Advanced Research in Gastroenterology & Hepatology
ISSN: 2472-6400

Research Article
Volume 22 Issue 4- June 2026
DOI: 10.19080/ARGH.2026.22.556094

Adv Res Gastroentero Hepatol

Upper Gastrointestinal Lesions In Cirrhotic Patients: A Descriptive Study At Idrissa Pouye General Hospital, Dakar

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Submission: June 10, 2026 **Published:** June 23, 2026

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Abstract

Background: Liver cirrhosis is a major public health concern, particularly in sub-Saharan Africa where viral hepatitis B remains highly prevalent. Upper gastrointestinal lesions are frequent in cirrhotic patients and include both portal hypertension-related lesions and unrelated mucosal abnormalities, which may complicate management, especially in the setting of gastrointestinal bleeding.

Aim: To describe the spectrum of upper gastrointestinal lesions in cirrhotic patients at a tertiary care hospital in Dakar, distinguishing between lesions related and unrelated to portal hypertension.

Methods: We conducted a descriptive study including cirrhotic patients managed at Idrissa Pouye General Hospital. Diagnosis of cirrhosis was based on clinical, biological, imaging, and endoscopic criteria. Data were collected using a standardized form including demographic, clinical, biological, radiological, and endoscopic variables.

Results: Among the 61 included cirrhotic patients, 60 presented with upper digestive lesions at upper gastrointestinal endoscopy (98%). Upper gastrointestinal lesions were identified in 98% of patients. The mean age was 42.3 years, with a marked male predominance (sex ratio 2.6). Digestive bleeding was the main presenting symptom (59%), followed by ascites (44.3%). Endoscopic findings were dominated by esophageal varices (93.4%) and portal hypertensive gastropathy (37.7%). Non-portal hypertensive lesions included peptic ulcers (9.8%), gastritis, and iatrogenic lesions. No significant correlation was found between cirrhosis severity and the presence or grade of lesions.

Conclusion: Upper gastrointestinal lesions are highly prevalent among patients with cirrhosis. Systematic endoscopic evaluation remains essential for optimal management.

Keywords: Cirrhosis; Portal hypertension; Esophageal varices; Endoscopy; Senegal

Abbreviations: HVPG: Hepatic Venous Pressure Gradient; NSAIDs: Non-Steroidal Anti-Inflammatory Drugs; GDU: Gastro-Duodenal Ulcers

Introduction

Liver cirrhosis is a chronic liver disease characterized by diffuse fibrosis and nodular regeneration leading to architectural distortion and impaired hepatic function. It represents a major cause of morbidity and mortality worldwide, accounting for over one million deaths annually [1]. In sub-Saharan Africa, the burden of cirrhosis is particularly high due to the endemicity of viral hepatitis B and C [2]. Portal hypertension is one of the most serious complications of cirrhosis and is defined by an increase in the porto-systemic pressure gradient. It leads to the development of collateral circulation, including esophageal and gastric varices, and to mucosal abnormalities such as portal hypertensive gastropathy [3,4]. However, upper gastrointestinal lesions in cirrhotic patients are not limited to portal hypertension-related conditions. Non-related lesions such as peptic ulcers, gastritis, and neoplastic lesions are also frequently encountered and may significantly

influence prognosis and management [5]. The coexistence of these lesions complicates clinical management, particularly in cases of gastrointestinal bleeding. Therefore, upper gastrointestinal endoscopy remains a key diagnostic and therapeutic tool. This study aimed to describe the spectrum of upper gastrointestinal lesions in cirrhotic patients at Idrissa Pouye General Hospital, Dakar, distinguishing lesions related to portal hypertension from those unrelated to it.

