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RESEARCH ARTICLE

LIVER PATHOLOGY IN AUTOPSY CASES

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ABSTRACT

The present retrospective study was performed over a period of seven years from July 2008 to June 2015. Total number of 357 complete autopsies were included. The study group comprised the cases from all ages and both sexes among which 183 (51.26%) were males and 174 (48.74%) were females. Nutmeg appearance (34 cases, 9.52%) was the most common gross finding. Circulatory disorders (CVC/ acute sinusoidal congestion) in 44 cases (26.33%), steatosis in 51 cases (14.29%) and hepatitis in 41 (11.49%) cases were found. The most common cause of cirrhosis among 23 (6.44%) cirrhotics were alcoholism in 11(47.83%), post viral cirrhosis in 6 (26.09%) and 3 (13.04%) cases of biliary cirrhosis followed by 2 cases (8.70%) of cardiac cirrhosis and 1 case(4.35%) of Indian childhood cirrhosis. Tuberculosis involving liver was noted in 10 (2.80%) cases and pyogenic abscess in 6 (1.68%) cases. Various primary and metastatic neoplasms were found in 7 cases. Among these 5 (71.43%) cases belong to secondary neoplasms constituting one case (20%) of hematolymphoid malignancy and 4 cases (80%) from solid organ malignancy. Among the primary neoplasms we found a single case (50%) each of hepatocellular carcinoma and intrahepatic cholangiocarcinoma.

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INTRODUCTION

The autopsy has served human medicine in several ways (McManus *et al*., 1996). Purpose of autopsy is to learn the truth about persons health during life and how the person really died. Many conditions would go unnoticed and undiagnosed unless autopsy is performed. Quite rightly liver is called as "The custodian of milieu interior ". Autopsy study is useful to monitor the cause of death and to plan medical strategy (Rezek *et al*., 1963). Liver being the principle site of many metabolic activities, it is the most frequently injured organ in the body. The major primary diseases of the liver are hepatitis, alcoholic liver disease, circulatory disturbances and neoplasms. The main purpose of this study was to analyze different patterns of liver diseases that are reflected in the morphology of the liver at the time of autopsy and to study the clinicopathological correlation in various hepatic lesions. The underlying cause of liver disease vary in different parts of the world and are based on factors such as age, sex, socio-economic status, food habits, lifestyle, locally and associated infections. This autopsy study was undertaken to shed light on spectrum of lesions in liver in individuals irrespective of their age and cause of death.

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MATERIAL AND METHODS

It was a retrospective study over a period of seven years from July 2008 to June 2015 and included 357 cases of complete clinical autopsies performed at our center. Medicolegal autopsies were excluded. Relevant clinical history, age, sex, chief complaints, history of alcoholism or any hepatic disease, investigations and cause of death were obtained from clinical records and requisition forms. A thorough postmortem examination was done. Liver and other organs were examined grossly in situ. The organs were removed by Virchow's method. Gross examination of the liver specimen was done as regards the weight, capsule, colour, external surface, consistency and cut surface. Routine tissue processing and hematoxylin and eosin staining were done on sections of liver.

Observation and Results

Out of 375 complete autopsies, 183 (51.26%) were males while 174 (48.74%) were females (Ratio M:F 1.05:1). Most of the deaths occurred in pediatric age group, comprising mainly neonates (21.01%). Grossly, the liver was enlarged and overweight in 26 (7.28%) cases, shrunken with a reduced weight in 18 (5.04%) cases and normal in 313 (87.68%) cases.

Table 1. Gross morphological findings of complete autopsies

Gross findings in liver	No. of cases	Percentage (%)
Yellowish with greasy	26	7.28
Greenish/ Yellowish green	23	6.44
Nodular	23	6.44
Abscesses	06	1.68
Tubercles	10	2.80
Grey white foci	06	1.68
Nutmeg	34	9.52
Normal	229	64.16
Total	357	100

Nodules ranging from 0.1cm to 1.5cm in diameter were noted in 23 (6.44%) cases, such liver specimens had firm consistency (Fig 1).

Fig. 1. Gross alcoholic cirrhosis

Multiple gray white foci were noted on external and cut surface in 5 specimens. In a case of hepatocellular carcinoma, multiple gray white foci measuring 0.5 to 4cm in diameter scattered throughout the liver were seen. Gray white foci ranging from 0.5 to 3cm were seen in intrahepatic cholangiocarcinoma, metastatic ductal invasive carcinoma of breast, neuroblastoma and squamous cell carcinoma of renal pelvis. In a case of small cell carcinoma, the metastatic area was as large as 20x15x6cm.

