



Characteristics and Endoscopy Findings of Liver Cirrhosis Patients at Waled Hospital, Cirebon, Indonesia (2020-2023)

Afifah Humaira Azahra^{1*}, Sedayu², Ahmad Fariz Malvi Zamzam Zein²

¹ Faculty of Medicine, Universitas Swadaya Gunung Jati, Indonesia,

² Department of Internal Medicine, Faculty of Medicine, Universitas Swadaya Gunung Jati, Indonesia.

*Corresponding author's e-mail: afifahhumairaaz@gmail.com

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ABSTRACT

Background: Hepatic cirrhosis is a terminal manifestation of chronic liver disease. The causes of cirrhosis in the Asia Pacific it was caused by hepatitis B. Older adults are more likely to experience complications, which might be due to abnormalities in the liver. Various complications occurred during the progression from compensated to decompensated, and endoscopic examination showed images of gastroesophageal varices or PHG.

Aims: The aim was to determine the characteristics of liver cirrhosis patients and the endoscopy findings at waled hospital from 2020 to 2023.

Methods: This research used descriptive observational methods. The sample in this study were patients with liver cirrhosis at Waled hospital from 2020-2023, there were 135 sample who were selected using total sampling techniques. Information was acquired from medical records of 33 patients who met the consideration rules.

Results: This study showed that the largest number of patients with liver cirrhosis based on age 45 years old (12.1%), predominantly male (72.7%), with the etiology hepatitis B (69.7%), and all (100%) were in decompensated stage. Endoscopy results revealed that the majority of patients experiences esophageal varices and PHG (54.5%), with grade 3 esophageal varices (81.8%) and mild grade PHG (60.6%) dominating.

Conclusion: The majority of patients with liver cirrhosis were 45 years old, predominantly male, with the most common etiology hepatitis B, and all were in the decompensated stage. The most common endoscopy results showed esophageal varices and PHG, with grade 3 esophageal varices and mild grade PHG.

Keywords: *Liver cirrhosis, Endoscopy findings, Gastroesophageal varices, Portal hypertensive gastropathy.*

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1. Introduction

The last stage of diffuse progressive liver fibrosis is known as liver cirrhosis, and it is marked by the production of regenerating nodules and deformation of the liver architecture. Blood vessels in the gaster and esophagus may dilate or varices when the liver architecture deteriorates and vascularization rises. The last stage of chronic liver disease is cirrhosis. During the progression from compensated to decompensated phase, various complication arise, and the prognosis significantly worsens (Afzal, Tarar, and Shah 2018; Setiati, Alwi, and Sudoyo 2014). The etiology of hepatic cirrhosis is highly varied. The three most prevalent causes in the Western world are non-alcoholic fatty liver disease (NAFLD), hepatitis C, and alcohol. On the other hand, hepatitis B virus is the primary cause of (Huang et al. 2023).

According to the 2017 Global Burden of Disease (GBD) study, it was estimated that there were 112 million cases of compensated cirrhosis and 10.6 million cases of decompensated cirrhosis globally (Devarbhavi et al. 2023).

The most common side effects of hepatic cirrhosis include liver cancer, hepatorenal syndrome, ascites, spontaneous bacterial peritonitis, esophageal variceal hemorrhage, portal hypertension, and hepatic encephalopathy. Complications brought on by the diseases advancement might worsen the prognosis and further impair liver function (Setiati et al. 2014). Endoscopic examinations are necessary to determine the presence of any complications. Endoscopic imaging of patients with liver cirrhosis reveals the most frequent lesion found are esophageal varices and portal hypertensive gastropathy (Afzal et al. 2018).

A study conducted at Ibnu Sina Hospital Makassar from 2018 to 2021 identified 55 patients diagnosed with hepatic cirrhosis, with the majority being male (65.5%) and female (35.5%), predominantly in the age group of 51-60 years (45.5%). Hepatitis B was leading the cause (54.5%), and the most frequent complication was ascites (38.2%) (Amalia et al. 2023). Epidemiology data on hepatic cirrhosis in Indonesia remain scarce. In the Cirebon region, there is currently no available data regarding the characteristics and endoscopic outcomes of patients with hepatic cirrhosis at Waled Hospital.

