

ORIGINAL RESEARCH

Histopathological findings in liver in autopsy cases – A tertiary care center study

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ABSTRACT

Liver is the largest solid organ in the body and has many functions in the body. It gets involved by many diseases, some of these presents with clinical symptoms and signs while some are diagnosed only on autopsy. **Aim-** To study the histopathological spectrum of liver including neoplastic lesions related or unrelated to cause of death in autopsy cases. **Material and methods-** This was a descriptive study done in the department of pathology Government Medical College Jammu from year 2020 to 2023. **Result-** Out of 300 cases studied, males were the most common with 270 cases (90%), females were 30 cases only (10%). The male to female ratio was 9:1. Maximum number of cases were recorded between age group of 40-49 years of age group and the least number of cases were seen in age group >70 years. Most common cause of death was found to be road traffic accidents (22%) followed by hanging (16%), sudden death (14.7%), poisoning (11.3%), drowning (10%), unknown cause (7.7%), natural cause (6.3%), hospital death (5.3%), custodial death (4%), electrocution (2.7%). Majority of the specimens were within normal histological limits (28%); followed by fatty change (25%), autolysed specimen (13.7%), chronic venous congestion (10.7%), steatohepatitis (9.5%), cirrhosis (5%), tuberculosis (1.8%), Malaria (0.3%). **Conclusion-** Silent diseases of liver are not uncommon. Histopathological examination of autopsy cases aids in identifying these such as fatty change, chronic venous congestion, cirrhosis and even in infectious disease cases like malaria and tuberculosis. Thus providing an insight into the true prevalence of these diseases or lesions.

Keywords- Liver; Autopsy; Steatosis.

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INTRODUCTION

The term autopsy is derived from ancient Greek word Autopsia means “to see for oneself”; (autos “oneself”) and (opsis “sight view”). (1,2) Medicolegal autopsy is a procedure that aids in establishing the cause as well as time of death as well as to study ante mortem and post mortem aspect of death (3). A wide spectrum of diseases both primary as well as secondary can involve liver. It also is vulnerable to a variety of metabolic, toxic, microbial as well as circulatory insults. Secondary involvement of liver can be seen in cardiac decompensation, poisoning, drugs, inherited conditions, alcoholism and infections. (4). Liver has got enormous functional reserve masking the clinical impact of mild liver damage or disrupted bile flow however the consequences of deranged liver function may be life threatening. With the rare exception of fulminant hepatic failure, liver disease is an insidious process in which clinical presentation or hepatic decompensation may occur weeks months or many years after onset of injury (5). Therefore autopsy examination may help as

a magnificent learning tool to identify silent liver diseases as well as rare incidental findings. This study shall highlight the pattern of various kinds of lesions in liver seen in medicolegal autopsies which were either incidental or the direct cause of death.

MATERIAL AND METHODS

This was a descriptive study done in the department of pathology Government Medical College Jammu from year 2020 to 2023. Clearance was taken from institutional ethics committee under the file JEC/GMC/2020/108 dated 24/06/2020.

Inclusion criteria- All medicolegal autopsies whose specimen were sent to the department of pathology for histopathological examination to ascertain the cause of death.

Exclusion criteria- Autopsy on exhumated body.

A total of 400 autopsy specimens were received during the study period out of which only 300 cases had liver included as specimen. Out of these 300

cases, "part of liver" was received in 292 cases whereas in 8 cases whole liver was sent. Liver specimen were received only as a part of examination of multiple viscera. Information regarding age, sex, marital status, alcohol intake was taken from the autopsy forms. Samples from grossly visible lesion as well as random sections were taken. All the sections were fixed in 10% Neutral buffered formalin. Processed tissue sections were stained with Haematoxylin and Eosin according to standard procedures. Special stain like Reticulin was done wherever required. The cases were then examined under microscope.

RESULT

A Total Of 400 autopsy specimen were received during the period of study, out of these only 300 cases included liver. Histopathological examination of specimen sent was carried out in each case. Out of 300 cases studied, males were the most common with 270 cases (90%), females were 30 cases only (10%). The male to female ratio was 9:1. Maximum number of cases were recorded between age group of 40-49 years of age followed by 30-39 years and 20-29 years of age as shown in Table 1.

