HISTOPATHOLOGICAL PATTERNS OF LIVER DISEASES IN MEDICAL AUTOPSIES

Sampa Choudhury[1], Rajesh Singh Laishram[2], Seter Potom[3]

[1]Postgraduate Student, Department of Pathology, Regional Institute of Medical Sciences, Imphal.
[2]Associate Professor, Department of Pathology, Regional Institute of Medical Sciences, Imphal.
[3]Student, Department of Pathology, Regional Institute of Medical Sciences, Imphal.

ABSTRACT

BACKGROUND

Liver is the site for wide spectrum of diseases, primary as well secondary, which maybe symptomatic or silent and incidentally diagnosed during routine investigation or autopsy examination. The main purpose of our study was to identify different spectrum of histopathological findings of liver in medical autopsies.

MATERIALS AND METHODS

The study was conducted in the Department of Pathology, Regional Institute of Medical Sciences (RIMS), Imphal. All the consecutive liver specimens dissected out during medical autopsy and postmortem were included in the study. Detailed clinical information including age and sex were obtained. All the liver specimens were examined meticulously and the gross findings were noted down. Histopathological slides were prepared from the representative areas and findings recorded.

RESULTS

In the present study, a total of 330 liver specimens were examined from medical autopsies during the period of 5 years. Among them, 39 cases were autolysed and remaining 291 cases were analysed grossly and histologically. 249 (85.5%) cases were males and 42 (14.4%) cases were females. 71 (24.39%) cases had no obvious pathology, followed by fatty liver (20.96%), portal triaditis (18.55%), cirrhosis (14.08%), hepatitis (11.34%) and steatohepatitis (5.15%). Other important cases like liver necrosis (2.40%), granulomatous lesion (0.68%), tuberculosis (0.68%), chronic venous congestion (0.68%), malaria pigment (0.34%), leukaemic infiltration (0.34%) and bile duct hamartoma (0.34%). Fatty liver and cirrhosis was found to be most common in the age group of 41-50 years with male predominance. Incidentally, diagnosed liver diseases are not uncommon in medical autopsy.

CONCLUSION

We concluded that the autopsy examination of liver is very helpful to identify silent liver diseases as it is very common in apparently healthy individuals.This data may be utilised for a medical audit.

KEYWORDS

Autopsy, Postmortem, Fatty liver, Cirrhosis.

HOW TO CITE THIS ARTICLE: Choudhury S, Laishram RS, Potom S. Histopathological patterns of liver diseases in medical autopsies. J. Evid. Based Med. Healthc. 2017; 4(31), 1820-1823. DOI: 10.18410/jebmh/2017/354

BACKGROUND

The liver is vulnerable to a wide variety of metabolic, toxic, microbial, circulatory and metabolic insults. The major primary diseases of the liver are viral hepatitis, alcoholic liver diseases, Nonalcoholic Fatty Liver Diseases (NAFLD) and Hepatocellular Carcinoma (HCC). Hepatic damage also occurs secondary to some of the most common diseases in humans, such as cardiac decompensation, disseminated cancer and extrahepatic infections.[1]

Financial or Other, Competing Interest: None.
Submission 28-03-2017, Peer Review 04-04-2017,
Acceptance 11-04-2017, Published 14-04-2017.
Corresponding Author:
Dr. Rajesh Singh Laishram,
Associate Professor, Department of Pathology,
Regional Institute of Medical Sciences,
Lamphelpat, Imphal, Manipur-795004.
E-mail: rajeshlaishr@gmail.com
DOI: 10.18410/jebmh/2017/354

Liver diseases vary in different geographic areas and are based on various factors such as socioeconomic status, lifestyle, local or regional infections and other endemic diseases. Most of the chronic liver diseases, even in their advanced stages, may not show prominent signs or symptoms. They either go undiagnosed or are found incidentally during general health checkups, investigations for other diseases, surgery or autopsy.[2] Therefore, determination of prevalence of silent liver diseases and their correlations with age, sex and other factors have become an important ongoing study.[3] Autopsy study is useful to monitor the cause of death and to plan medical strategy.[4]

AIMS AND OBJECTIVES

Purpose of our study was to analyse the presence of liver diseases and its different patterns in medical autopsies and postmortem cases. It was also aimed to highlight various incidental lesions in autopsies.

