

A Study of Cirrhotic Liver Associated with Extra Hepatic Vasculogenesis and Splenomegaly in Cadavers: with Clinical Correlation

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Abstract

A Study of cirrhotic liver associated with extra hepatic vasculogenesis and splenomegaly in Cadavers: with Clinical Correlation.

Background: Cirrhosis is a consequence of chronic liver damage and inflammation and it is characterised by diffuse hepatic fibrosis and normal liver structures being replaced by regenerative liver nodules.⁷ Liver fibrosis in advanced states is critically important in the increased resistance, which leads into portal hypertension and splenomegaly.

Aims and Objectives: To observe the prevalence of cirrhotic liver in south Indian population.

To observe the association of cirrhotic liver with extra hepatic vasculogenesis and splenomegaly.

Materials and Methods: Observational descriptive study. 30 adult human embalmed cadavers were used for the study.

Results and Conclusion: Out of 30 cadavers one cadaver showed morphological changes of cirrhotic liver associated with splenomegaly. Prevalence of cirrhotic liver was 0.03%.

Keywords: Cirrhotic liver; Adeno carcinoma; Splenomegaly.

INTRODUCTION

Cirrhosis is a condition in which loss of liver parenchyma and increased fibrosis gradually replaces healthy liver cells. Liver cirrhosis morbidity

and mortality has greatly increased recently, ranking 14th in death causes globally.³ Understanding of the basic elements of general and liver specific vascular biology has grown substantially. Chronic liver disease is associated with remarkable alterations in the intra hepatic and extra hepatic vasculature. An early and consistent feature of liver injury is the development of an increase in intra hepatic resistance which are associated with changes in hepatic vascular cells and their signalling pathway that cause portal hypertension.² Liver fibrosis in advanced states is critically important in the increased resistance, which leads into portal hypertension and splenomegaly.

AIMS AND OBJECTIVES

To observe the prevalence of cirrhotic liver in south Indian population.

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To observe the association of cirrhotic liver with extrahepatic vasculogenesis and splenomegaly.

MATERIALS AND METHODS

The study design was observational descriptive study. 30 livers were observed from adult human embalmed cadavers during routine dissection in the department of anatomy Dr. Pinnamaneni SIMS & RF Vijayawada. Cadavers were preserved in 10% formalin. Dissection was done according to cunningham’s manual. Photographs were taken along with proper documentation. The specimens which have morphological changes were sent to pathology department for further evaluation.

RESULTS

30 human cadavers were observed for cirrhotic liver morphological changes. Out of 30 human cadavers one cadaver showed cirrhotic changes of liver. Along with morphological changes the Liver was supplied from two sources, one was

from hepatic artery which entered into the porta hepatis and another is from a branch of left gastric artery which entered into the left lobe of liver. Morphological changes were also observed in liver. There were also numerous unidentified vessels enters into the liver from diaphragm and greater omentum. Enlarged lymph nodes were observed in greater omentum. Splenomegaly was also observed. A large mass was observed on the posterior abdominal wall at the level of L1. A small part of liver, pancreas and mass was sent to histo-pathology for further evaluation.

Table 1: Showing the Histo-Pathological reports

Name of the specimen	Histological observations
Liver	Loss of normal architecture. Fibrous septa are seen around the parenchymal nodules. Cirrhotic changes observed. scattered inflammatory cells are seen in the fibrous septa.
Mass features	of adenocarcinoma
Pancreas features	of adenocarcinoma
Gall bladder	Normal