Specimen sent varied from "part of liver" (292 cases) weighing from 200 to 450 grams to whole liver (8 cases) ranging from 1400 grams to 1750 grams. In the current study most common cause of death was found to be road traffic accidents (22%) followed by

hanging (16%), sudden death (14.7%), poisoning (11.3%), drowning (10%), unknown cause (7.7%), natural cause (6.3%), hospital death (5.3%), custodial death (4%), electrocution (2.7%) shown in Table 2.

Most common histopathological finding was liver with in normal histological limits (28%) followed by steatosis (25%), Autolysed (13.7%), chronic venous congestion (10.7%), chronic hepatitis (9.5%), sinusoidal dilatation and haemorrhage (6%), cirrhosis (5%), Tuberculosis (1.8%), malaria (0.3%) as shown in Table 3. Macrovesicular steatosis was more common than microvesicular steatosis. Few cases had mixed steatosis. Hepatocellular changes in cirrhosis in the form of regenerative hyperplasia were seen. One of the cases with micronodular cirrhosis was found to have bridging fibrous septa between portal to portal tracts and central vein. There was periportal and portal – portal fibrosis in 9 cases. Architecturally cirrhotic changes are best seen on reticulin stain (6).

Tuberculosis was seen in 5 (1.8%) cases with epithelioid cell granuloma formation and giant cells which were parenchymal in location. All five cases were ziehlneelsen stain positive and were associated with granulomas in lung also.

One of the cases showed presence of haemozoin pigment along with malarial ring forms. This case also showed similar findings in brain, spleen. It was an incidental finding where patient was brought dead to the hospital.

Table 1- Distribution of autopsy cases according to age and sex (n=300)

AGE (years)	Male	Female	Total
<20	15	7	22
20-29	50	14	64
30-39	68	2	70
40-49	72	3	75
50-59	39	2	41
60-69	20	1	21
70-79	5	1	6
>80	1	0	1
Total	270	30	300

Table 2- Causes of death distribution (n=300)

Cause of death	Total number	Percentage%
Road traffic accident	66	22
Hanging	48	16
Sudden death	44	14.7
Poisoning	34	11.3
Drowning	30	10
Unknown cause	23	7.7
Natural cause	19	6.3
Hospital death	16	5.3
Custodial death	12	4
Electrocution	8	2.7
Total	300	100

Table3- Histopathological findings along with sex wise distribution (n= 300)

Histopathology	Male	Female	Total number of cases	Percentage%
Normal	74	10	84	28
Steatosis	71	5	76	25
Autolysed	38	3	41	13.7
Chronic venous congestion	26	6	32	10.7
Chronic hepatitis	25	3	28	9.5
Sinusoidal dilatation and haemorrhage	16	2	18	6
Cirrhosis	15	0	15	5
Tuberculosis	4	1	5	1.8
Malaria	1	0	1	0.3
Total	270	30	300	100