Due to the lack of information on the characteristics of liver cirrhosis patients, particularly in Cirebon, the purpose of this study is to ascertain the characteristics and endoscopy findings on patients with the disease at Waled Hospital.

2. Methods

Study design/ Research procedures

This study employed a descriptive observational methos. The sample consisted of cirrhotic patients at Waled Regional General Hospital from 2020 to 2023, selected using a total sampling technique. Information was taken from 33 individual's medical records who met the inclusion criteria, which were as follow: diagnosed with liver cirrhosis, medical records containing data on age, gender, cirrhosis stage, etiology, and endoscopic findings. Both inpatients and outpatients provided samples for this research, which had no age restriction. Patients with hemochromatosis related liver cirrhosis and those with inadequate medical record data were excluded, resulting in 102 unusable data. The Waled Regional General Hospital Health Research Ethics Committee granted ethical approval to this study, with number 000.9.2/051/KEPK/V/2024, on May 21th 2024.

Measurements

The sole variable in this study was the examination of patient characteristics (age, gender, etiology, cirrhosis stage) and the endoscopic findings of cirrhosis patients (based on location and grade). The data used in this study were secondary data derived from medical records of cirrhotic patients treated at Waled Regional General Hospital, Cirebon, from 2020 to 2023.

Statistical techniques

Univariate analysis assessed the frequency distribution and percentage of patient characteristics and endoscopic findings. The data were then presented narratively and in tabular form.

3. Results

Out of 135 medical records reviewed, only 33 met the inclusion criteria with the remaining 102 excluded due to incomplete data. The patient's features in this study were reported in terms of age, sex, etiology, stage, and endoscopic findings.

Table 1. Respondent's Characteristics

Variables	N	%
Age		
≤30	1	3.0
31-40	4	12.1
41-50	10	30.3
51-60	10	30.3
≥61	8	24.2
Sex		
Male	24	72.7
Female	9	27.3
Etiology		
Hepatitis B	23	69.7
Hepatitis C	2	6.1
Alcohol	1	3.0
DM	5	15.2
Hepatitis B, DM	2	6.1
Stage		
Compensated	0	0
Decompensated	33	100
Endoscopic Findings by location		
No Varices	1	3.0
Esophageal varices	2	6.1
Fundal varices	0	0
Portal hypertensive gastropathy	0	0
Esophageal varices, Portal hypertensive gastropathy	18	54.5
Esophageal varices, Fundal varices, Portal hypertensive gastropathy	12	36.4
Esophageal Varices Grade		
Grade 1	2	6.1
Grade 2	3	9.1
Grade 3	27	81.8
Absent	1	3.0
Portal Hypertensive Gastropathy Grade		
Mild	20	60.6
Severe	10	30.3
Absent	3	9.1
Total	33	100.0

According to Table 1 the data shows that there is 1 (3.0%) patient under 30 years with cirrhosis, 4 (12.1%) patients between 31 and 40 years, 10 (30.3%) patients between 41 and 50 years, 10 (30.3%) patients between 51 and 60 years, and 8 (24.2%) patients above 61 years. Most cirrhotic patients were male, with 24 patients (72.7%), followed by female patients with 9 patients (27.3%). The primary etiology was hepatitis B, affecting 23 patients (69.7%), followed by diabetes mellitus (DM) in 5 patients (15.2%), hepatitis C in 2 patients (6.1%), hepatitis B with DM in 2 patients (6.1%), and alcohol in 1 patient (3.0%). All cirrhotic patients were in the decompensated stage, accounting for 33 patients (100%). Those esophageal varices and portal hypertensive gastropathy, which affected 18 patients (54.5%) of cirrhotic patients were the most common conditions. Patients with esophageal varices, fundal varices, and portal hypertensive gastropathy, which affected 12 patients (36.4%) came next. Two patients (6.1%) only had esophageal varices, and 1 patient (3.0%) did not present with varices. The most cirrhotic patients with esophageal varices were in grade 3, affecting 27 patients (84.4%), followed by grade 2 in 3 patients (9.4%), and grade 1 in 2 patients (6.3%). The majority of cirrhotic patients with portal hypertensive gastropathy were in the mild grade, affecting 20 patients (66.7%), followed by the severe grade in 10 patients (33.3%).

