64 (4.75%)	22 (1.63%)	128 (9.50%)	82 (6.08%	21 (1.56%)

Table 5. Cause of death distribution

Cause of death	Total Number	Percentage%
Unknown reason	548	40.65%
Road traffic accidents (RTA)	231	17.13%
Long illness	122	9.05%
Alcoholism	117	8.67%
Heart attack	116	8.60%
Sudden death	95	7.05%
Drowning	49	3.63%
Hanging	29	2.15%
Dowry death	22	1.63%
Poisoning	19	1.40%

Table 6. Comparative Study

Types of hepatic lesions	Smita S. Pudale (2014)	Tamil. Selvi (2012)	Present Study
Steatosis	15.52%	26.9%	21.30%
Circulatory disorder (congestion)	29.05%	16.70%	48%
Hepatitis	21.29%	13.90%	3.62%
Cirrhosis	4.43%	7.40%	5.11%
Tumours	2.88%	1.90%	0.52%
Granulomatous hepatitis	3.10%	-	0.95%
No specific pathology	21.51%	25.90%	18.80%
Others	2.22%	-	1.70%

Next common finding was cirrhosis i.e 69 (5.11%) cases, 66 (4.9%) were males while 3 (0.22%) were female with male to female to ratio 22.28:1.Most common age group affected was 40-59 yr. i.e. 42 (3.11%) cases.

Hepatitis was found in 49 (3.62%) cases with male to female 3.9:1. Most common age group affected was 20-39 yr. i.e. 22 (1.63%) cases. Other finding were centrilobular necrosis (1.40%), granulomatous hepatitis (0.95%), metastatic malignancies (0.3%) submassive necrosis (0.30%) and primary malignancies (0.15%). (Table 3 & 4)

Cause of death were, unknown reason (40.65%), road traffic accidents (17.73%), long illness (9.05%), alcoholism (8.67%), heart attack (8.60%) sudden death (7.05%), drowning (3.63%), hanging (2.15%), Dowry death (1.63%) and poisoning (1.40%). (Table 5) Macro and micro vesicular steatosis was seen in 287 cases with or without component of steatohepatitis (Fig. 1).

Common pathological feature was spectrum of disease i.e. steatosis – steatohepatitis – cirrhosis (Fig. 2) with periportal to extensive fibrosis which was well appreciated on reticulin stain (Fig. 3).

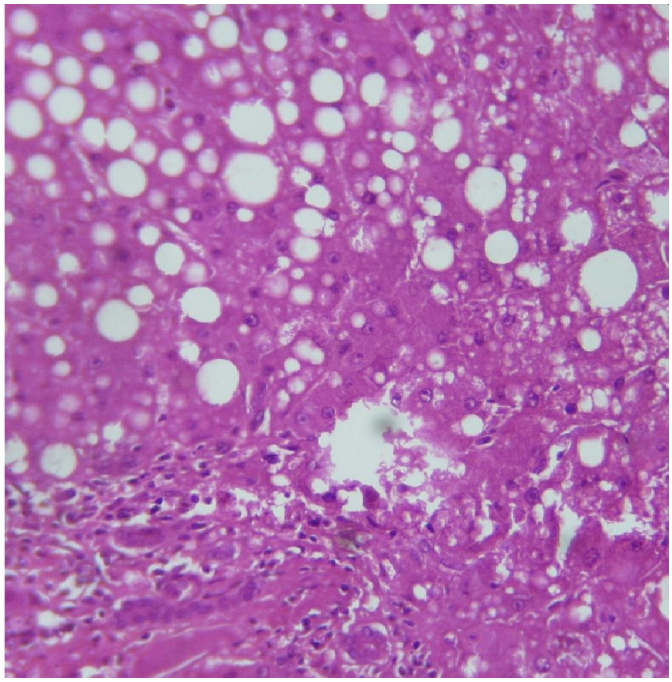

Fig. 1. Microphotograph showing diffuse micro and macro vasicularsteatosis HE x100

