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SPECTRUM OF PATHOLOGICAL FINDINGS IN LIVER AUTOPSIES AT A TERTIARY CARE CENTRE

Pathology

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ABSTRACT

It is well accepted fact that silent liver diseases are common amongst apparently healthy individuals and are diagnosed only on autopsy. Considering this thought present study was conducted to find out the silent liver pathologies in autopsies of patients with suspected primary or secondary hepatic involvement and to correlate the impact of alcohol abuse. Present study was a retrospective study with 260 autopsies over one year. 95 of them showed hepatic involvement, with primary involvement in 18 cases and secondary involvement in 77 cases. Male: Female ratio was 3.5: 1.Maximum age group affected was 41-50 years. Fatty change was the most common finding amongst all with strong association with alcohol abuse, others being cirrhosis, portal triaditis and chronic venous congestion. Many cases had liver pathologies as an incidental finding, hence proving the importance of autopsy in all unknown causes of death.

KEYWORDS

Autopsy, Fatty liver, Cirrhosis, CVC liver, Alcohol abuse

INTRODUCTION:

Autopsy study is of great diagnostic and educational value similar to the dictum "Mortui Vivos Docent"[1]. Liver is a primary site of many hepatic and extrahepatic diseases. Autopsy study is very important to monitor the cause of death and to plan medical strategy accordingly in further new cases. Autopsy material is the best teaching aid for studying the liver diseases. Quite rightly liver is called "The custom of milieu interior"[2]. Liver is vulnerable to a wide variety of metabolic, toxic, microbial and circulatory insults. In some cases liver can be primarily involved whereas in some there can be secondary hepatic involvement. Secondary involvement can be due to cardiac decompensation, alcoholism or infections. Alcohol abuse is implicated in more than 50% of the deaths due to liver pathology in the United States. Complications of alcoholism contribute to a thousand deaths annually[3].

Alcohol abuse generally leads to three different pathological conditions namely fatty liver, alcoholic hepatitis and cirrhosis. All three may coexist in the same patient[4]. Conditions which can be detected in autopsy are fatty change, cirrhosis, glycogen storage disorder(GSD), organophosphate poisoning(OPP), hemosiderosis, syphilis, actinomycosis, liver infarct, tuberculosis(TB), acute and chronic venous congestion(CVC), amyloidosis, pyogenic/ amoebic abscess, hydatid cyst, hepatocellular carcinoma(HCC), metastatic deposits and acute yellow atrophy of liver[5].

Most commonly manifested liver diseases are viral hepatitis, alcoholic liver disease (ALD) and HCC. Alcohol abuse is indirectly the fifth leading cause of death worldwide as it affects various organs of the body. 40% of the deaths from cirrhosis are attributed to alcohol, others being infective or genetic disorders. Usually the enormous functional reserve of the liver masks the clinical impact of the liver damage. Symptoms of hepatic decompensation may take years to appear after the onset of injury, with rare exceptions such as acute fulminant hepatic failure. Sometimes hepatic injury may heal spontaneously without clinical evidence. However in some cases with the progression of the disease, the deranged liver function becomes evident and life threatening[6].

Present study was undertaken 1.To find out the silent liver pathologies in autopsies of patients with suspected primary or secondary hepatic involvement. 2. To find out the sex distribution of liver pathologies 3. To find out the impact of alcohol abuse 4. To find out the most common etiology of hepatic diseases in this part of Western Vidarbha, Maharashtra, India.

MATERIAL AND METHODS:

Present study was a retrospective cross sectional study with total 260 autopsies being performed from July 2018 to June 2019, in the department of Pathology which included both Medicolegal and Clinical autopsies. For autopsy the liver specimens were received in either pieces or as a whole liver. They were fixed in 10% formalin. The cases included deaths due to sudden cardiac death (SCD), road traffic accidents (RTA), poisoning, drowning, maternal mortality (MM) and neonatal deaths. Detailed clinical history was retrieved from the records. Weight and gross findings like colour, enlarged size, nodules, cysts, hemorrhage and congestion were noted. Thereafter, multiple sections from representative areas were taken for histopathological study. The slides were stained with Hematoxylin and Eosin. Wherever required special stains like PAS, Masson's trichrome, Reticulin, Perl's Prussian Blue, Congo red and Ziehl Neelsen were performed. All clinical, gross and histopathological findings were analyzed and correlated by Senior Pathologists and results were tabulated.

