

Spectrum of Endoscopic Findings in Patients with Liver Cirrhosis due to Chronic Viral Hepatitis

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ABSTRACT

Background: Liver cirrhosis is a clinico-pathologic condition that is characterized by hepatic fibrosis, nodular regeneration, and distortion of hepatic architecture. Esophageal varices and portal hypertensive gastropathy are most common lesions found in patients with liver cirrhosis but there is variety of endoscopic findings found in patients with liver cirrhosis so the aim of study is to determine frequencies of different types of upper gastrointestinal lesions on endoscopy.

Aim: To determine frequencies of different types of upper gastrointestinal lesions on endoscopy in patients with liver cirrhosis presenting at Aziz Bhatti Shaheed Teaching Hospital Gujrat.

Methods: Observational cross sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital Gujrat from January 2015 to January 2017. 830 patients aged more than 18 years who presented liver cirrhosis due to chronic viral hepatitis were included. Frequency of different lesions like esophageal varices, fundal varices, portal hypertensive gastropathy, peptic ulcer disease and acute erosive disease were noted. Data analysis was done using SPSS 20.0.

Results: Out of 830 patients 413(49.8%) were male and 417(50.2%) were female with mean age of 52.62±10.98 years. 579(69.76%) were chronically infected with hepatitis C, 158(19.03%) with chronic hepatitis B and 93(11.21%) were co-infected with both HBV and HCV. Most common finding was esophageal varices(90.48%) followed by poortal hypertensive gastropathy(70.2%), acute erosive disease(16.39%), gastric varices(6.3%), peptic ulcer disease(2.3%), hiatus hernia(1.8%)and esophageal candidiasis(1%).

Conclusion: A vast spectrum of endoscopic findings is observed in patients with liver cirrhosis esophageal varices being most common finding.

Keywords: Liver cirrhosis, varices, chronic hepatitis, endoscopic findings

INTRODUCTION

Liver cirrhosis is a clinico-pathologic condition that is characterized by hepatic fibrosis, nodular regeneration, and distortion of hepatic architecture¹. Liver cirrhosis is a major cause of mortality and morbidity worldwide. Liver cirrhosis has a mortality rate of 33 and 37.4 per 100000 population in females and males respectively in Pakistan².

Esophageal varices and portal hypertensive gastropathy are most common lesions found in patients with liver cirrhosis although a variation in frequency have been reported in literature. The prevalence of portal hypertensive gastropathy (PHG) in cirrhotic patients has been reported to be variable, ranging between 11% and 98%, while the incidence varies from 25% to 50%^{3,4}. A study in Pakistan at People's Medical University, Shaheed Benazeerabad concluded that the portal hypertensive gastropathy was present in 60% of patients⁵. Another study

showed that esophageal varices were present in 92.9% patients with upper GI bleed and liver cirrhosis while portal hypertensive gastropathy was present in 38.9% of patients⁶.

However other endoscopic lesions have been reported in literature in patients with liver cirrhosis. One study showed lesions associated with non-variceal upper gastrointestinal bleeding in patients with liver cirrhosis include gastric ulcers, duodenal ulcers, gastroduodenal ulcers, gastroduodenal erosions, esophageal ulcers and others⁷. Another study reported that excluding varices and portal hypertensive gastropathy, endoscopic findings in the upper GI tract in patient with liver cirrhosis esophagitis, ulcers, gastritis, duodenitis, Barrett's esophagus, duodenal ulcers, and gastric ulcers⁸.

There is variety of endoscopic findings found in patients with liver cirrhosis so the aim of study is to determine frequencies of different types of upper gastrointestinal lesions on endoscopy in patients with liver cirrhosis presenting at Aziz Bhatti Shaheed Teaching Hospital Gujrat.

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MATERIALS AND METHODS

This observational cross sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital Gujrat from January 2015 to January 2017 after approval of ethical committee. 830 patients aged more than 18 years who presented liver cirrhosis due to chronic viral hepatitis were included in study after informed consent using non-probability consecutive sampling.

Patients' history was taken, clinical presentation was noted and Child Pugh Score was calculated after relevant investigations. Patients having score 5-6 were defined as Child Class A, 7-9 as Child Class B and 10-15 as Child Class C. Data was collected by using proforma and age, gender and marital status was noted. Chronic viral hepatitis was confirmed by ELISA and patients were categorized as having HCV, HBV or mixed HBV and HCV infection. Liver cirrhosis was identified using abdominal ultrasound by consultant radiologist (Toshiba Nemio 3) and patients having moderate to markedly coarse liver were classified as cirrhotic. Liver span, spleen size and presence of ascities were noted. All patients underwent either therapeutic or screening upper gastrointestinal endoscopy by consultant gastroenterologist (Pentax EPK-i 5000) and endoscopic findings were noted.