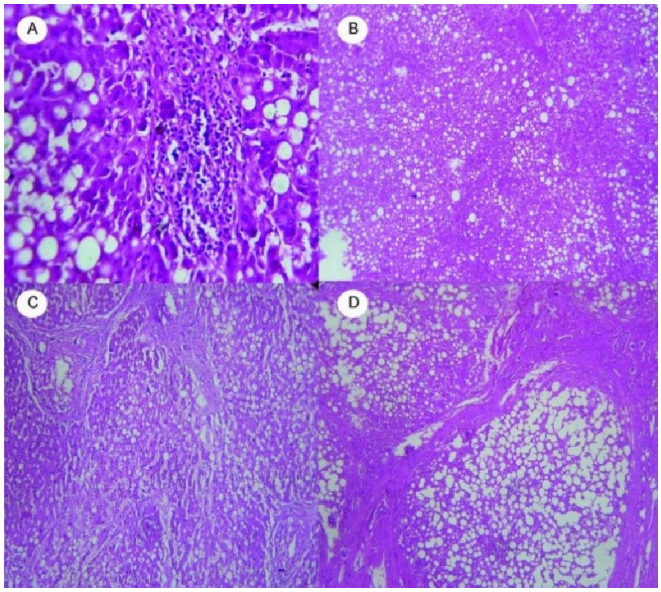

Fig. 2. Microphotograph showingdisease spectrum : steatosis to cirrhosis. (A) :steatosis with steatohepatitis HE x100 ; (B) : early cirrhosis HE x40 ; (C) : progressive cirrhosis HE x40 ; (D) : marked cirrhosis HE x40

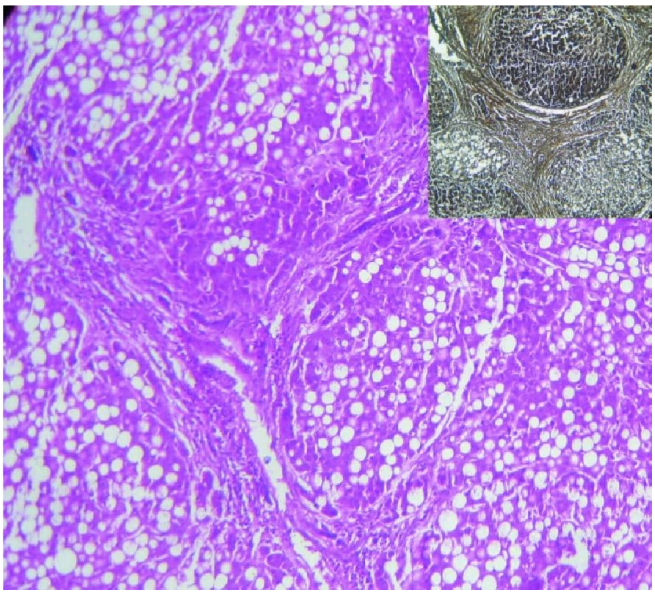

Fig. 3. Microphotograph showingmicronodular cirrhosis HE x40 (inset reticulin stain)

Diffuse congestion was seen as centrilobular and sinosoidal congestion (Fig. 4). In many cases we found mild chronic hepatitis in form of portal hepatitis. In others interface hepatitis and parenchymal hepatitis was seen along with destruction of hepatocytes leading to hepatocyte loss and replacement by fibrosis. There were focal centrilobular necrosis seen in five cases of poisoning out of 19 cases (Fig. 5) and in 4 cases we observed features of submassive necrosis and its etiology was unknown (Fig. 6). There were 13 cases of granulomatous hepatitis out of which 10 were having suspicious infectious origin, probably tuberculosis showing paranchymal granuloma formation consistingepitheloid cells, lymphocytes and langhans type of giant cells with caseating necrosis with or without peripheral steatotic changes (Fig. 7).