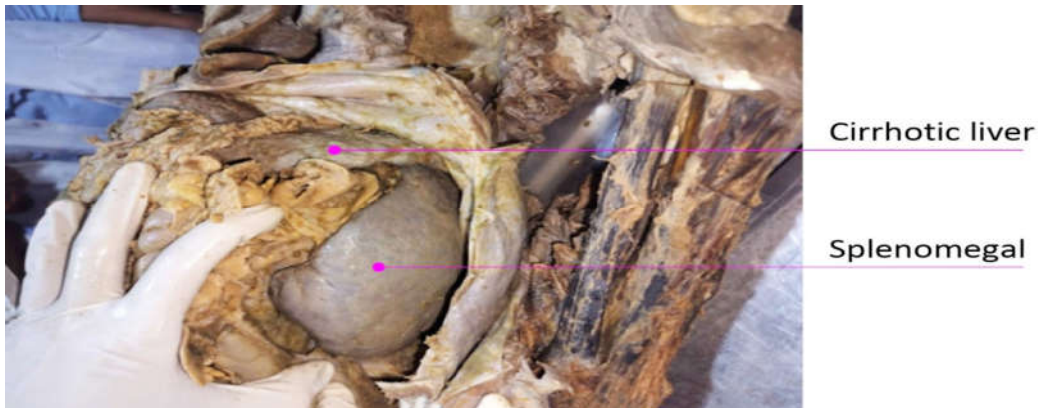


Fig. 1: Showing cirrhotic liver with splenomegaly

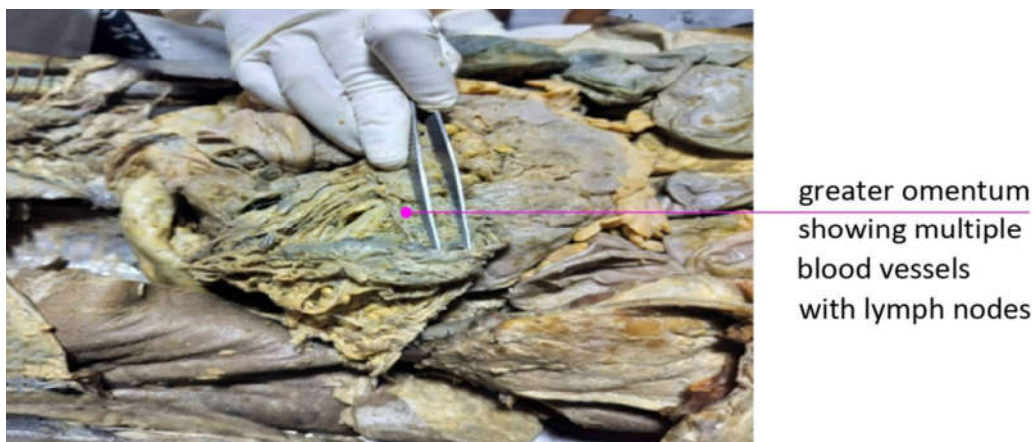


Fig. 2: Showing greater omentum with multiple blood vessels and lymph nodes



Fig. 3: Showing the left lobe of the liver with blood supply

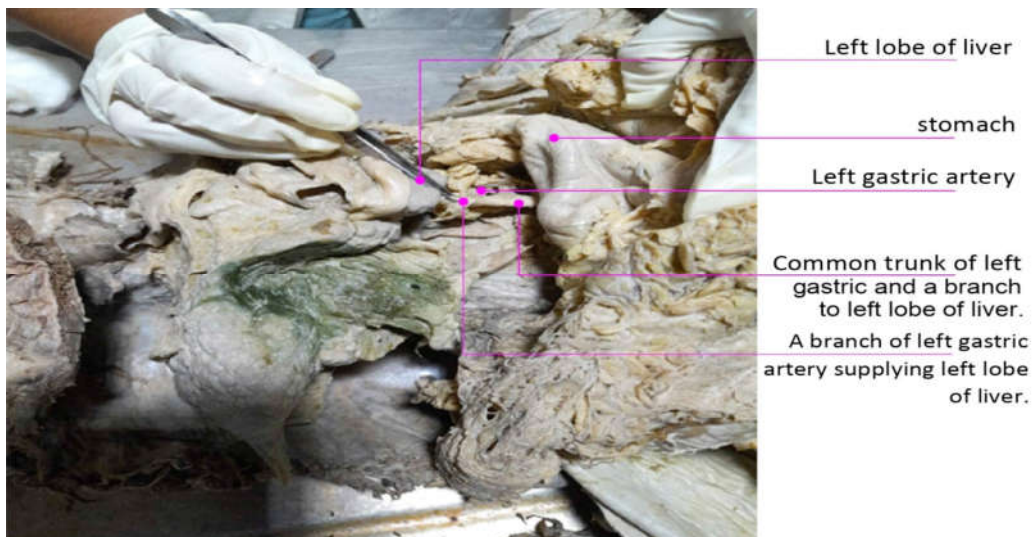


Fig. 4: Showing the liver with separate arterial supply to left lobe



Fig. 5: Showing the celiac trunk with its branches

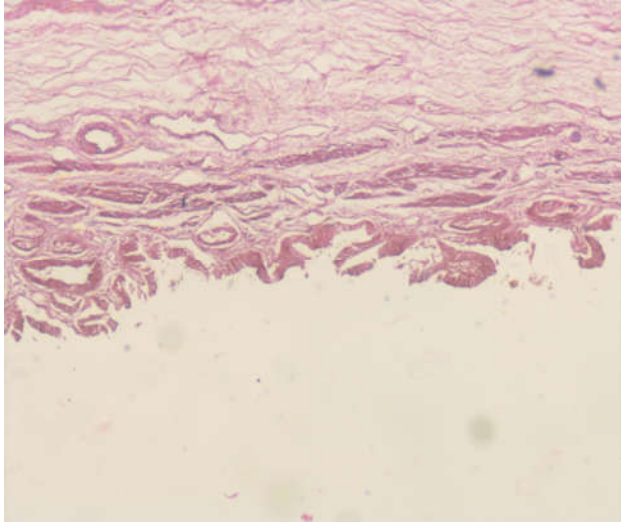


Fig. 6: Showing gall bladder with normal appearance

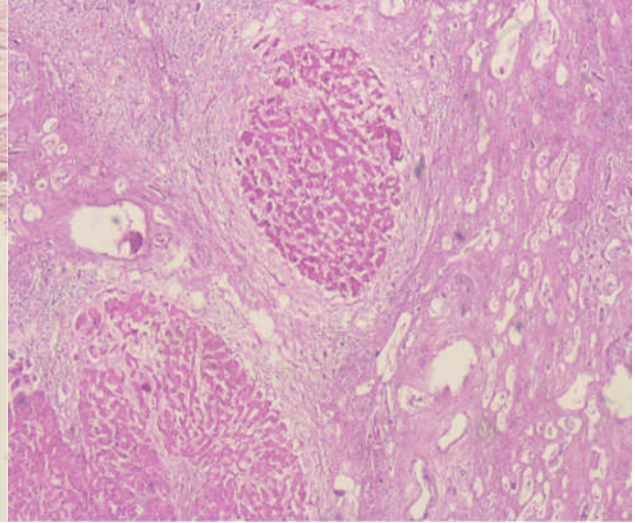


Fig. 7: Showing liver

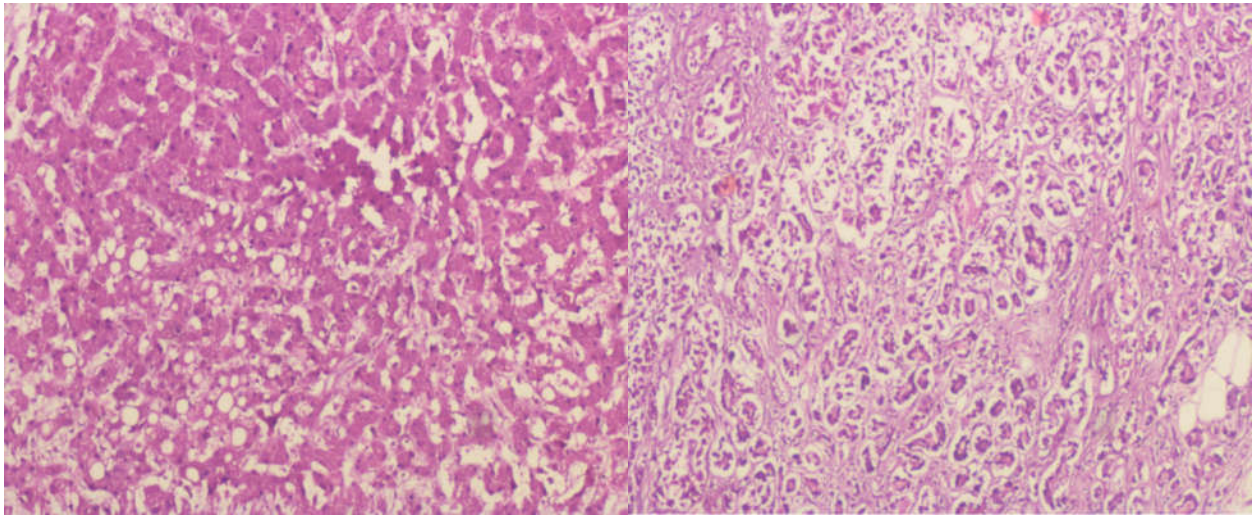


Fig. 8: Liver

Fig. 9: Pancreas showing adenocarcinoma 10x

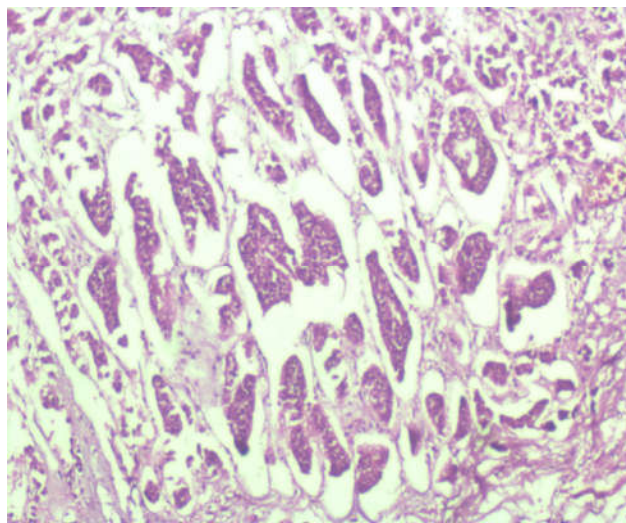