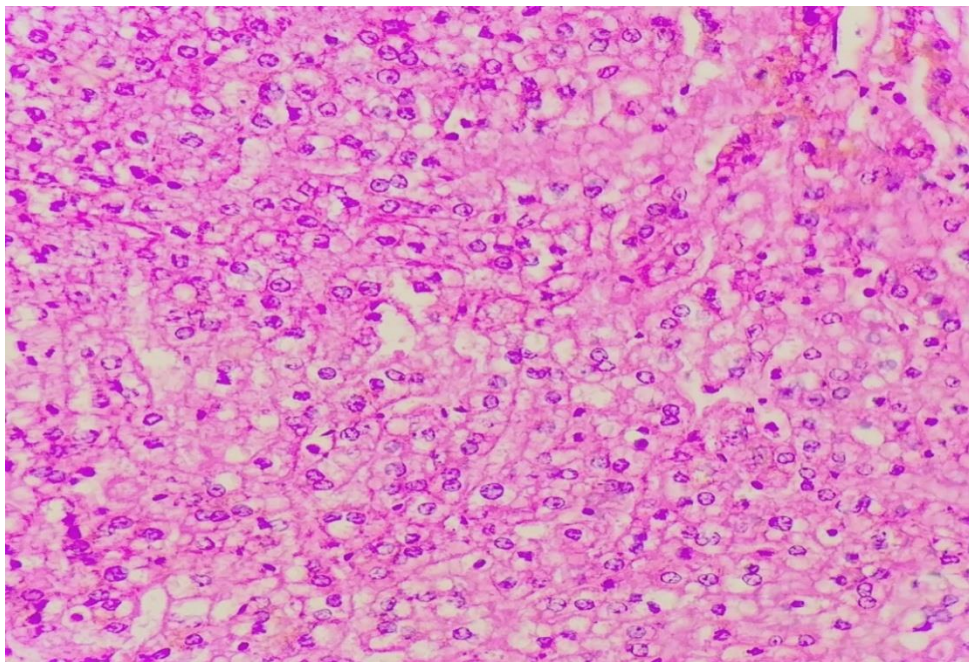


Fig 1- Steatosis liver (H&E 40x).

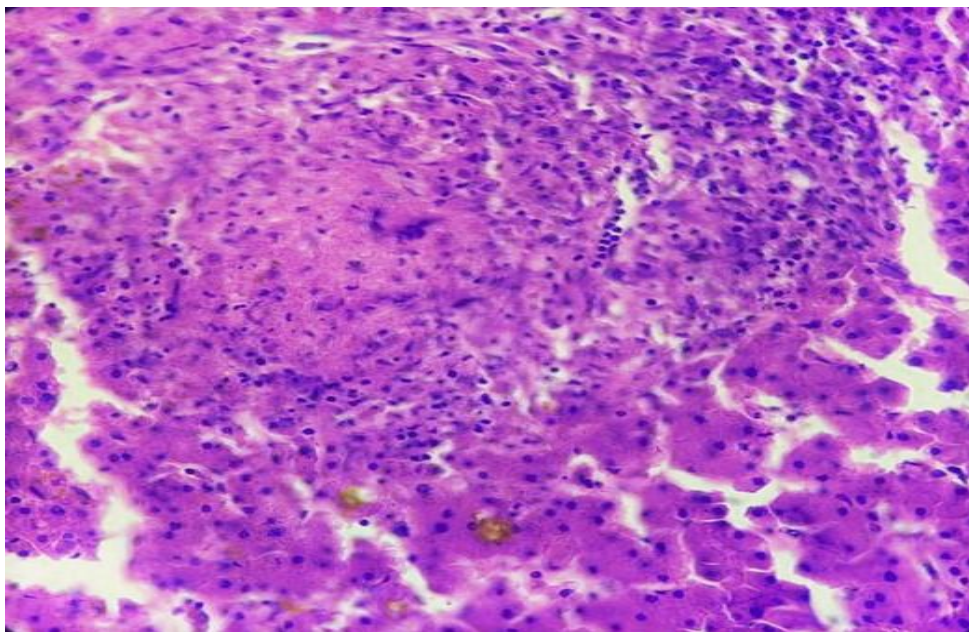


Fig 2- A well formed epithelioid cell granuloma with langhans giant cell. (H&E 40x)