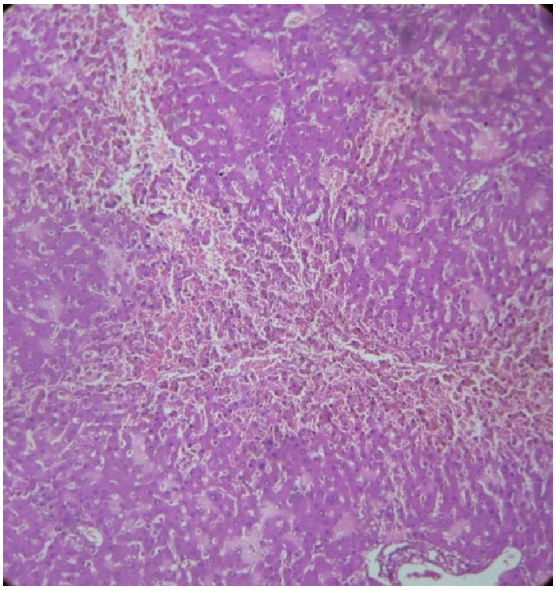

Fig. 4. Microphotograph showing congestion in liver HE x40

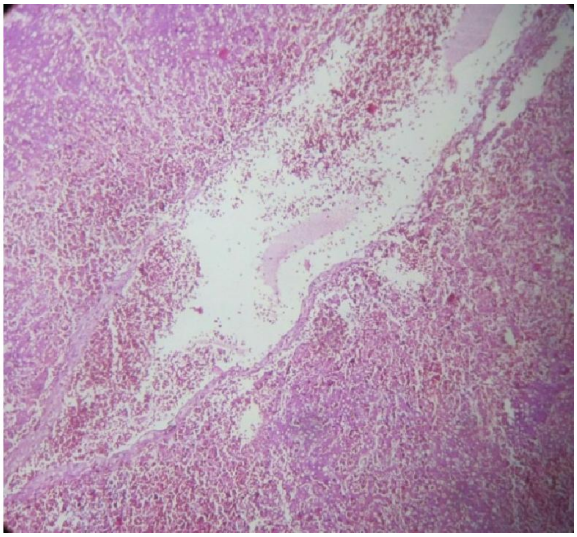

Fig. 5. Microphotograph showing centrilobular necrosis HE x40

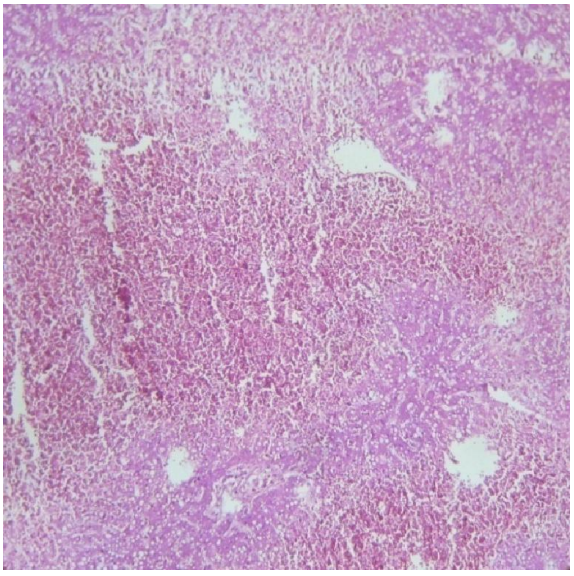

Fig. 6. Microphotograph showing submassive necrosis HE x40

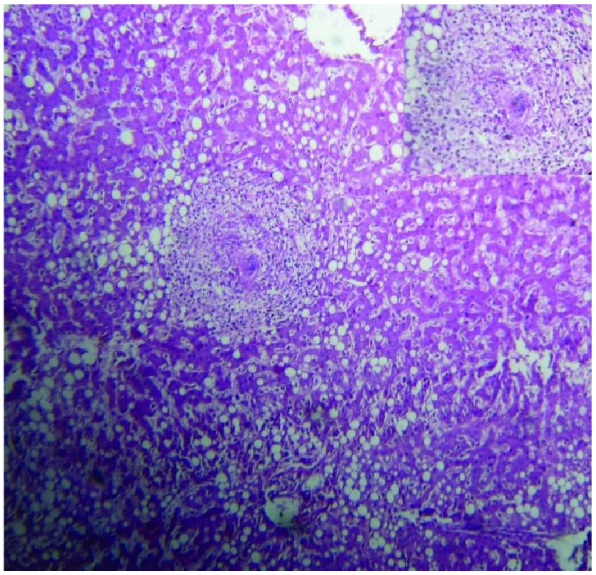

Fig. 7. Microphotograph showing hepatic granuloma HE x40 (inset HE x100)