In 94 cases of circulatory disorders chronic venous congestion was noted in 34 (36.17%) cases and acute sinusoidal congestion in 60 cases (63.83%). The cardiac causes (ischemic, valvular, cardiomyopathy and pericardial) were more commonly responsible for chronic venous congestion in 19 (55.89%) cases as compared to pulmonary causes seen in 15 (44.11%) cases. On gross examination red and yellow mottled areas giving nutmeg appearance were noted. Microscopically there was centrilobular necrosis and periportal fatty change.

Total 10 cases of heaptic tuberculoma were noted. Both extremes of age were affected. M: F ratio was 2.3 : 1. Most common complaint was fever, raised total bilirubin was noted in 60 % of cases. On microscopy in 6 (60%) cases caseating granulomas composed of central caseation surrounded by Langhan's giant cells and epitheloid cells with lymphocytes were seen. While 4 cases (40%) showed AFB positivity with Ziehl - Neelsen staining (Fig 3). Pyogenic abscess were observed in 6 (1.68%) cases. (Fig No. 4) All were male. Fever with chills and abdominal pain were most common complaints followed by weight loss and jaundice in few cases. Majority had raised levels of serum aspartate transaminase. Hepatocellular carcinoma was noted in a 73yrs old male. The patient was non alcoholic. The tumor was multicentric with underlying cirrhosis (Fig 5).

The patient presented with weakness, anorexia, weight loss and increasing ascitis. Serum bilirubin was 1.8 gm/dl with depressed serum albumin of 4.3gm/dl and raised AST and ALT. The one with intrahepatic cholangiocarcinoma was 55yr old male presented with jaundice and abdominal pain. Grossly multiple gray white foci ranging from 0.5 to 3cm on external and cut surface were noted. Microscopy revealed tumor cells arranged in glandular pattern separated by desmoplastic stroma (Fig 6). In a known case of acute myeloid leukemia in 17 years male, grossly no abnormality was seen but microscopy showed predominant portal and mild sinusoidal infiltration by leukemic cells.

Table 2. Distribution of liver pathologies in 357 autopsy cases

Type of hepatic lesion	Number of Cases	Percentage
Non- neoplastic		
Steatosis	51	14.29
Hepatitis	41	11.48
Cirrhosis	23	6.44
Circulatory disorders (CVC / Acute sinusoidal congestion)	94	26.33
Hepatic tuberculosis	10	2.80
Abscesses	06	1.68
No specific pathology (including extramedullary hematopoiesis)	125	35.02
Neoplastic		
Neoplasms (Primary / Metastatic)	07	1.96
Total	357	100

In a case of leukemic infiltrate in the liver, grossly no abnormality was seen. All the 6 cases of post viral hepatic cirrhosis were positive for HbsAg on serological testing. Amongst 23(6.44%) cases of cirrhosis, the micronodular type of cirrhosis was most common seen in 14(60.87%) followed by mixed pattern in 5(21.74%) and macronodular in 4 (17.39%) cases.

Secondaries of neuroblastoma from adrenal gland was noted in 10 month old female baby. In 67 years old male with complaints of hematuria and abdominal pain, diagnosis of squamous cell carcinoma of renal pelvis was made but he also had deranged liver enzymes, thats why autopsy was performed. Known case of invasive ductal carcinoma of breast in 45 year old female having jaundice revealed metastasis in liver.

Table 3. Gender wise distribution of 41 cases of hepatitis

Hepatitis	No. of cases		Total	Percentage (%)
	M	F		
Acute hepatitis: ○ Classic hepatitis ○ Confluent / bridging necrosis ○ Submassive necrosis ○ Massive necrosis	04 01 02 02	05 00 02 01	17	41.47
Non specific reactive hepatitis	06	05	11	26.83
Chronic hepatitis	02	02	04	9.76
Neonatal hepatitis	01	02	03	7.32
Alcoholic steatohepatitis	04	0	04	9.76
Non-alcoholic steatohepatitis	02	0	02	4.88
TOTAL	20	14	41	100

(Fig 7) Autopsy finding in known case of small cell carcinoma of lung in 58 year old male, who was chronic smoker revealed diffuse mass measuring 20x15x6cm in liver. On microscopy, uniform, small, bland tumor cells arranged in nesting pattern were seen. (Fig 8)