Patients and Methods

This study was a descriptive cross-sectional study with retrospective data collection, conducted at Idrissa Pouye General Hospital (HOGIP) in Dakar, Senegal, a tertiary referral center with a specialized hepatogstroenterology and endoscopy unit. The study was carried out over a period from January 2023 to December 2025, including consecutive cirrhotic patients managed during routine clinical practice. The study population consisted of patients diagnosed with liver cirrhosis based on a combination of clinical, biological, radiological, and/or endoscopic criteria. Clinical features suggestive of chronic liver disease, such as ascites or signs of portal hypertension, associated with biological abnormalities (hypoalbuminemia, coagulation disorders, cytolysis or cholestasis) and imaging findings (nodular or heterogeneous liver, signs of portal hypertension), were used to establish the diagnosis. Endoscopic evidence of portal hypertension, including esophageal or gastric varices, further supported the diagnosis. Patients were included regardless of age or sex, provided that they had a confirmed diagnosis of cirrhosis and had undergone an upper gastrointestinal endoscopy with interpretable results. Patients with incomplete medical records or non-interpretable endoscopic findings were excluded.

Data were collected retrospectively from medical records using a standardized form. The variables analyzed included sociodemographic characteristics (age, sex), clinical presentation (digestive bleeding, ascites, comorbidities), biological parameters (liver function tests, prothrombin time, albumin, hemoglobin, viral serology), imaging findings (ascites, liver morphology, nodules), and endoscopic results. Endoscopic lesions were classified into two categories: those related to portal hypertension, including esophageal and gastric varices and portal hypertensive gastropathy, and those unrelated to portal hypertension, such as peptic ulcers, gastritis, and other lesions. The severity of cirrhosis was assessed using the Child-Pugh classification, allowing patients to be categorized into three stages of increasing severity. Quantitative variables were expressed as mean values with ranges, and qualitative variables as frequencies and percentages. The relationship between cirrhosis severity and the presence of digestive lesions was explored. Patient confidentiality was ensured by anonymizing all data, in accordance with ethical standards for retrospective studies.

Results

A total of 61 cirrhotic patients meeting the inclusion criteria were analyzed. Upper gastrointestinal lesions were identified in 60 patients (98%). The mean age of the patients was 42.3 years, with the most represented age group being between 36 and 55 years. A marked male predominance was observed, with a sex ratio of 2.6. Clinically, the presentation was largely dominated by complications of portal hypertension and hepatic insufficiency. Upper gastrointestinal bleeding was the most common presenting circumstance, occurring in 59% of patients. Ascites was identified in 44.3% of cases. Additionally, a history of phytotherapy use was reported in 9.8% of patients, suggesting potential exposure to hepatotoxic substances that may have contributed to disease progression. Biological examinations revealed hypoalbuminemia in 49.2% of patients, along with a decreased prothrombin rate in 52.5%. Anemia was particularly prevalent, affecting 80% of patients, and was multifactorial in nature. Cytolysis was noted in 68% and cholestasis in 53%. The etiology of cirrhosis was primarily viral hepatitis B, with HBsAg positivity in 62.3%. Abdominal imaging revealed a heterogeneous liver appearance in 14.7% of cases and a homogeneous appearance in 8.2%, with dysmorphism observed in 37.7% of patients. Portal hypertension was present in 37.7% of cases, splenomegaly in 40.9%, hepatomegaly in 9.8%, portal trunk dilation in 13.1%, and portal thrombosis in 9.8%. Ascites was identified in 44.3% of cases.

Endoscopic exploration demonstrated a high prevalence of upper gastrointestinal lesions among the patients included in the study, with only one patient exhibiting a normal upper gastrointestinal endoscopy, underscoring the high frequency of endoscopic anomalies in this clinical context. Esophageal varices were the primary lesion observed, found in 93.4% of patients. Portal hypertensive gastropathy was also common, present in 37.7% of cases (Table 1). In addition to lesions directly attributable to portal hypertension, the upper gastrointestinal endoscopy revealed a range of non-specific abnormalities in 23 patients. Among these, gastro-duodenal ulcers were observed in 9.8% of cases, distributed between bulbar ulcers (6.5%) and gastric ulcers (3.3%). Gastritis, both erosive (11.5%) and non-erosive (8.2%), was also identified. More rarely, the endoscopy revealed lesions such as erythematous bulbitis, peptic esophagitis, the presence of Plummer-Vinson rings, and various atypical mucosal signs. All these results are presented in Table 2. A Child-Pugh score of class A was found in 30% of patients, while 44% were classified as Child-Pugh B. The association between the Child-Pugh score and the presence or grade of digestive lesions was analyzed using Pearson's Chi-squared test, with a significance threshold set at $p < 0.05$. No statistically significant correlation was found between the severity of cirrhosis (Child-Pugh A, B, or C) and the presence of upper gastrointestinal lesions ($p = 0.51$), nor with their grade ($p = 0.31$).