Esophageal varices were classified according to Paquet grading system¹². Varices disappearing on insufflation of air were graded as Grade I while larger, clearly visible, straight varices not disappearing on insufflation were graded as Grade II. Locally coil shaped and prominent varices, partially occupying lumen were graded as Grade III and torturous, sometimes grape like varices occupying the esophageal lumen were graded as Grade IV. Esophageal varices were further classified as small varices (Grade I & II) and large varices (Grade III & IV). Gastric varices were classified according to Sarin classification¹⁰. Gastroesophageal varices (GOVs) were classified as type 1 (GOV1) which are extension of oesophageal varices 2-5cm below gastroesophageal junction along lesser curve, whereas type 2 (GOV2) are extension of oesophageal varices towards cardia and fundus of stomach. The isolated gastric varices (IGVs) were classified as type 1 (IGV1) which are varices in the fundus of stomach in the absence of oesophageal varices, whereas isolated varices anywhere in the stomach were classified as type 2 (IGV2).

The portal hypertensive gastropathy (PHG) was classified as mild, moderate or severe. Mild reddening with absent mosaic was classified as mild, fine red speckling with mosaic as moderate and point bleeding with mosaic as severe PHG.^[11] Acute

erosive disease was considered when multiple dark brown erosions were found on endoscopy in esophagus, stomach and duodenum. Peptic ulcer disease was attributed when any stigmata of recent haemorrhage were found i.e., active arterial bleed, non-bleeding visible vessel, adherent clot, oozing or flat spot.

Data analysis was done using SPSS version 20.0. Results are expressed as mean±SD for continuous variables such as age, liver span and number (percentage) for categorical data such as gender, cirrhosis, ultrasound findings, endoscopic findings and Child Pugh Score.

RESULTS

Out of 830 patients 413(49.8%) were male and 417(50.2%) were female with mean age of 52.62±10.98 years with minimum age of 19 years and maximum age 90 years. 579(69.76%) were chronically infected with hepatitis C, 158(19.03%) with chronic hepatitis B and 93(11.21%) were co-infected with both HBV and HCV. 289(34.82%) patients presented with upper gastrointestinal bleed, 138(16.63%) with hepatic encephalopathy, 117(14.1%) with resistant ascities and were admitted in ward. 286(34.46%) patients underwent screening endoscopy referred from outdoor and were discharged the same day. All patients (100%) had moderate to marked coarse echotexture of liver on abdominal ultrasound and were considered to have liver cirrhosis and had ascities. The mean liver span was 12.53±2.03 cm and mean spleen size was 12.23±1.87 cm. 267(32.17%) were Child Class A, 328(39.52%) were Child Class B and 235(28.31%) were Child Class C. Patient characteristics are described in Table 1.

Most common endoscopic finding was esophageal varices which were present in 751(90.48%) patients while in 79(9.52%) no varices were found. Frequency of different types of esophageal varices is depicted in table 2. Gastric varices were present in 52(6.3%) patients out of which GOV1 were present in 47(5.7%) patients while GOV2 were present in 5(0.6%) patients. None of patients had IGV1 or IGV2. Portal hypertensive gastropathy (PHG) was present in 582(70.2%) patients out of mild PHG was found in 253(30.5%) patients, moderate PHG in 232(28%) and severe PHG in 97(11.7%) patients. Peptic ulcer disease was present in 19(2.3%) patients out of which gastric ulcer was present in 9(1.1%) while duodenal ulcer was present in 10(1.2%) patients. Acute erosive disease was found in 136(16.39%) patients. Gastric erosions were present in 92(11.08%) patients and most common site of erosions was antral region of stomach (68

patients). Duodenal erosions were found in 34(4.1%) while esophageal erosion were found in 10(1.2%) patients. Hiatus hernia was found in 15(1.8%) patients and esophageal candidiasis were found in 8(1%) patients.

Table 1: Patient characteristics

Gender	
Male	413(49.8%)
Female	417(50.2%)
Mean age	52.62±10.98 Years
Cause Of Liver Cirrhosis	
Chronic Hep. C	579(69.76%)
Chronic Hep. B	158(19.03%)
Both Chronic Hep B & C	93(11.21%)
Presentation	
Upper Gastrointestinal Bleed	289(34.82%)
Hepatic Encephalopathy	138(16.63%)
Resistant Ascites	117(14.1%)
OPD Referral	286(34.46%)
Ultrasound Findings	
Coarse Echotexture Of Liver	100%
Ascites	100%
Mean Liver Span	10.53±2.03 cm
Mean Spleen Size	12.23±1.87 cm
Child Pugh Class	
Child Class A	267(32.17%)
Child Class B	328(39.52%)
Child Class C	235(28.31%)