RESULTS:

Out of 260 cases 176(67.6%) were males while 84(32.4%) were females. Male: Female ratio was 2:1. 95(34.6%) of these 260 cases showed hepatic pathology. As shown in table 1, 73 of them were males while rest 22 were females with male to female ratio of 3.5:1. Out of these 95 cases, primary pathology in the liver was seen in 18(18.9%) cases and secondary involvement in 77(81.1%) cases. Maximum male deaths had occurred in the age group of 41-50 years followed by 31-40 years. While female deaths were most common in the age group of 21-30 years.

Table 1: Age and sex distribution of cases with liver diseases (n=95)

Age group	Male	Female	Total cases
1day- 20yrs	4	5	9
21-30	2	10	12

31-40	17	2	19
41-50	38	2	40
51-60	5	1	6
61-70	4	1	5
71-90	3	1	4
Total	**73**	**22**	**95**

Table 2: Hepatic pathologies observed in autopsy (n=95):

Sr. No.	Hepatic pathology	Case number	%
1	Fatty change	50	52.6%
2	Cirrhosis	10	10.5%
3	Portal triaditis	10	10.5%
4	CVC	9	9.4%
5	Hepatic necrosis	8	8.4%
6	Hydatid cyst	2	2.1%
7	Miliary tuberculosis	2	2.1%
8	Pyogenic abscess	2	2.1%
9	Amoebic abscess	1	1.1%
10	Malignancy	1	1.1%
	Total	95	100%

As shown in table 2, most common Pathologic finding noted in liver was fatty change (52.6%). Micro and macronodular cirrhosis and Portal triaditis were seen in 10.5% cases, CVC liver was seen in 9.4% cases, massive and submassive hepatic necrosis was seen in 8.4% of the cases. Rare findings included hydatid cyst, pyogenic and amoebic liver abscess, military TB, secondary metastasis from adenocarcinoma of lung.

Cirrhosis and hepatic necrosis were the predominant causes of death in cases with primary hepatic disease. Secondary changes in liver were seen in cases of coronary artery disease (CAD), poisoning, maternal mortality, septicemia and road traffic accidents as incidental findings.

Table 3: Various causes of death with incidental hepatic lesions:

Causes of death	Fatty change	Cirrhosis	Portal triaditis	CVC	Hepatic necrosis
Alcohol abuse	34	9	-	-	-
Septicemia	2	-	-	-	-
Multiorgan failure	2	-	-	-	-
CAD	10	-	-	-	-
CCF	-	-	-	-	-
MM	2	-	2	-	2
Chronic hepatitis	-	-	8	-	-
CVC	-	-	-	7	-
Portal Hypertension	-	-	-	1	-
Anemia	-	-	-	1	-
Poisoning	-	-	-	-	6
Total	50	9	10	9	8

As shown in table 3, most common etiology of fatty liver and cirrhosis was alcohol abuse (90%). Fatty liver was also seen as an incidental finding in cases of deaths due to multiorgan failure, septicemia, CAD, maternal mortality. Portal triaditis was seen in cases of chronic hepatitis and maternal mortality. CVC was seen in cases of congestive cardiac failure (CCF), portal hypertension and anemia. Whereas, massive and submassive hepatic necrosis were seen in cases of poisoning, snake bite and maternal mortality.

DISCUSSION:

As symptoms of hepatic decompensation may take years to appear after the onset of injury, the importance of detection of silent liver disease is well known in clinical practice. Autopsy with subsequent histopathological examination is the gold standard to diagnose many occult liver diseases.

Males were more commonly affected in present study which is comparable with studies by Bal MS et al[4], Fubara DS et al[7], Madhubala Devi et Al[8]; probably due to higher incidence of alcohol abuse in males. In the present study, maximally affected age group was 41-50 years which is comparable with Bal MS et al[4] , Fubara DS et al[7] and Madhubala Devi et Al[8] . Comorbid conditions like hypertension and diabetes mellitus are aggravated due to associated alcohol and tobacco abuse probably leading to increased death rate in this age group.

