Case Report ISSN 2639-9334

Gastroenterology, Hepatology & Digestive Disorders

A Case of Huge Nodular Regenerative Hyperplasia of Liver Combined with Epatolithiasis and Choledocholithiasis with Obstructive Cholangitis

Xiang Feng[1,2] and Peng Liu[1]*

[1]*Department of Radiology, The First Affiliated Hospital of Hunan Normal University (Hunan Provincial People's Hospital), No. 61 Jiefang West Road, Changsha, Hunan, China.*

[2]*Department of Radiology, Women & Children's Hospital of Hunan, No. 626, Tanzhou Avenue, Changsha, Hunan Province, China.*

***Correspondence:**

Peng Liu, MD, Department of Radiology, The First Affiliated Hospital of Hunan Normal University (Hunan Provincial People's Hospital), No. 61 Jiefang West Road, Changsha, Hunan, China, Phone: +86-15874886724.

Received: 10 Aug 2025; **Accepted:** 19 Sep 2025; **Published:** 30 Sep 2025

Citation: Xiang Feng, Peng Liu. A Case of Huge Nodular Regenerative Hyperplasia of Liver Combined with Epatolithiasis and Choledocholithiasis with Obstructive Cholangitis. Gastroint Hepatol Dig Dis. 2025; 8(4): 1-4.

ABSTRACT

Nodular Regenerative Hyperplasia (NRH) of liver is a rare benign primary liver disease in clinical practice. The pathogenesis is considered to be reactive hyperplasia of liver cells in response to hepatic microvascular injury, and most of NRH are considered to be related to autoimmune diseases, drugs, infections, etc. The NRH features showed diffuse nodular changes in liver parenchyma without fibrotic changes, or solitary nodules in liver. Clinically, it is often misdiagnosed as cirrhosis with regenerative nodules, hepatic adenoma, and Focal Nodular Hyperplasia (FNH) of the liver. In the background of specific liver disease, it is even easily misdiagnosed as malignant liver tumors, such as Hepatocellular Carcinoma (HCC). At present, Although the knowledge and detection rates of NRH have increased in clinical, the published articles are still dominated by case reports, and there is no report on the relationship between NRH and hepatolithiasis. This study reports the case of a 59-year-old female patient admitted to our hospital because of multiple intrahepatic and extrahepatic bile duct stones accompanied by obstructive cholangitis, and found a huge Nodular regenerative hyperplasia of liver. The patient recovered well after Endoscopic Retrograde Cholangiopancreatography (ERCP) to relieve bile duct obstruction, and was advised to follow up the liver mass in a specialist outpatient clinic after discharge to prevent NRH complications.

Keywords

Noducar regenerative hyperplasia, Non-cirrhotic portal hypertension, cirrhosis, obstructive cholangitis.

Abbreviations

NRH: Nodular Regenerative Hyperplasia, FNH: Focal Nodular Hyperplasia, HCC: Hepatocellular Carcinoma, ERCP: Endoscopic Retrograde Cholangiopancreatography, CT: Computed Tomography, MRI: Magnetic Resonance Imaging.

Case Report

A 59-year-old female patient had a history of cholecystectomy 34 years ago and undergone hepatolithiasis surgery 7 years ago. she presented with right upper abdominal paroxysmal pain 10 days before admission, and went to a local hospital for treatment, Abdominal Computed Tomography (CT) revealed mass in the right lobe of liver, hepatolithiasis and choledocholithiasis, cirrhoshowssis, and splenomegaly. After symptomatic treatment such as anti-infection, liver protection, the patient's pain was relieved. Finally, the patient came to our hospital for further diagnosis and treatment. The patient had repeated right upper abdominal pain, the pain was more intense and there was no significant change in body weight since the onset of the disease. After admission, the patient was generally in good condition, with a body temperature of 36.5℃, yellow skin and sclera in the whole body, slight tension in the right upper abdominal muscles, tenderness in the right upper abdomen with rebound pain, and positive Murphy sign. The biochemical data were as follows: Red blood cell count 3.40×10^{12}/L, hemoglobin 106g/L, white blood cell count 5.38×10^{9}/L, neutrophil count 3.58×10^{9}/L, lymphocyte count 1.37×10^{9}/L, eosinophils count 0.1×10^{9}, Platelet count 138×10^{9}/L, C reactive protein count 10.24mg/L, total bilirubin 146.46umol/L, direct bilirubin 123.5umol/L, indirect bilirubin 20.95umol/L, total protein 63.09g/L, albumin 31.09g/L, globulin 32g/L. Abnormal