MATERIALS AND METHODS

The study was conducted in the Department of Pathology, Regional Institute of Medical Sciences (RIMS), Imphal. All the consecutive liver specimens dissected out during medical autopsy and postmortem were included in the study. The autopsy cases were mostly sudden death, found death, road traffic accident, drowning, hanging, poisoning, burn, blast injury, etc. Liver specimens were sent as a part of multiple viscera examination. Detailed clinical information including age and sex were obtained. All the liver specimens were examined meticulously and the gross findings were noted down. Histopathological slides were prepared from the representative areas and findings recorded. Data thus collected were analysed using descriptive statistics.

RESULTS AND OBSERVATION

A retrospective study on 330 liver specimens sent from the mortuary to the Department of Pathology, RIMS, Imphal, were carried out over the period of 5 years (January 2011-December 2015).Total 330 specimens were examined and out of these 39 cases were excluded because of autolysis. Remaining 291 cases were analysed including 249 (85.6%) males and 42 (14.4%) females. Colour of the maximum number of specimens were normal (144) followed by yellow brown (104) and yellow green (35). In cut section, 162 cases were normal followed by greasy (51) and nodular (41) appearance. Among 291 cases, 71 (24.39%) had no obvious pathology followed by fatty liver (20.96%), portal triaditis (18.55%), cirrhosis (14.08%), hepatitis (11.34%) and steatohepatitis (5.15%). Other important cases like liver necrosis (2.40%), granulomatous lesion (0.68%), tuberculosis (0.68%), chronic venous congestion (0.68%), malaria pigment (0.34%), leukaemic infiltration (0.34%) and bile duct hamartoma (0.34%). Among 291 cases, 71 (24.39%) had no obvious pathology followed by fatty liver (20.96%), portal triaditis (18.55%), cirrhosis (14.08%), hepatitis (11.34%) and steatohepatitis (5.15%). Other important cases like liver necrosis (2.40%), granulomatous lesion (0.68%), tuberculosis (0.68%), Chronic Venous Congestion (CVC) (0.68%), malaria pigment (0.34%), leukaemic infiltration (0.34%) and bile duct hamartoma (0.34%). The maximum numbers of fatty liver cases were found to be in the age group of 41-50 years with male predominance. The maximum numbers of fatty liver cases were found to be in the age group of 41-50 years with male predominance. Cirrhosis of liver was found to be most commonly in the age group of 41-50 years with male predominance. Portal triaditis was most common in the age group of 31-40 years with male predominance. Hepatitis was most common in the age group of 31-40 year with male predominance.

Colour	No.	Cut Section	No.
Normal	144	Normal	162
Yellow brown	104	Greasy	51
Yellow green	35	Nodular	41
Greenish grey	6	Greenish	31
Red brown	2	Brown	1
Total 291		Nutmeg	2
		Yellowish	2
		Cystic	1
		Total	**291**

Table 1. Gross Findings of Liver Specimens

Sl. No.	Histological Findings	Male	Female	Total	%
1.	Fatty liver	53	8	61	20.96
2.	Cirrhosis	37	4	41	14.08
3.	Portal triaditis	47	7	54	18.55
4.	Hepatitis	29	4	33	11.34
5.	Steatohepatitis	13	2	15	5.15
6.	Liver necrosis	4	3	7	2.40
7.	Granulomatous lesion	2	0	2	0.68
8.	Tuberculosis	2	0	2	0.68
9.	Malaria pigment	1	0	1	0.34
10.	CVC	0	2	2	0.68
11.	Leukaemic infiltration	1	0	1	0.34
12.	Bile duct hamartoma	1	0	1	0.34
13.	No obvious pathology	59	12	71	24.39
Total		**249**	**42**	**291**	**100**

Table 2. Histological Findings of Liver Specimens

Age Range	Male	Female	Total	Percentage
0-10	0	0	0	0
11-20	0	1	1	1.63
21-30	14	4	18	29.50
31-40	12	1	13	21.31
41-50	18	1	19	31.14
51-60	7	0	7	11.47
61-70	2	0	2	3.27
71-80	0	1	1	1.63
Total	**53**	**8**	**61**	**100**

Table 3. Age and Sex Wise Distribution of Fatty Liver

Age Range	Male	Female	Total	Percentage
0-10	0	0	0	0
11-20	0	0	0	0
21-30	2	0	2	4.87
31-40	11	1	12	29.26
41-50	15	1	16	39.02
51-60	7	2	9	21.95
61-70	1	0	1	2.43
71-80	1	0	1	2.43
Total	**37**	**4**	**41**	**100**

