

# ASSOCIATION OF CIRRHOSIS OF LIVER WITH GALL-STONE DISEASE

ABMA MATIN<sup>1</sup>, ANMZ RAHMAN<sup>2</sup>, HOSSAIN MZ<sup>3</sup>, HAKIM HAN<sup>4</sup>, RAHMAN A<sup>5</sup>

## Abstract:

*During laparotomy, for gall-bladder operation, many times, liver is found to have cirrhotic changes. A prospective study was done in the Shaheed Suhrawardy Hospital, Dhaka, in the period from May, 2003 to December, 2005, to find any relation/association of cirrhosis of liver with gall-stone disease. Open wedge liver biopsy was taken during Laparotomy and sent for histo-pathology. Cirrhotic changes were found in six patients out of fifty patients. All six patients had gall-stones. Gall-bladders were fibrosed, thick-walled in 3 cases, of which two had gall-stone and one was acalculous. In two cases of cholelithiasis with choledocholithiasis, liver was cirrhotic and fatty change was found in liver in one case.*

**Key words:** Cirrhosis of liver, gall-stones, malnutrition, cryptogenic or sub-clinical post-necrotic viral hepatitis.

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## Introduction:

During laparotomy, for open cholecystectomy for gall bladder diseases, sometimes, liver is found to have cirrhotic<sup>1</sup> changes on macroscopic visual inspection and palpation. So, there is a query is there any relation between cirrhosis of liver and gall-stone disease. This study was done to find whether there is any association of cirrhosis of liver with gall-stone disease.

## Material & Methods:

50 cases of different age and of either sex were selected for this work. This was a prospective study done in the Shaheed Suhrawardy Hospital, Dhaka, in the period from May, 2003 to December, 2005. All patients underwent laparotomy for gall-bladder diseases. They were evaluated clinically and confirmed pre-operatively by ultrasonogram of hepato-biliary system and pancreas for calculous or acalculous cholecystitis, with or without stone in bile duct and carcinoma gall-bladder were included in this study. Investigations for general anesthesia e.g. complete blood count, blood sugar, serum creatinine, ECG, chest x-ray were done. In all patients liver function tests were done including serum bilirubin, SGPT, serum alkaline phosphatase, prothrombin time, serum cholesterol, serum total protein,

serum albumin and HBsAg. OCG was done in one case of acalculous cholecystitis.

During Laparotomy, Liver was studied by macroscopic visual inspection and palpation. Open wedge liver biopsy was taken and sent for histo-pathology, Liver was observed for any cirrhotic changes, e.g. enlarged, shrunken or normal and later confirmed by histo-pathology report. Gall-bladder was sent for histo-pathology in 3 cases. There are in one case of acalculous cholecystitis and in two cases of suspected carcinoma gall-bladder. In one case of non-operable gall-bladder malignancy with cholelithiasis, cholecystectomy was not done, only liver biopsy was taken. Choledochotomy was done in 5 cases with indications.

Post-operatively, the patients were observed for any complications and were followed up to December 2005 as outpatients.

## Results:

Cirrhotic changes were found in six patients. All six patients had gall-stones. In two cases, cirrhotic liver were congested and enlarged with stone in common bile duct as well as in gall-bladder. Their gall-bladders were found fibrosed, thick-walled in 3 cases, of which two had gall-stones and one had no stone inside.

1. Dr. ABM Abdul Matin, Junior Consultant, Casualty Surgery, Dhaka Medical College Hospital, Dhaka.
2. Prof. ANM Ziaur Rahman, Ex-Professor of Surgery, Sir Salimullah Medical College & Mitford Hospital, Dhaka.
3. Dr. Mohammad Zaid Hossain, Assistant Professor, Department Medicine, Dhaka Medical College, Dhaka
4. Dr. Hafiz Ahmed Nazmul Hakim, Resident Surgeon (Casualty), Dhaka Medical College Hospital, Dhaka
5. Dr. Atiar Rahman, Assistant Professor, Department Surgery, Dhaka Medical College, Dhaka

**Correspondence** :Dr. ABM Abdul Matin, Junior Consultant, Casualty Surgery, Dhaka Medical College Hospital, Dhaka.

In one case of cholelithiasis, pancreas was found indurated on palpation and was suggestive of chronic pancreatitis.