Fig. 10: Pancreas showing adenocarcinoma 40x

Table 2: Showing recent local epidemiological data on liver cirrhosis in the general population⁷

Country	Study Population	Study Period	Diagnostic Methods	Presented Data
US	patients	2016-18	icd-10 code	0.389% prevalence
Germany	patients	2005-18	icd-10 code	0.94% prevalence
Japan	patients	Oct-Nov 2020	liver stiffness measurement	15 prevalence
US	patients	2018	icd 9 or icd-10 code	0.21% prevalence
China	participants	2004-2008	icd-10 code	incidence 756.4 and 397.4 in diabetic and non diabetic patients
Korea	patients	2012-2016	icd-9 code	alcoholic cirrhosis incidence 7294 cases
South India (Present Study)	cadavers	2022-24	Histopathological evaluation	0.33% prevalence

DISCUSSION

Present study was unique and rare finding of dual blood supply to liver with adenocarcinoma of pancreas in a male cadaver. Cirrhotic liver changes and adenocarcinoma of pancreas in a male cadaver. Cirrhotic liver changes and adenocarcinoma might be attributed to history of alcoholism or genetic associations in living. Dual blood supply to liver can be manifested towards regenerative capacity of liver.

According to Yasuko iwakiri *et al.*, The combination of increased resistance in the liver and increased flow to the portal vein from the mesenteric circulation results in increased portal pressure, which leads into portal hypertension and splenomegaly. Leads into extra hepatic and intra hepatic vascular changes. hypertension and chronic liver disease.