Table 4. Age and Sex Wise Distribution of Cirrhosis

Age Range	Male	Female	Total	Percentage
0-10	0	0	0	0
11-20	3	1	4	7.40
21-30	10	4	14	25.92
31-40	15	2	17	31.48
41-50	13	0	13	24.07
51-60	4	0	4	7.40
61-70	1	0	1	1.85
71-80	1	0	1	1.85
Total	**47**	**7**	**54**	**100**

Table 5. Age and Sex Wise Distributionof Portal Triaditis

Age Range	Male	Female	Total	%
0-10	0	0	0	0
11-20	0	0	0	0
21-30	7	1	8	24.24
31-40	10	2	12	36.36
41-50	5	1	6	18.18
51-60	4	0	4	12.12
61-70	2	0	2	6.06
71-80	1	0	1	3.03
Total	**29**	**4**	**33**	**100**

Table 6. Age and Sex Wise Distribution of Hepatitis

DISCUSSION

In our study, out of 291 cases males were 249 (85.6%) and females were 42 (14.4%), which is similar to the findings of Sotoudehmanesh R et al,[2] Devi PM et al,[3]Alagarsamy J et al,[4] Patel PR et al[5] and Selvi RT et al,[6] Pathak A and Mangal HM.[7] The predominance of liver diseases in males in our study may be attributed to the fact that alcohol consumption and smoking are more common in male as compared to female.

We observed in our present study that normal cases were the most common findings (24.39%) among the liver autopsies, followed by fatty liver (20.96%) and portal triaditis (14.08%), which is comparable to the findings of Patel PR et al,[5] Pudale SS et al[8] and Hilden M et al,[9] whereas Alagarsamy J et al[4] recorded chronic venous congestion as the most common findings followed by normal and fatty liver cases in their study.

Fatty liver was more common in the age group of 51-60 years as reported by Alagarsamy J et al,[4] Patel PR et al[5] and Selvi RT et al.[6] But, in the present study, higher number of fatty liver cases were found to be in the age group of 41-50 years (31.14%), followed by 21-30 years (29.50%) of total cases. Our finding is comparable with the finding of Bal MS et al.[10]

Cirrhosis was found in 14.08% of total cases, which is comparable with Alagarsamy J et al,[4] whereas lower incidence were observed by Selvi RT et al,[6]Nibhoria S et al,[11] Devi PM et al[3] and Bal MS et al[10] recorded higher number of cirrhosis cases in the age group of 41-50 years with the male predominance, which is comparable to our study, whereas Alagarsamy J et al[4] and Selvi RT et al[6] observed cirrhosis mostly in the age group of 51-60 years. High incidence of cirrhosis and fatty liver in younger age group compared to other studies can be explained by indulge into alcohol consumption or higher incidence of viral hepatitis at young age in this area, which has progressed to cirrhosis. Voinova LV[12] also concluded that steatosis was the most common alcoholic damages in liver and cirrhosis in cases of viral diseases.

In the present study, we analysed that 18.5% cases were portal triaditis, which was most common in the age group of 31-40 years with male predominance. Devi PM et al[3] also found 15% portal triaditis cases in their study, which is similar to our study.

Selvi RT et al[6] and Nibhoria S et al[11] recorded hepatitis cases as 13.9% and 12.98% respectively, which is found to be similar with our observation (11.34%). In contrary to this, Devi PM et al[3] and Pudale S S et al[8] observed higher incidence of hepatitis in their respective studies.

In our study, there were 4 cases of hepatic granuloma, among which 2(0.68%) cases reported as granulomatous lesion and 2(0.68%) cases as tuberculosis. This is comparable with findings of Soutoudehmanesh R et al[2] (0.2%) and Devi PM et al[3] (2%). But, higher incidence were noted by Hilden M et al,[9] Amarapurkar A and Agarwal V,[13] Mangal HM[7] (42%) and Cunningham D et al[14] (2-10%).

According to Menezes RG et al,[15] liver was found to be involved in 78% cases of malaria death. In the present study, we found 1(0.34%) case of malaria pigment among all 291 cases. We found 2.4% liver necrosis, which similar to the finding of Devi PM et al[3] (3%).