**Table-I***Liver morphology-per-operative findings (n=50)*

Liver	No. of Patient	Percentage
Cirrhotic	4	8
Cirrhotic/congested /enlarged	2	4
Normal	44	88

**Table-II***Liver biopsy (open wedge biopsy (n=50))*

Histopathology report of liver	No. of Patient	Percentage
Cirrrosis	4	8
C irrhotic/changes bile channels dilated in some cases bile lake, congestion	2	4
Fatty change	1	2
Normal	43	86

**Discussion:**

There is a lot of interest and research around the possible association between the cirrhosis of liver and cholelithiasis. In this series, open liver biopsy and liver function tests have been studied in patients with gall-bladder diseases undergoing laparotomy. To a greater extent, this study finds the association of cirrhosis of liver with gall stone disease. In many studies, done in abroad the association of cirrhosis of liver with gall-stone<sup>2</sup> has been found. Even in some studies, stage of cirrhosis and a etiologic type of cirrhosis<sup>3</sup> has been correlated with presence and type of stone in gall-bladder. In a study, at neroscopy<sup>4</sup>, the frequency of gall-stones was found to be 29.4% in cirrhotic group and 12.8% in the non-cirrhotic population. Gall-stones were about twice frequent in females than males in the general population<sup>5</sup>. The sex difference disappeared in cirrhotic patients<sup>6</sup>. Gall-stones increased in frequency with age in the general population but this phenomenon was not seen in the cirrhotic group<sup>7</sup>. No one

type of cirrhosis was more liable to be associated with gall-stones at necropsy<sup>8</sup>.

The incidence of gall-stones is 10-15% in general population and the incidence of gall-stones is 4-5 times higher, twice, in patients with chronic liver disease, than in the general population<sup>9</sup> and the stone is usually of pigment type<sup>10</sup>. Commonly, available liver function tests were done and these are slightly altered in patients of gall-bladder diseases in cirrhosis and are within normal limits in other patients without cirrhosis<sup>11</sup>. Of 50 cases, 6 had choledocholithiasis and out of six, two had cirrhosis suggestive of secondary biliary cirrhosis. Patients with primary biliary cirrhosis, usually have no stone in the common bile duct. All the six patients, of cirrhosis had stones. 4 had pigment stones and two had mixed stones. No cirrhotic patients had pure cholesterol stones. The metabolism of bile acids in patients with cirrhosis is markedly different from that of normal subjects. In normal subjects the bile acids are limited almost entirely to the entero-hepatic circulation, forming a well-defined bile acid pool of 2 to 4 gm. Only, very small amount of bile acids are found in peripherals blood of normal subjects<sup>12</sup>.

In contrast, patients with cirrhosis, because of impaired liver function, and significant porto-systemic shunts, have markedly elevated plasma bile acid<sup>13</sup>. This indicates that a portion of the bile acid pool in patients with cirrhosis is in the systemic spaces<sup>14</sup>. As the bile acid pool is reduced in liver cirrhosis, increased precipitation of calcium bilirubinate occurs, favouring the formation of pigment stones<sup>15</sup>. The total hepatic bilirubin secretion was found to be doubled in cirrhotics, as compared with normal subjects, a fact probably correlates with chronic haemolysis<sup>16</sup>. Another controversial issue, whether there is any difference in gallstone prevalence according to the etiology of liver cirrhosis<sup>17</sup>.

In this study, 6 patients had cirrhosis. All 6 (12%) had gallstone, of these 4 had only gall-stones and two had stones in the bile duct also. Out of 50 patients, 49 (98%), had stones. 48(96%) had gall stones and one (21%) had stones only in bile duct. Two (4%), patients had

carcinoma gall-bladder, one was nonoperable. Both the patients with carcinoma gall-bladder were associated with gall-stones.

All the 6 patients of cirrhosis had biliary stones. 4 had pigment stones and 2 had mixed pigment stones. Liver function tests were slightly altered in those patients with gall-stones associated with cirrhosis of liver.

In the present study, out of 50 cases 6 patients had cirrhosis. Two cases were secondary biliary cirrhosis with stones in the bile duct as well as in the gall-bladder. The other 4 cases had gall-stones with associated asymptomatic cirrhosis.

### Conclusion:

Many times, during laparotomy for surgical treatment of gall-stone diseases, associated liver cirrhoses have been found. It may be due to mal-nutrition, cryptogenic or sub-clinical post-necrotic viral hepatitis including HCV infection. It needs further study to answer to this question.

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