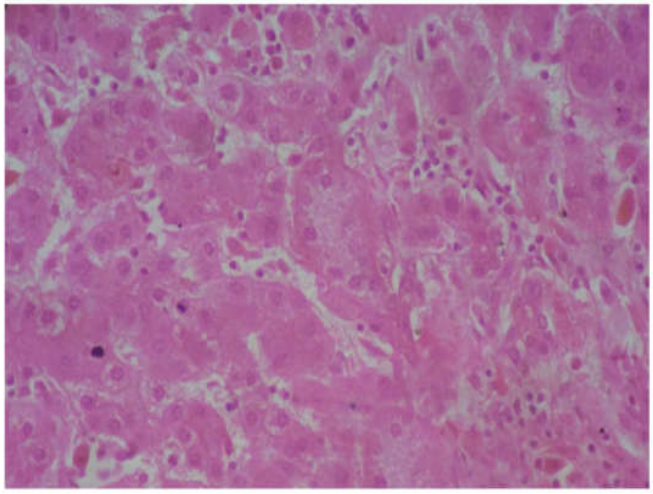

Fig. 2. Photomicrograph of neonatal hepatitis

Table 4. Spectrum of alcoholic liver disease in chronic alcoholics

Alcoholic Liver disease	Number of Cases	Percentage%
Alcoholic Steatosis	01	6.25
Alcoholic steatohepatitis	04	25.0
Alcoholic cirrhosis	11	68.75
TOTAL	16	100

Table 5. Etiological and gender wise distribution of cirrhosis

Cause of Cirrhosis	**Sex**		**Number of Cases**	**Percentage (%)**
	M	**F**		
Post viral hepatitic	04	02	06	26.09
Alcoholic	11	0	**11**	**47.83**
Biliary	02	01	03	13.04
Cardiac	02	0	02	8.70
Indian childhood	0	01	01	4.35
TOTAL	**19**	**04**	**23**	**100**

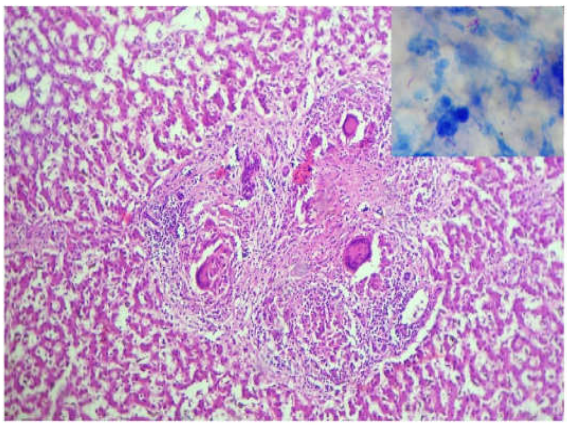

Fig 3. AFB positivity with Ziehl - Neelsen staining

Table 6. Distribution of hepatic malignancies

Neoplasm	Total	% Calculate
Primary		% in 7 cases
- Malignant (Hepatocellular carcinoma / intrahepatic cholangiocarcinoma)	2	28.57
Metastasis or secondaries		
a) Hematolymphoid malignancy (AML)	1	14.28
b) Non hematolymphoid - Invasive ductal carcinoma of breast - Neuroblastoma - Squamous cell carcinoma of renal pelvis - Lung carcinoma (small cell carcinoma)	 1 1 1 1	 14.28 14.28 14.28 14.28