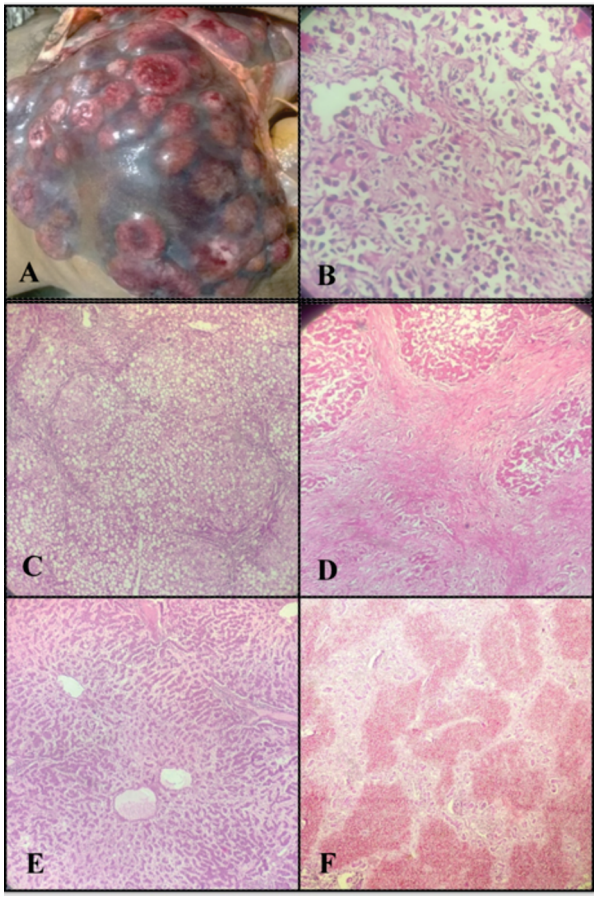

Figure 1: Showing gross and microscopic findings in liver autopsy:

1) Fig. A: Gross picture showing multiple secondaries in liver 2) Fig. B: Microscopic picture of metastatic adenocarcinoma 3) Fig. C: Fatty change Fig. D) Cirrhosis with nodules and fibrous septae Fig. E) CVC Liver Fig. F) Massive hepatic necrosis

Most common pathological finding in liver autopsies was fatty change with strong association of alcohol consumption, similar to studies by Bal MS et al[4], Selvi RT et al[9], Merat S et al[10], Kringsholm B et al[11]. It was also seen as a co-existing condition in cases of CAD and maternal mortality. Second most common finding was cirrhosis which was also seen in studies by Madhubala Devi et al[8] and Sobaniec-Lotowska M et al[12].Cirrhosis usually develops after around 20 years of alcohol consumption as it takes time for fibrosis to develop gradually leading to loss of regenerative capacity of liver.

Portal triaditis was seen in 10.5% cases. In present study it was seen in cases of chronic hepatitis. It was seen due to intravenous drug abuse in study by Kringsholm B et al[11]. CVC of liver was seen with 9.4% cases, due to CCF and anemia similar to Bal MS[4], Copeland AR[13].Massive and submassive hepatic necrosis was seen in cases of OPP poisoning, snake bike, maternal deaths due to pregnancy induced hypertension(PIH). Tuberculous granulomas were seen in 2 cases similar to studies by Madhubala Devi et al[8] and Sotoudehamanesh R et Al[14].

Pyogenic liver abscess was seen in 2 cases while amoebic abscess was seen in one case. Ghosh CK et al[15] found it in 10 cases in their study. Septicemia may be the cause of pyogenic liver abscess. Mortality related to amoebic abscess is less as it is completely treatable once diagnosed. Secondary malignancies are common in liver as compared to primary. We had one case of metastatic deposits of lung adenocarcinoma to liver in a 70 years old male. Bal MS[4] reported 3 cases of metastatic deposits of adenocarcinoma in liver.

CONCLUSION:

Occult liver diseases are apparently frequent in physically healthy individuals as symptoms appear late in them. Hence liver is called a “silent killer”. Autopsy is the only way to find out such unknown pathologies. Histopathology is the gold standard to detect all the occult

hepatic lesions. Present study was conducted only on autopsy specimens hence may not reflect the exact pattern of liver diseases in our region. As alcohol consumption was the most common etiology for many hepatic pathologies and actual mortality due to these addictions must be much higher than what is recorded at autopsy, prevention of alcohol and tobacco abuse should be promoted.

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