How to cite this article: Mamadou Ngone G, El Hadj Abdou Aziz A, Gnagna Diouf1, Salamata D, Marieme Polele F, et al. Upper Gastrointestinal Lesions In Cirrhotic Patients: A Descriptive Study At Idrissa Pouye General Hospital, Dakar. Adv Res Gastroentero Hepatol, 2026; 22(4): 556094.
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Table 1: Distribution of Upper Gastrointestinal Lesions Related to Portal Hypertension.

Endoscopic Lessions	Percentage (%)	Number of Patients (n)
Esophageal varices	93.4	58
Gastric varices	19.7	12
Red signs	8.2	5
Portal hypertensive gastropathy	37.7	23

Table 2: Distribution of Upper Gastrointestinal Lesions Unrelated to Portal Hypertension.

Endoscopic Lesions	Percentage (%)	Number of Patients (n)
Gastroduodenal ulcer	9.8	6
Non-erosive gastritis	11.5	7
Erosive gastritis	8.2	5
Erythematous duodenitis (bulbitis)	3.3	2
Peptic esophagitis	1.6	1
Esophageal ulcer	1.6	1
Plummer–Vinson rings	3.3	2
Antral red spots	1.6	1
Esophageal erythematous patches	1.6	1
Post-banding stenosis	1.6	1
Duodenal polyp	1.6	1
Cardia insufficiency	1.6	1

Discussion

In our study, the mean age of cirrhotic patients was 42.3 years, with a range from 17 to 78 years. These results are consistent with those reported by Guèye M et al., who found a mean age of 43 years [6]. In Mali, Diarra et al. also reported an estimated mean age of 41.5 years [7]. These data confirm that, in sub-Saharan African countries, cirrhosis occurs more frequently in younger individuals . In contrast, in Western and Asian countries, the reported mean ages for cirrhotic patients are significantly higher. This disparity may be explained, on one hand, by the younger demographic structure of African populations [8-10], and on the other hand, by the predominance of hepatitis B as the primary etiology, which generally progresses to cirrhosis more rapidly. In our study, clinical manifestations were dominated by gastrointestinal hemorrhages, observed in 67.2% of patients. This frequency, markedly higher than those reported by Ouavene et al. (17.5%) [11], can be attributed to several factors. Firstly, our facility serves as a referral center, receiving a significant proportion of patients already in a decompensated cirrhosis stage and presenting with hemorrhagic complications at the time of admission. Secondly, during the study period, only three endoscopy centers were operational in public hospitals in Dakar, which led to an influx of patients to our service and contributed to the elevated prevalence of observed gastrointestinal hemorrhages.

In our series, esophageal varices were the most frequently observed endoscopic lesions, with a prevalence of 93.4%. This frequency is high but remains within the range reported in the literature, where rates vary from 46.6% to 92.9% according to different authors [12,13]. This high prevalence may be explained by a hospital recruitment focused on cases of decompensated cirrhosis, particularly those admitted for gastrointestinal hemorrhage, as well as by the predominance of severe portal hypertension in our population related to delayed diagnosis. Gastric varices were found in 19.7% of patients. Gastric varices are generally less common than esophageal varices in cirrhotic patients due to anatomical and hemodynamic differences. The esophageal veins, located at the porto-caval junction, are the first to be affected by portal hypertension, promoting the formation of varices at this level. In contrast, gastric varices require more complex shunts and often appear in specific contexts, such as splenic thrombosis. Their detection may also be more challenging during endoscopy, contributing to their underestimation.