The overall incidence of unsuspected neoplasia in our study was 0.34%, which is somewhat lower as compared to studies by Burton EC with a detection rate of 9% malignant neoplasms and Sens et al with an incidence of 7% unexpected cancer in forensic autopsies.[16,17] Patel PR et al[5] observed 0.24% leukaemic infiltration among liver autopsy cases, which is comparable to our present study (0.34%). Histopathologic study in autopsies is useful in the detection of these unsuspected neoplasms.

CONCLUSION

In our study, the most common pathological findings are fatty liver, cirrhosis, portal triaditis and hepatitis. Fatty liver and cirrhosis are more prone in the age group of 41-50 years with male predominance due to chronic alcohol consumption in this demographic area. We concluded that the autopsy examination of liver is very helpful to identify silent liver diseases as it is very common in apparently healthy individuals. We conclude that histopathology in autopsy plays a vital role in the study of some of the rare lesions contributing to the knowledge of pathology. This study highlights the various incidental unexpected rare cases in medicolegal autopsies, which are imperative in academic and research purposes.

The authors deny any conflicts of interest related to this study.

REFERENCES

[1] Crowford JM, Liu Chen. Liver and biliary tract. In: Kumar V, Abbas AK, Fausto N, et al, eds. Robbins and Cotran pathologic basis of disease. 8th edn. Philadelphia: Saunders 2010:833-890.

[2] Sotoudehmanesh R, Sotoudeh M, Ali-Asgari A, et al. Silent liver diseases in autopsies from forensic medicine of Tehran. Arch Iranian Med 2006;9(4):324-328.

[3] Devi PM, Myrthong BG, Meera T, et al. Pathological findings of liver in autopsy cases a study at Imphal. J Indian Acad Forensic Med 2013;35(3):206-10.

[4] Alagarsamy J, Muthureddy Y, Yadav NSR. Incidentally discovered liver diseases- an autopsy study of fifty cases. International Journal of Science and Research 2014;3(5):1330-1332.

[5] Patel PR, Patel RD, Tailor HJ, et al. Incidental findings in autopsy examination of liver: a study at tertiary care hospital. International Journal of Community Medicine and Public Heath 2016;3(3):697-699.

[6] Selvi RT, Selvam V, Subramaniam PM. Common silent liver disease in and around of Salem population: a autopsy study. Journal of Clinical and Diagnostic Research 2012;6(2):207-210.

[7] Pathak A, Mangal HM. Histopathology examination in medicolegal autopsy pros & cons. J Indian Acad Forensic Med 2010;32(2):128-131.

[8] Pudale SS, Ashok BS, Ambadas PG, et al. Study of liver pathology in autopsy cases- original article. International Journal of Current Research 2014;6(3):5795-5797.

[9] Hilden M, Christoffersen P, Juhl E, et al. Liver histology in a 'normal' population- examination of 503 consecutive fatal traffic casualties. Scand J Gastroenterol 1977;12(5):593-597.

[10] Bal MS, Singh SP, Bodal VK, et al. Pathological findings in liver autopsy. Journal of Indian Academy of Forensic Medicine 2004;26(2):971-973.

[11] Nibhoria S, Jhajj KK, Nibhoria V, et al. Histopathological evaluation of liver autopsies in a tertiary care hospital: a case series. Indian Journal of Forensic Medicine & Toxicology 2013;7(2):57-60.

[12] Voinova LV. Etiological and nosological structure of liver diseases on autopsy data of clinics of I.M. Sechenov Moscow Medical Academy in 1988-1997. ArkhPatol 2000;62(2):45-47.

[13] Amarapurkar A, Agrawal V. Liver involvement in tuberculosis- an autopsy study. Trop Gastroenterol 2006;27(2):69-74.

[14] Cunningham D, Mills PR, Quigley EM, et al. Hepatic granulomas: experience over a 10 year period in the west of Scotland. Q J Med 1982;51(202):162-170.

[15] Menezes RG, Pant S, Kharoshah MA, et al. Autopsy discoveries of death from malaria. Leg Med (Tokyo) 2012;14(3):111-115.

[16] Burton EC, Troxclair DA, Newman WP. Autopsy diagnoses of malignant neoplasms: how often are clinical diagnoses incorrect?JAMA1998;280(14):1245-1248.

[17] Sens MA, Zhou X, Weiland T, et al. Unexpected neoplasia in autopsies: potential implications for tissue and organ safety. Arch Pathol Lab Med2009;133(12):1923-1931.