Fig 4. Pyogenic liver abscess

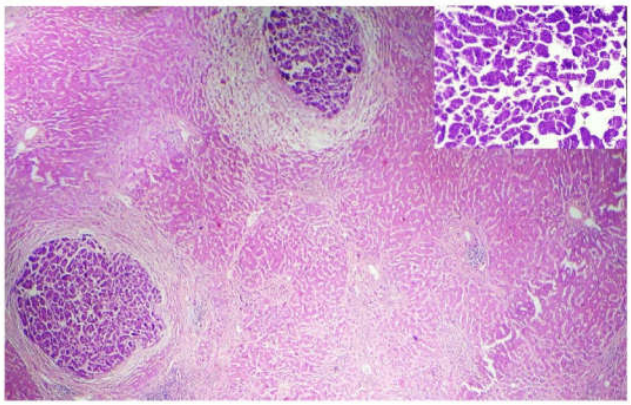

Fig. 5. Hepatocellular carcinoma

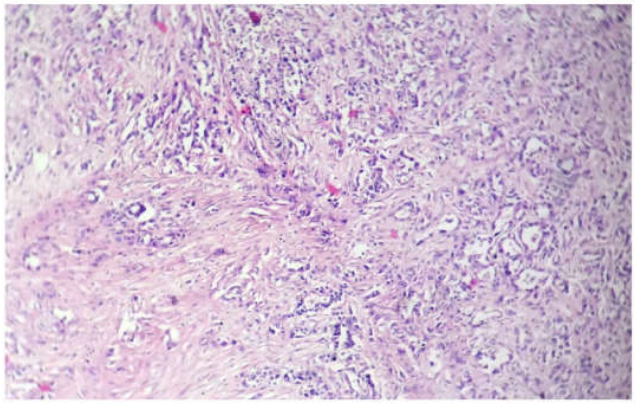

Fig. 6. Intrahepatic cholangiocarcinoma

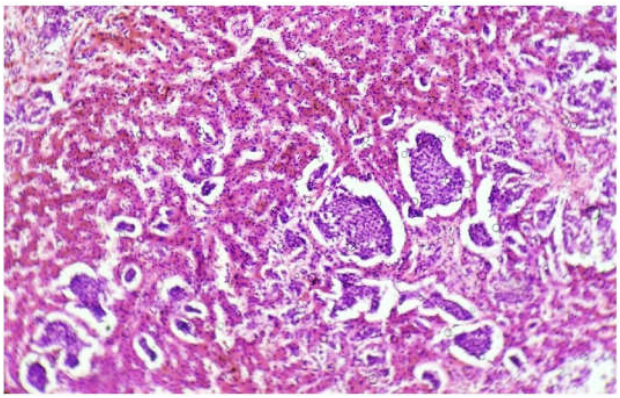

Fig 7. Metastasis in liver from invasive ductal carcinoma

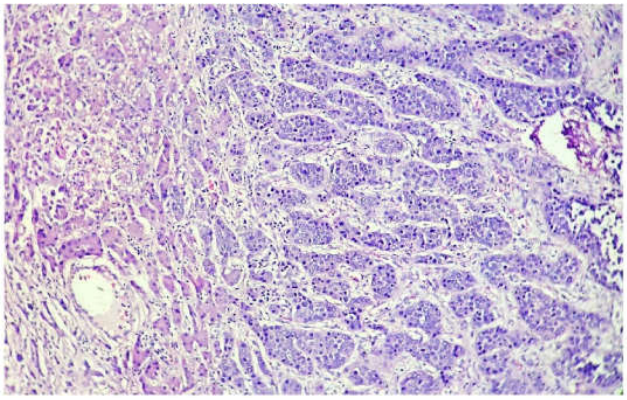

Fig 8. Liver in small cell carcinoma lung

DISCUSSION

The study included 357 complete autopsies performed over a period of 7 years in the department of pathology in a tertiary care center. The reason for performing autopsies were to find out the cause of death in those cases in which it was not apparent to the clinician, or to find out the extent or metastasis of the disease, especially in case of malignancies. In some cases, patients were brought to the hospital at terminal stage , thus investigations were not performed. In few cases the reason for performing post mortem was to confirm the provisional cause of death. Male predominance was seen in autopsy cases in our study as well as in studied of Bal *et al*., 2004, Rasoul *et al*., 2006; Pathak *et al*., 2010, Selvi *et al*., 2012; Alagarsamy *et al*., 2014. Alagarsamy *et al*. 2014 stated that male were more prone to death by diseases as compared to women, the reason being that men are bread earners, which makes the men more vulnerable to exposing risk factors on their respective occupation. Also men indulge themselves more in smoking and alcoholism.

Table 7. Comparison of gross morphological findings

Authors	Yellowish and greasy (%)	Greenish/ Greenish yellow (%)	Nutmeg (%)	Normal (%)
Bal *et al* (2004)	34	15	07	31
Selvi *et al* (2012)	22.22	28.70	0	25.93
Alagarsamy *et al* (2014)	10	16	26	6
Umesh *et al.* (2015)	22.86	1.90	9.52	64.76
Present study	7.28	6.44	9.52	64.16

Table 8. Comparison of most common liver pathologies

Authors	Most common histopathological finding (Percentage %)	Normal histology Percentage (%)
Bal *et al.* (2004)	Steatosis (39%)	30%
Rasoul *et al.* (2006)	Steatosis(31.6%)	52.1%
Selvi *et al.* (2012)	Steatosis (26.9%)	25.9%
Devi *et al.* (2013)	Cirrhosis (25%)	11%
Alagarsamy *et al.* (2014)	Circulatory disorders (26%)	22%
Umesh *et al.* (2015)	Steatohepatitis (35.2%)	4.76%
Present study (2015)	Circulatory disorders (26.33%)	35.02%

Most common symptom noted was jaundice 66 (18.49%) patients followed by ascitis in 30 (8.40%) cases. This was correlated with the study of Bilal Bin Younas *et al*., (2001). Other symptoms observed were abdominal tenderness, anorexia, fever, weight loss.