Portal hypertensive gastropathy (PHG) was present in 37.7% of cases. This rate is similar to those reported by Hadayat et al. (38.9%) [13] and Emam et al. (42.9%) [14] and significantly higher than that observed by Diarra et al. (15.8%) [7]. These discrepancies may reflect differences in the stages of cirrhosis, the duration of portal hypertension, or the quality of endoscopic

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examinations. Gastro-duodenal ulcers (GDUs) were observed in 9.8% of patients in our series, distributed as 3.3% gastric ulcers and 6.6% bulbar ulcers. This prevalence is comparable to that reported by Hadayat et al. (10.3%) [13], but remains lower than rates observed in other studies, notably those of Del Olmo (18.7%) [12]. Conversely, Diarra et al. in Mali reported a particularly low frequency of 1.8% [7]. These discrepancies may be explained by several factors. Firstly, the consumption of non-steroidal anti-inflammatory drugs (NSAIDs) and alcohol, known to promote ulcerative lesions, varies according to sociocultural contexts and local therapeutic habits. Secondly, infection with Helicobacter pylori, which is strongly implicated in the genesis of GDUs, has a high prevalence in Africa, but its role in cirrhotic patients remains debated, with some authors suggesting a lesser involvement in this specific context.

Furthermore, the conditions under which endoscopies are performed influence the detection of ulcerative lesions. Examinations conducted in emergencies, often in a hemorrhagic context, may limit the quality of exploration and lead to an underestimation of lesions. In our series, the majority of cirrhotic patients were classified as stage B according to the Child-Pugh score (39.3%), while stage C, corresponding to advanced hepatic insufficiency, accounted for 19.7% of cases. These results are in agreement with several African series, which report a predominance of stages B and C [6,15]. In contrast, European studies show an inverse trend, with a majority of patients classified as stage A according to Child-Pugh [16,17], reflecting relatively preserved hepatic function. This difference can be attributed to distinct management contexts: in resource-limited countries, cirrhosis is often diagnosed late, at the stage of decompensation, due to limited access to specialized care, a lack of systematic screening, and late consultation by patients. Conversely, in high-income countries, surveillance strategies for at-risk populations (chronic liver diseases, alcoholism, viral hepatitis) allow for earlier identification of the disease, often before complications arise.

Moreover, the statistical analysis did not reveal a significant association between the Child-Pugh score and the presence or grade of upper gastrointestinal lesions. However, it should be noted that our study has certain limitations, particularly a small sample size, which may influence the statistical power of the results.

These observations align with recent literature, which highlights that the Child-Pugh score, while excellent for assessing overall prognosis and residual liver function, is not the best indicator of the hemodynamic complications of portal hypertension. Several studies suggest that measuring portal pressure via the hepatic venous pressure gradient (HVPG) constitutes a more sensitive and specific tool for predicting the onset and progression of esophageal varices, portal hypertensive gastropathies, or gastric varices. Garcia-Tsao et al. demonstrated that the risk of gastrointestinal hemorrhage related to portal hypertension is closely linked to the level of portal pressure, rather than strictly to the Child-Pugh score, although the latter remains a good marker of mortality risk [18].

Conclusion

This study highlights the very high prevalence of upper gastrointestinal lesions in cirrhotic patients, largely dominated by portal hypertension-related abnormalities, particularly esophageal varices. The coexistence of non–portal hypertension-related lesions further underscores the complexity of digestive involvement in cirrhosis and the need for comprehensive endoscopic evaluation. The absence of a clear association between disease severity and lesion occurrence supports the need for endoscopic screening in cirrhotic patients. In our setting, improving early diagnosis, access to antiviral therapy, and endoscopic care remains essential to reduce complications and improve outcomes.

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