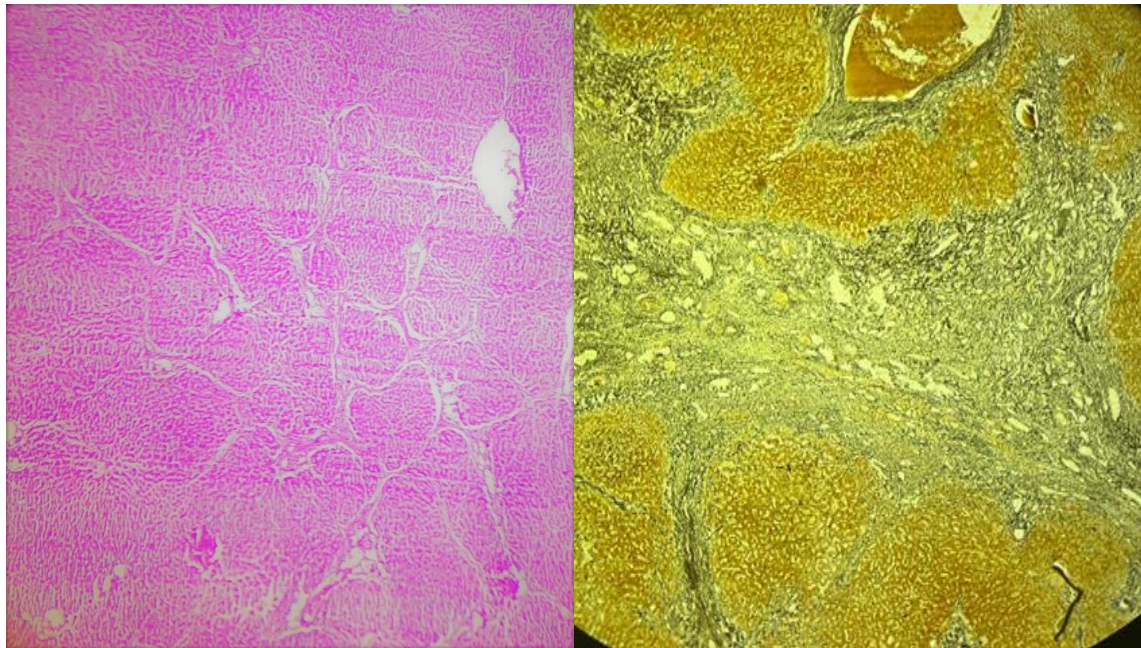


Fig 3-(a) Liver cirrhosis with multinodular pattern.(H&E 40x). (b) Reticulin stain enhances the fibrous septa dividing hepatic nodules.(40x)

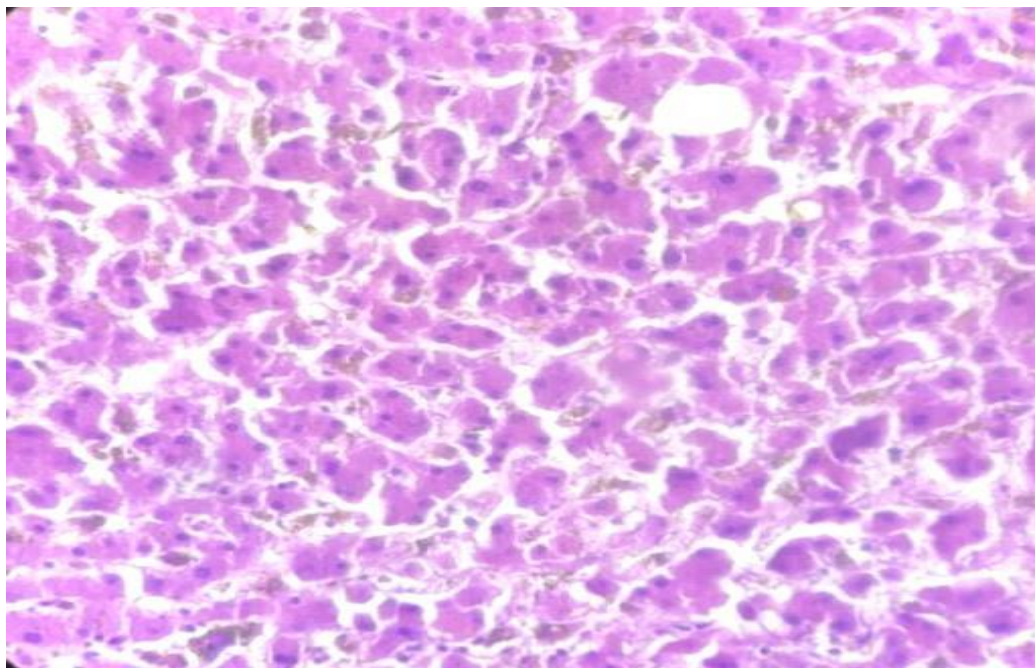


Fig4- Sinusoidal dilatation with congestion (H&E 40x).

DISCUSSION

Histopathological study in autopsy cases plays a vital role in study of various incidental and unexpected lesions related or unrelated to cause of death which are imperative in academic purposes as well as contributes in estimating the true prevalence of various silent pathologies or lesions.