Table 2. Cross tabulation between age and sex with cirrhosis liver

Endoscopic Findings								
		No Varices	Esophageal Varices	Fundus Varices	Portal Hypertensive Gastropathy	Esophageal Varices, Portal Hypertensive Gastropathy	Esophageal Varices, Fundus Varices, Portal Hypertensive Gastropathy	Total
≤30	N	0	1	0	0	0	0	1
	%	0.0	3.0	0.0	0.0	0.0	0.0	3.0
31-40	N	0	1	0	0	2	1	4
	%	0.0	3.0	0.0	0.0	6.1	3.0	12.1
41-50	N	1	0	0	0	3	6	10
	%	3.0	0.0	0.0	0.0	9.1	18.2	30.3
51-60	N	0	0	0	0	7	3	10
	%	0.0	0.0	0.0	0.0	21.2	9.1	30.3
≥61	N	0	0	0	0	6	2	8
	%	0.0	0.0	0.0	0.0	18.2	6.1	24.3
Male	N	1	2	0	0	13	8	24
	%	3.0	6.1	0.0	0.0	39.4	24.2	72.7
Female	N	0	0	0	0	5	4	9
	%	0.0	0.0	0.0	0.0	15.2	12.1	27.3
Total	N	1	2	0	0	18	12	33
	%	3.0	6.1	0.0	0.0	54.6	36.3	100

According to Table 2, esophageal varices are endoscopic findings at ≤30 years of age. The most common endoscopic findings in group over 30 are esophageal varices and portal hypertensive gastropathy. The age group of 41-50 years has the highest endoscopic findings of esophageal varices, fundal varices, and portal hypertensive gastropathy. The majority of portal hypertensive gastropathy and esophageal varices occur in male and in one male patient, varicose veins were not present. And the endoscopic results in female were esophageal varices, portal hypertensive gastropathy, and esophageal varices, fundal varices, portal hypertensive gastropathy.

4. Discussion

According to this study, the majority of the 33 patients with liver cirrhosis at Waled regional Hospital were between the ages of 41 and 50 and between the ages of 51 and 60. These results are consistent with research by Sarah et al. that found individuals over 40 had a higher risk developing liver cirrhosis, with 33 patients (86.8%) and Mutia et al., which found that the highest frequency distribution was in the 51-60 years age group (Amalia et al. 2023; Virma Sarah Gita et al. 2023).

Liver can shrink up to one-third of its initial volume as a result of these modifications, which also include a decreased hepatic blood flow, the deterioration of the sinusoidal vascular system, and reduced bile acid secretion. Furthermore, the number of hepatocytes, Kupffer cells and sinusoidal capillaries decrease with age.

Additionally, hepatocytes decrease, and fibrosis and steatosis risk rise. The aging process, oxidative stress, and mitochondrial homeostasis all cause the liver become less effective in responding to these stimuli, which increases the likelihood of fibrosis in elderly people (Carrier et al. 2019). Other factors, aside from the age-related decline in liver function, such a chronic recurrent liver injury can lead to inflammation and fibrosis. Increasing the risk of cirrhosis at a younger age (Smith, Baumgartner, and Bositis 2019). Older adults are more likely to experience complications, which might be due to abnormalities in the liver (Carrier et al. 2019).

The findings in this study also showed that hepatitis B was the most common etiology of liver cirrhosis, which is in line with the study by Sarah et al., where hepatitis B was the cause in 28 (73.7%) of patients. Similarly, Mutiara et al., found hepatitis B to be the most prevalent cause of liver cirrhosis, accounting for 30 patients (54.5%) (Amalia et al. 2023; Virma Sarah Gita et al. 2023). This is explained by the endemic nature of hepatitis B virus infection in Africa and the Asia Pacific area. Hepatitis B is the most common cause of liver cirrhosis in the Asia Pacific region. An estimated 20 million individuals in Indonesia are thought to have hepatitis, with hepatitis B having the highest frequency. According to CDA Foundation, in 2016 there were 51.100 annual hepatitis B death in Indonesia. From an asymptomatic persistent condition to chronic hepatitis, which may ultimately result in cirrhosis, is the progression of hepatitis B infection. Every year, about 3% of people with chronic hepatitis go on to develop cirrhosis (Huang et al. 2023).