Table 2: Endoscopic findings

Esophageal Varices	90.48%
Grade I	8.8%
Grade I-II	8.2%
Grade II	22%
Grade II+III	12.4%
Grade III	13.3%
Grade III-IV	23.3%
Grade IV	2.5%
Small varices	39%
Large varices	51.5%
Portal Hypertensive Gastropathy (PHG)	70.2%
Mild PHG	20.5%
Moderate PHG	28%
Severe PHG	11.7%
Acute Erosive Disease	16.39%
Gastric Erosions	11.08%
Duodenal Erosions	4.1%
Esophageal Erosions	1.2%
Gastric Varices	6.3%
GOV1	5.7%
GOV2	0.6%
Peptic Ulcer Disease	2.3%
Gastric ulcer	1.1%
Duodenal ulcer	1.2%
Hiatus hernia	1.8%
Esophageal candidiasis	1%

DISCUSSION

In this study we evaluated the endoscopic findings in patients with liver cirrhosis and found out that esophageal varices was most common finding followed by portal hypertensive gastropathy.

Esophageal varices are most common cause of upper GI bleed and most common finding in patients with liver cirrhosis⁶ although a difference in frequency has been noted. Hadyat et al. noted the frequency of gastroesophageal varices to be 92.9% (Vs 90.48%) in patients with liver cirrhosis which is comparable to our findings however only cirrhotic patients with upper GI bleed were included in their study. Similar findings were noted by Akere et al. (96.4%)¹³ but study by Zaman et al. noted frequency of esophageal varices to be 73%. The difference may be due to small sample size in their study as well as etiologies of cirrhosis other than chronic viral hepatitis were included⁸.

The prevalence of portal hypertensive gastropathy was found to be 70.2% in this study while in patients with liver cirrhosis it has been reported to be ranging between 11% and 98%, while the incidence ranges from 25% to 50%^{3,4}. There is no similarity noted in many local studies. Ahmed et al. reported the frequency of PHG in patients with viral cirrhosis to be 83% (Vs 70.2%) while severe PHG was found in 24% (Vs 11.7%) of cases¹⁴. This difference may be due to studies conducted in different geographic areas and patients belonging to different ethnic and socioeconomic backgrounds. Hadayat et al. reported the frequency of PHG to be 38.9% in patients with cirrhosis presenting with upper gastrointestinal bleed⁶ although it is reported in literature that presence of PHG is positively correlated with grade of esophageal varices¹⁵. Abbasi et al. and Shahzad et al. reported frequency of PHG to be 79.2% and 60% respectively.

The frequency of gastric varices is reported to be 5-33% patients with portal hypertension and are less prevalent than esophageal varices¹⁰. A study conducted at Military Hospital Rawalpindi concluded that the gastric varices are present in 11% patients with portal hypertension¹⁶ while another study at Aga Khan Hospital reported frequency of gastric varices to be 15% in patients with upper gastrointestinal bleeding¹⁷ both of which are more than our findings(6.3%). The difference may be due different set of patients included in their studies.

Peptic ulcer disease was found in a small number of patients with cirrhosis in our study and both gastric and duodenal ulcers were present in equal frequency. In a study in Pakistan peptic ulcer disease was present in 10.3% (Vs 2.3%) patients with upper gastrointestinal bleeding in patients with

cirrhosis⁶. In another study peptic ulcer disease was most common etiology of upper GI bleed in case of non variceal bleed in patients with liver cirrhosis^[18]. Similar findings were found in a study by Gabr et al. in their study¹⁹. Patients included in all these studies had cirrhosis and presented with upper gastrointestinal bleeding which may be a cause of high number of patients with peptic ulcer disease in these studies as compared to this study.

Acute erosive disease of upper gastrointestinal tract was found in a large number of patients in our study (16.39%) and gastric erosions were most common finding (11.08%). Acute erosive gastritis was found in 11.25% patients in cirrhotic patients with upper GI bleeding by Romcea et al. which is comparable to our study. However studies by Hadayat et al. and D'Amico et al. found gastroduodenal erosions in 3.2% and 3.9% patients respectively. A small number of patients had hiatus hernia and esophageal candidiasis as well which may not be associated with liver cirrhosis but an incidental findings.

This study shows that a variety of endoscopic findings are observed in patients with liver cirrhosis including esophageal and gastric varices, portal hypertensive gastropathy, acute erosive gastritis and peptic ulcer disease. All patients with liver cirrhosis should undergo a screening upper GI endoscopy for correct diagnosis of gastric lesions and respective treatment. Study also shows that patient present to hospital at a late stage of liver cirrhosis. Public education at national level regarding transmission, treatment and complications of chronic viral hepatitis must be given to reduce the mortality and morbidity related to liver cirrhosis due to chronic viral hepatitis.

CONCLUSION

A vast spectrum of endoscopic findings is observed in patients with liver cirrhosis esophageal varices being most common finding followed by portal hypertensive gastropathy, acute erosive gastritis, gastric varices and peptic ulcer disease respectively.

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