In our study liver lesions were more common in males as compared to females with age range from 11 to 80 years. Male to female ratio was found to be 9:1. Bal MS et al(7), also showed liver diseases tend to be more common in males than female with male :female ratio of 4.88:1. Other studies done by Devi M et al(8), and

Singh S et al (9), showed Male to female ratio of 6:1 and 2.1:1 respectively.

Maximum number of cases were recorded between age group of 40-49 years of age followed by 30-39 years and 20-29 years of age. Nigam A et al(10) found that maximum number of cases were seen in 41-50 years of age with male to female ratio of 6:1. Sameer MA milynhyal(11)k, in his study found the peak between 4th and 6th decade. Male were found to be more than female cases. Venu A et al (12) found that male cases were more than female cases similar to our study.

In the current study most common cause of death was road traffic accidents(22%) followed by hanging(16%), sudden death(14.7%), custodial death(4%) and electrocution(2.7%) . Selvi RT (13) also found that most of the cases were reported by road traffic accident as causes of death (35%).

Most common histopathological finding was liver with in normal histological limits (28%)followed by steatosis(25%), Autolysed(13.7%), chronic venous congestion(10.7%), chronic hepatitis(9.5%), sinusoidal dilatation and haemorrhage (6%),cirrhosis(5 %), Tuberculosis (1.8%), malaria(0.3%).

Bahera A et al(14) also found that most of the specimen received were within normal histological limits (26.56%) followed by steatosis (21.87%) ,congestion (20.31%), Chronic Hepatitis (12.5%) and cirrhosis(9.37%).

Patel RP et al (15), found 56.97% Cases had no remarkable pathology .It was followed by steatosis that made 35.6% cases followed by cirrhosis of liver(2.4%).Alagarsamy J et al (16) observed that cases with normal histology of liver was 22%, fatty liver 20%,hepatitis 10%,congestion26%, cirrhosis 16% similar to our study.

In our study forty eight specimen received were autolysed or poorly preserved ,histopathological examination could detect steatosis in two cases only as rest of the specimen show no viable tissue microscopically. This necessitates the emphasis to be laid on proper transport and preservation of the specimens sent.

Among the pathological conditions, steatosis was seen in 25% of the cases.Macrovesicularsteatosis was more common than microvesicularsteatosis. Few cases had mixed steatosis. Umesh Babu R.(4)found steatosis in 22.8% cases with predominance of macrovesicularsteatosis similar to our study.

Tuberculosis has been described as global emergency by WHO and is still a major cause of morbidity and mortality worldwide (17). In our study tuberculosis was seen in (1.8%) of cases and microscopically showed epithelioid cell granuloma formation , langhans multinucleated giant cells and caseous necrosis . All cases were ziehl neelsenstain positive and were associated with granulomas in lung also. Patel S et al(18) found tuberculosis in 3.46%of cases with all the cases having pulmonary involvement and one having extrapulmonary involvement. Garg M et al (19) found tuberculosis in 8.7% of cases, of which 90% suffered from pulmonary tuberculosis with military tuberculosis in 10% and 30 % cases had extrapulmonary manifestation.

The diagnosis of tuberculosis was incidental in all cases with post-mortem diagnosis of tuberculosis.This probably is because latent phase of tuberculosis is common with only 10 % of it eventually progress into active disease. All these cases were of sudden death. Liver also gets involved in large cases of military tuberculosis whereas primary hepatic tuberculosis is

rare due to its low oxygen tension(20). Our study therefore highlights the importance of histopathology in autopsy towards the study of actual disease prevalence of tuberculosis.

One of the cases (0.3%) showed presence of haemozoin pigment along with malarial ring forms and swollen hepatocytes .This case also showed similar findings in brain, spleen. It was an incidental finding where patient was brought dead to the hospital therefore emphasising further on the role of histopathological examination.

CONCLUSION

Histopathological examination of autopsy cases is important as many incidental findings not considered at the time of death could be unveiled. These also would help in assessing the true prevalence of diseases or lesions.

Conflict of interest –None

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