Steatosis

Table 9. Frequency of steatosis

Authors	Steatosis (%)
Bal *et al.* (2004)	39.0
Rasoul *et al.* (2006)	31.6
Selvi *et al.* (2012)	26.9
Devi *et al.* (2013)	17.0
Present study (2015)	13.45

The variable percentage of steatosis in these study groups may be due to different geographic locations with different customs like nutritional status, alcohol consumption and race, ethinicity and also different study groups and sample size.

Hepatitis

Table 10. Frequency of hepatitis

Authors	Hepatitis (%)
Bal *et al.* (2004)	3.00
Selvi *et al.* (2012)	13.9

Seven cases (41.18 %) of acute hepatitis, 11 cases (26.83%) of non specific reactive hepatitis and 4 cases (9.76%) of chronic hepatitis were noted. Out of 6 cases of steatohepatitis 2 cases (33.33%) were non alcoholic males diagnosed as steatohepatitis. Three cases (7.31%) of neonatal hepatitis (Fig. 1) were found in which jaundice and hepatomegaly was noted which was correlated with study of Spiroglou *et al.* (2001)

Alcoholic liver disease

Table 11. Comparison of spectrum of alcoholic liver disease

Authors	AFLD* (%)	ASH[#](%)	Cirrhosis (%)
Sugimoto *et al.* (1985)	16.0	11.0	31.0
Liew *et al.* (1990)	12.92	6.12	7.03
Arocha *et al.* (1990)	20.83	20.83	41.67
Present study (2015)	6.25	25.0	68.75

* = Alcoholic fatty liver disease; [#]= alcoholic steatohepatitis

Table 12. Comparison of frequency of cirrhosis

Authors	Cirrhosis (%)
Bal *et al* (2004)	14.0
Rasoul *et al* (2006)	0.8
Selvi *et al* (2012)	7.4
Devi *et al* (2013)	25.0
Alagarsamy *et al*. (2014)	16.0
UmeshBabu *et al.* (2015)	1.90
Present study (2015)	6.44

The study showed that among all cirrhotic cases, the most common type was alcoholic cirrhosis (47.83%) followed by post viral hepatic cirrhosis (26.09%) and biliary cirrhosis (13.04%). Maskey *et al.* (2011) did a study of liver cirrhotic patients and found that alcoholic cirrhosis was the most common etiology of cirrhosis followed by cryptogenic cirrhosis, hepatitis B infections, hepatitis C infections.

Circulatory disturbances

Table 13. Comparison of frequency of CVC

Authors	Chronic venous congestion (%)
Bal *et al.* (2004)	9.0
Pathak *et al.* (2010)	70.0
Selvi *et al.* (2012)	16.7
Devi *et al.* (2013)	5.0
Alagarsamy *et al.* (2014)	26.0
UmeshBabu *et al.* (2015)	9.52
Present study (2015)	36.17

Hepatic tuberculosis

Table 14. Comparison of frequency of hepatic tuberculosis

Authors	Hepatic tuberculosis (%)
Rasoul *et al* .(2006)	0.2
UmeshBabu *et al.*(2015)	3.80
Present study (2015)	2.80

In Amarapurkar *et al*. (2006) study caseating granulomas were present in 58.07% cases while our study caseating granulomas were present in 60% cases.

Hepatic abscess

Table 15. Comparison of features of liver abscess

Authors	Jha *et al.* (2015)	Present study (2015)
Frequency: Pyogenic	12%	100%
Amoebic	88%	0%
Males	91.81%	100%
Abdominal pain	100%	66.67%
Lobe commonly involved	Right	Both
Multiple abscesses	20%	83.33%

Neoplasms

Table 16. Prevalence of malignancies of liver

Authors	Hepatic neoplasms (%)
Bal *et al*. (2004)	3.0
Selvi *et al*. (2012)	1.9
Present study (2015)	1.96

The closest histopathological correlation with the provisional diagnosis given by clinician was noted in cirrhosis (56.52%), hepatitis (53.66%), liver abscess (50%) and neoplasms (42.86%) cases. The minimum correlation was observed in cases (12.76%) of circulatory disorders and steatosis.