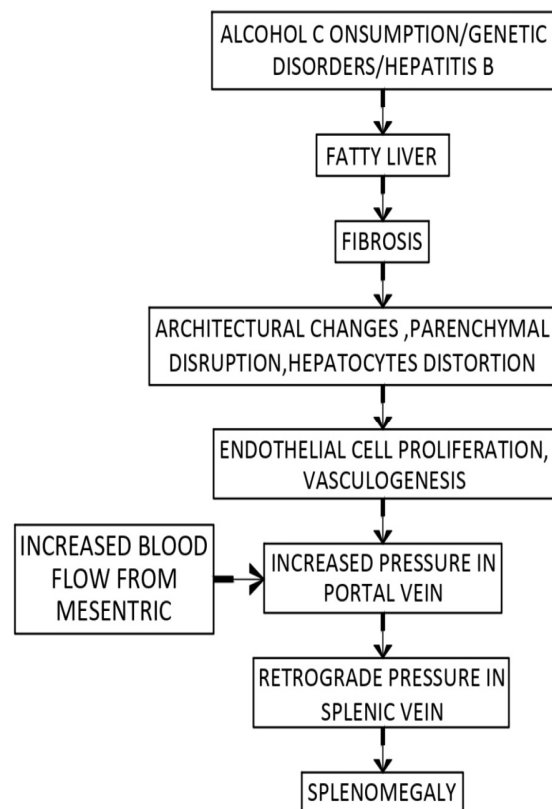
Jiang-liang *et al.*, Male Sprague-dawley rats received partial hepatectomy. For one group liver dual arterial blood supply had given. By using whole genome oligo microarray analysis was used to compare gene expression profile between rats receiving partial hepatectomy and partial hepatectomy plus dual arterial supply. They observed partial hepatectomy plus dual arterial supply rats liver regeneration was good as compared to control group.

A case study on a 71 year male cadaver by li, Steven *et al.*, liver cirrhosis, hydroureter and splenomegaly was found. Liver cirrhosis and hydroureter are due to scistosomiasis. Liver cirrhosis led into splenomegaly.

K.M. Mak, Dustin Kee *et al.*, reviewed articles on hepatic fibrosis-associated histopathology of aged cadavers out of 68 livers sterosis observed in 35.5%, central vein fin fibrosis in 49.2%, cirrhosis in 4.4%.

CONCLUSION

This study reveals a classic presentation of cirrhosis of liver. It can be a supporting evidence linking cirrhosis of liver portal hyper tension to splenomegaly. These type of knowledge of extra hepatic vascular changes in a cirrhotic liver for phase 1 MBBS students are good sources for early clinical exposure. This knowledge is important for vascular surgeons and hepatologist who are involved in liver transplantation surgeries.



REFERENCES

1. Jian-Liang. Q, Sun. J *et al.*, Liver dual arterial blood supply maintains liver regeneration: Analysis of signaling pathways in rats. *Molecular medicine Reports* 17: 979-987, 2018.
2. Yasuko. I, Vijay.S *et al.*, vascular pathobiology in chronic liver disease and cirrhosis-current status and future directions. *Journal of hepatology* 2014 vol. 61, 912-924.
3. Noosha.s, Bill.T *et al.*, Liver cirrhosis: Physiology, Pathology, Market analysis, Treatments. *Appl biotechnol Bioeng.* 2023;10(5):149-157.
4. Nayeli x.Ortiz-olvera *et al.*, Anatomical cardiac alterations in liver cirrhosis: An autopsy study. *Original article July-September, Vol. 10 no.3, 2013: 321-326.*
5. Yasuko.I, Mathew. G *et al.*, Vasular biology and pathobiology of the liver: Report of a single topic symposium. *Hepatology. PMC* 2008 May; 47(5): 1754-1763.
6. Wise E, De Zanger RB, *et al.*, Scanning electron microscope observations on the structure of portal veins, sinusoids and central veins in rat liver. *Scanning microsc* 1983: 1441-1452.
7. Yuan-Bin liu, Ming-kai chen *Epidemology of liver cirrhosis and associated complications: Current knowledge and future directions gastroenterol* 2022 Nov 7; 28(41): 5910-5930.
8. Ki M. Mak, Dustin Kee *et al.*, A Review of hepatic fibrosis-associated histopathology in aged cadavers. *WILEY, the Anatomical Record.*2023; 306:1031-1053.