Due to their delayed diagnosis and treatment, all of the cirrhosis patients in this study were in the decompensated stage, which is in line with findings from Mutiara et al. study, which showed that 46 (83.6%) of 55 patients were in this stage (Amalia et al. 2023). Individuals with decompensated liver cirrhosis have a variety of symptoms as a result of reduced hepatic function, which may ultimately result in jaundice or other consequences. In contrast, patients with compensated liver cirrhosis typically have no symptoms at all (Pallio et al. 2023). Delays in diagnosis might be caused by a patient's disdain for symptoms that have already appeared or by financial limitations.

The majority of cirrhotic patients in this research exhibited portal hypertensive gastropathy (PHG) and esophageal varices, with grade 3 esophageal varices and mild grade portal hypertensive gastropathy according to the endoscopic data. This finding is consistent with the study at Royal Prima General Hospital Medan suffered from esophageal varices alongside other complications. The esophageal and gastric veins may widen as portal pressure and blood flow rise. Additionally, portal hypertension damages the gastric mucosal and submucosal layers, depriving the gastric mucosal cells of enough blood and oxygen. In patients with liver cirrhosis, portal hypertension is caused by two factors: increased portal blood flow and raised intrahepatic vascular resistance. Intrahepatic vascular resistance rises when the liver architecture is damaged. Damaged from chronic liver disease and intrahepatic endothelial dysfunction lead to the activation of smooth muscle, stellate cells, and myofibroblasts in the portal blood arteries as well as a deficiency of nitric oxide, an intrahepatic vasodilator. Meanwhile, those with liver cirrhosis have more endogenous vasodilators, which dilates the splanchnic blood flow to the portal. Therefore, the worse the liver function in those with liver cirrhosis, the higher the portal pressure, which eventually results in esophageal varices (Adnyasuputra et al. 2024; Kalista et al. 2019; Wu et al. 2022). Furthermore, portal hypertension impairs the blood supply to the stomach mucosa, reducing the mucosa defensive system. This might account for the varices and PHG endoscopic results. There is a greater chance of bleeding and bigger varicose veins with higher portal vein pressure (Adnyasuputra et al. 2024; Wu et al. 2022).

This study has some limitations, including time constraints, as the data collection process took a significant amount of time, a tiny sample size could not accurately represent the findings and not all medical records contained complete information. To properly explain the findings, more study with a bigger sample size and other factors is anticipated.

5. Conclusion

In conclusion, the characteristics of cirrhotic patients at Waled Regional General Hospital from 2020 to 2023 were predominantly those aged 45, accounting for 4 patients (12.1%). The majority of cases occurred in males, with 24 patients (72.7%), and hepatitis B was the most frequent etiology, affecting 23 patients (69.7%). All patients were in the decompensated stage (33 patients, 100%). Endoscopic findings showed that the most

common complications were esophageal varices and portal hypertensive gastropathy, affecting 18 patients (54.5%). Most patients with esophageal varices were classified as grade 3 (27 patients; 81.8%), while most patients with portal hypertensive gastropathy were classified as mild grade (20 patients; 60.6%). The age group of 41-50 years has the highest endoscopic findings of esophageal varices, fundus varices, and portal hypertensive gastropathy. To properly explain the findings, more study with a bigger sample size and other factors is anticipated. Health services are designed to educate the public about the significance of hepatitis vaccination and early screening for people with liver cirrhosis in order to avert consequences. Therefore, it is anticipated that the public will receive a hepatitis vaccination, lead a healthy lifestyle, and receive full treatment for cirrhosis in order to avoid other difficulties.

Conflict of Interest

There is no conflict of interest.