Conclusion

The liver diseases are very common amongst the apparently healthy individuals and if not detected early, some of these conditions may lead to serious outcomes. Autopsy study more frequently discloses various lesions that were undiagnosed clinically and provides valuable information for quality control of health care system. However, this being an autopsy study may not reflect the actual incidence of various liver diseases in our population, but will definitely help us in understanding their patterns as reflected in autopsies**.**

REFERENCES

Agrawal, P. and Vaiphei, K. 2014. Histomorphological features of pancreas and liver in chronic alcoholics an analytical study in 390 autopsy cases. *Indian J Pathol Microbiol.,* 57:2-8.

Alagarsamy, J., Muthureddy, Y. and Subhash Rao Yadav. N. 2014. Incidentally Discovered Liver Diseases- An Autopsy Study of Fifty Cases. *International Journal of Science and Research (IJSR)*, May; 3(5): 1330-1332.

Amarapurkar, A. and Agrawal, V. Liver involvement in tuberculosis--an autopsy study. *Trop Gastroenterol*., 2006 April-June; 27(2):69-74.

Arocha, R., Pérez Machado, L. and Hamana, N. Alcoholic liver disease in Venezuela. Clinical hepatofunctional and histopathologic course. G E N. 1990; 44(1):15-20.

Bal, M.S., Singh, S.P., Bodal, B.K., Oberoi, S.S., Kanwal, 2004. Surinder, Pathological findings in liverautopsy. Jiafm, 26(2). ISSN 0971-0973

Bilal Bin Younas, GulsenaMasood Khan, ParveenAkhtar, Akbar Chaudhry. Audit of Patients of Chronic Liver Disease Ann King Edward Med Uni 2001;7(1):52-54.

Devi, M.P., Myrthong, B.G., MeeraTh, Nabachandra, H. 2013. Pathological Findings of Liver in Autopsy Cases A Study at Imphal. *J Indian Acad Forensic Med.,* 35(3): 206-210.

Jha, A.K., Das, A., Chowdhury, F., Biswas, M.R., Prasad, S.K. 2015. and Chattopadhyay, S. Clinicopathological study and management of liver abscess in a tertiary care center. *J Nat ScBiol Med*., 6:71-5

Liew, C.T. 1990. The clinicopathological spectrum of alcoholic liver disease-an autopsy survey of 441 cases. Changgeng Yi Xue Za Zhi. Jun 20;13(2):72-85.

Maskey, R., Karki, P., Ahmed, S.V. and Manandhar, D.N. 2011. Clinical profile of patients with cirrhosis of liver in a tertiary care hospital, Dharan, Nepal. *Nepal Med Coll. J.,* 13(2): 115-118

McManus, B. and Babul, S. 1996. Autopsy. In: Danjanov I, Linder J. Anderson's Pathology.10th ed. St. Louis: Mosby15-32.

Pathak, A., Mangal, H.M. 2010. Original research paper HistoPathology Examination in Medicolegal Autopsy Pros & Cons. *J Indian Acad Forensic Med .,* 32(2):128.

Rasoul Sotoudehmanesh, Masoud Sotoudeh, Ali Ali-Asgari, Behnoush Abedi-Ardakani MD, Seyed-Mohammad Tavangar, Ali Khakinejad, Zohreh Sadeghi, Reza Malekzadeh, *et al*. Silent Liver Diseases in Autopsies from Forensic Medicine of Tehran. Arch Iranian Med 2006; 9 (4): 324 – 328.

Rezek, R., Philipp, Millard, M. 1963. In: Autopsy Pathology, Springfield, Thomas. 464- 467.

Selvi, R.T., Selvam, V. and Subramanium, P.M. 2012. Common Silent liver Diseases In and Around of Salem Population: An Autopsy study. *Journal of Clinical and Diagnostic Research* Apr; 6(2):207-10.

Spiroglou, K., Chatziparasidis, G., Karagiozoglou-Lamboudi, T.N. Xinias, J., Demertzidou, V., Patsiaura. K. 2001. Idiopathic neonatal hepatitis: a long term follow-up study. *Annals of Gastroenterology*, 14(2):112-117.

Sugimoto, M., Hatori, T. and Ito, T. 1985. Characteristic features of liver disease in Japanese alcoholics. *Am J Gastroenterol* Dec; 80(12):993-7.

Umesh, B.R., Gayathri, B.N., Harendra Kumar, M.L. 2015. Spectrum of liver pathology at autopsy. *Int J Res Rev.,* 2(3):79-86.

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