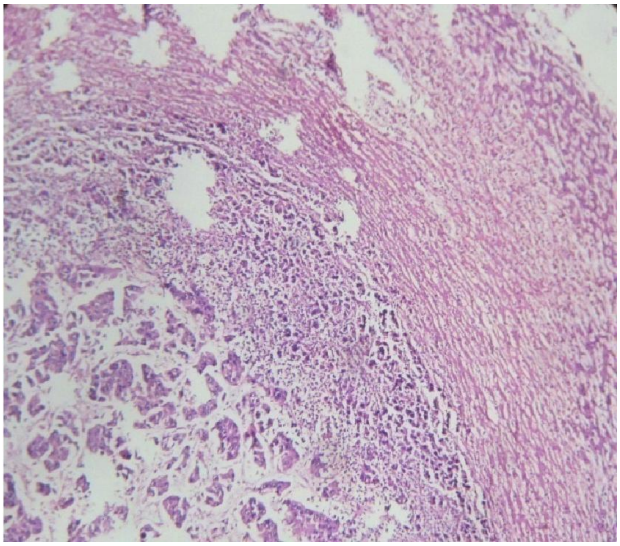

Fig. 8. Microphotograph showing metastatic adenocarcinoma liver HE x40

Z-N stain for AFB was negative in all 10 cases. 3were having granuloma of unknown origin. Metastatic malignancies were seen in 5 cases (Fig. 8).

DISCUSSION

Histopathological study is the most important & useful tool for the diagnosis of liver diseases, as some may remain silent and diagnosed only on autopsy. In studies conducted by Bal *et al.,* (2004) and Fubara *et al.* (2007), It was observed that the commonest affected age group was 41-50 yrs (53.85%) and 41-49 yr (28%) respectively which is contrary to present study in which commonest age group affected was 20-39 yr. (45.62%) & 2nd most common age group was 40-59 yr (37.38%). In these studies reason of difference may be due to difference in sample size and pattern of studies. In our study we found hepatitis in 49 cases (3.62%) which includes cases of chronic hepatitis andsteatohepatitis while in study by Smita *et al*. cases of chronic hepatitis were 8 (1.77%). Steatosis of

liver is a frequent histological finding seen in routine autopsies in association with other histological features or as a spectrum of disease i.e. steatosis–steatohapatitis– cirrhosis or as the only structural abnormality due to alcohol abuse (Amarapurkar *et al.,* 2007; Sarita Nibhoria *et al.,* 2013 and Smita *et al.,* 2014).

These diseases are the most common liver problems in western and developing countries like India. Short term ingestion of upto 8gm of alcohol generally produces mild to severe hepatic changes such as steatosis. Ingestion of 160 gm or more per day for more than 20 yr results in cirrhosis of liver. In our study peak incidence of steatosis (21.30%) and cirrhosis (5.11%) was found in 40-59 yr age group which is comparable with Umesh *et al.,* (2015). Venous congestion of liver is a common finding in most of the liver autopsies due to terminal venous pooling. Copeland reported congestion with fatty change in 3.4% of liver autopsies of alcoholic who died suddenly (3).Umesh *et al.* reported congestion in 9.5% cases (Umesh Babu *et al.,* 2015). In our study venous congestion was the most common finding ie. 48% cases. Other lesions of liver as silent liver disease (Saphir *et al.,* 1958) can be malignancies abscess, granulomatous hepatitis, centrilobular and submassive necrosis, infarcts and cysts are mostly detected on histopathology which further emphasize the importance of histopathology, for timely detection and prevention of disease progress hence to decrease the mortality rate. In concurrence with the findings of several workers (Bal, 2004; Fubara, 2007; Merat *et al.,* 2012 and Sotoudehamanesh, 2006), liver diseases predominated in males in the present study, and this may be attributed to the fact that men indulge themselves more to alcohol and smoking as compare to women. In a study conducted by Gosh *et al.* (2012) it was observed that liver abscess was the commonest cause of hepatomegaly & it was due to amoebiasis followed by congestive cardiac failure and viral hepatitis. Fatty liver and hepatocellular carcinoma were seen only in a few cases. Madhubala *et al.* (2013) found that out of 19 cases of hepatomegaly the most common disease was hepatic steatosis followed by hepatitis and cirrhosis. In present study causes of hepatomegaly were venous congestion, steatosis and hepatitis in order of frequency. On comparison with different studies as mentioned in Table No. 6, the difference in most common lesions may be due to difference in sample size and pattern of study (Smita *et al.,* 2014; Tamil *et al.,* 2012).

Conclusion

We have conducted study on medicolegal autopsies and found that steatosis, chronic hepatitis and cirrhosis were the common silent liver diseases, next to venous congestion. Hence steps should be taken to improve public awareness, regarding alcohol abuse as well as for early detection and treatment of such ailments. By this we can decrease the morbidity and mortality of such diseases.

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