References

- Adnyasuputra, Made Agung, I. Ketut Mariadi, Ni Made, Renny Anggreni Rena, I. Made, and Pande Dwipayana. 2024. "Hubungan Riwayat Konsumsi Alkohol, Ukuran Varises, Derajat Sirosis Hati Terhadap Perdarahan Varises Esofagus Pada Pasien Sirosis Hati Di RSUP Prof. I Goesti Ngoerah Gde Ngoerah." *Intisari Sains Medis | Intisari Sains Medis* 15(1):408-13 <https://doi.org/10.15562/ism.v15i1.1995>
- Afzal, Muhammad, Shahida Husain Tarar, and Syed Muhammad Ali Shah. 2018. "Spectrum of Endoscopic Findings in Pasien with Liver Cirrhosis Due to Chronic Viral Hepatitis." *Pakistan Journal of Medical and Health Sciences* 12(1):10-13.
- Amalia, Mutiara, Prema Hapsari Hidayati, Andi Kartini Eka Yanti, Sri Vitayani, and Sri Wahyuni Gayatri. 2023. "Karakteristik Pasien Sirosis Hepatis." *UMI Medical Journal* 8(1):53-61. <https://doi.org/10.33096/umj.v8i1.244>
- Carrier, Paul, Marilyne Dabette-Gratien, Jérémie Jacques, and Véronique Loustaud-Ratti. 2019. "Cirrhotic Patients and Older People." *World Journal of Hepatology* 11(9):663-77. <https://doi.org/10.4254/wjh.v11.i9.663>
- Devarbhavi, Harshad, Sumeet K. Asrani, Juan Pablo Arab, Yvonne Ayerki Nartey, Elisa Pose, and Patrick S. Kamath. 2023. "Global Burden of Liver Disease: 2023 Update." *Journal of Hepatology* 79(2):516-37. <https://doi.org/10.1016/j.jhep.2023.03.017>
- Huang, Daniel Q., Norah A. Terrault, Frank Tacke, Lise Lotte Gluud, Marco Arrese, Elisabetta Bugianesi, and Rohit Loomba. 2023. "Global Epidemiology of Cirrhosis - Aetiology, Trends and Predictions." *Nature Reviews Gastroenterology and Hepatology* 20(6):388-98. <https://doi.org/10.1038/s41575-023-00759-2>
- Kalista, Kemal Fariz, Cosmas Rinaldi Adithya Lesmana, Andri Sanityoso Sulaiman, Rino Alvani Gani, and Irsan Hasan. 2019. "Profil Klinis Pasien Sirosis Hati Dengan Varises Esofagus Yang Menjalani Ligasi Varises Esofagus Di Rumah Sakit Dr. Cipta Mangunkusumo." *Jurnal Penyakit Dalam Indonesia* 6(1):36. <https://doi.org/10.7454/jpdi.v6i1.300>
- Pallio, Socrate, Giuseppinella Melita, Endrit Shahini, Alessandro Vitello, Emanuele Sinagra, Barbara Lattanzi, Antonio Facciorusso, Daryl Ramai, and Marcello Maida. 2023. "Diagnosis and Management of Esophagogastric Varices." *Diagnostics* 13(6). <https://doi.org/10.3390/diagnostics13061031>
- Setiati, Siti, Idrus Alwi, and Aru W. Sudoyo. 2014. *Buku Ajar Ilmu Penyakit Dalam*.
- Smith, Andrew, Katrina Baumgartner, and Christopher Bositis. 2019. "Cirrhosis: Diagnosis and Management." *American Family Physician* 100(12):759-70.
- Virma Sarah Gita, Adelin Prima, and Mona Letvi. 2023. "Karakteristik Pasien Sirosis Hepatis Di Rumah Sakit Dr. Achmad Mochtar Bukittinggi Periode Tahun 2018 - 2020." *Jurnal Kedokteran Nanggroe Medika* 6(1):6.
- Wu, Ran, Kunyi Liu, Chengyi Shi, Hui Tian, and Na Wang. 2022. "Risk Factors for Portal Hypertensive Gastropathy." *BMC Gastroenterology* 22(1):1-7. <https://doi.org/10.1186/s12876-022-02468-7>

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