liver function index: alanine aminotransferase 86.7U/L, aspartate aminotransferase 172.5U/L, total bile acid 41.8umol/L. The serological markers of hepatitis B virus were not detected, the carbohydrate antigen 125 was slightly increased, and the remaining tumor markers were negative. The patients underwent abdominal ultrasound, abdominal CT and Magnetic Resonance Imaging (MRI), the results showed cirrhosis, the overall shape of the liver was irregular, the echo was uneven or the density was uneven, the proportion of the liver lobe was imbalanced, the volume of the spleen was increased, the fluid can be seen in the abdominal cavity. In addition, multiple thickened and tortuous collateral vessels were seen around the fundus of the stomach. Abdominal CT and MRI showed dilatation of intrahepatic and external bile duct lumen, multiple stones in the dilated bile duct lumen, and thickening and strengthening of bile duct wall, which suggested inflammatory infiltration around bile duct. Radiologists found a mass with a size of about 6cm×6cm×5cm at the junction of segent4/8 in the liver, the internal density or signal were relatively uniform, showing mild uniform enhancement, and the degree of enhancement was lower than that of the same level of liver parenchyma. The left hepatic vein and the middle hepatic vein were compressed, and there was no obvious sign of invasion of the internal and adjacent hepatic vessels of the mass. According to the above imaging findings, radiologists give priority to liver mass as focal nodular hyperplasia of the liver. The clinician decided to perform a needle biopsy of the liver mass for the patient, the pathological findings were nodular regenerative hyperplasia (hepatic nodular degeneration): Hepatocyte (+), GS-6 mottle (+), Glypican-3 (-), p53 (wild type), Ki67 (+), CK7, CK19 bile duct (+), CD34 blood vessel (+), CD10 (-). At present, the patient had severe obstructive jaundice symptoms, after anti-infection and other treatments, Endoscopic Retrograde Cholangiopancreatography (ERCP) was performed to remove multiple intrahepatic and extrahepatic bile duct stones, and a nasal bile duct was placed in the hilar bile duct to drain bile. The surgical process was successful. The liver segent 4/8 junction mass was not surgically resected for the time being, and the patient was advised to follow up and review in the specialist clinic after recovery.

Discussion

NRH is a rare clinical condition and the main cause of non-cirrhotic portal hypertension, Liver biopsy is the gold standard for NRH diagnosis [1,2]. Clinically, NRH is often associated with autoimmune, hematological diseases, immune deficiencies, infections, tumors, myeloproliferative diseases and drug causes, its pathogenesis is considered to be the reactive proliferation of liver cells to the damage of liver microvessels [3,4]. Imaging findings of hepatosplenomegaly with diffuse nodular changes in the liver often lead to misdiagnosis of cirrhosis. Another manifestation is solitary hepatic nodules with vascular malformations and small bile duct hyperplasia. Due to the lack of characteristic imaging findings, it is often misdiagnosed as hepatic adenoma, focal nodular hyperplasia of the liver, regenerative nodules, and in people with a specific history of liver disease, NRH is even misdiagnosed as a malignant liver tumor. The difference between NRH and cirrhosis in histology is that NRH is a diffuse proliferative lesion of the liver without fibrosis, and the liver retains its synthetic function [5-7]. So, the prognosis of patients with NRH is usually better than that of patients with cirrhosis. Because the treatment and prognosis of NRH is different from that of cirrhosis and primary malignant tumors of the liver, clinical diagnosis is necessary [8,9].

The incidence of hepatolith is higher in East Asian countries, which can be secondary to gallstones, or caused by benign stenosis, primary sclerosing cholangitis, choledochal cyst or malignant biliary tumor. Most cases of hepatolith are associated with recurrent suppurative cholangitis. Recurrent cholangitis can cause bile duct wall damage and periductal inflammatory cell infiltration, lmmune cholangitis mainly involves infiltration of lymphocytes and plasma cells, while obstructive or infectious cholangitis mainly involves infiltration of neutrophils and eosinophils. Recurrent cholangitis can also lead to cirrhosis and even liver failure, and chronic inflammation of the bile duct epithelium may even lead to malignant liver tumors [10-12].

The patient had a history of chronic liver disease for decades. He was readmitted for severe upper abdominal pain and yellow staining. Imaging examination not only found multiple stones and cholangitis in the intrahepatic and extrahepatic bile ducts, but also found space-occupying lesions at the junction of the left and right lobes of the liver. Because the patient had biliary cirrhosis, clinicians suspected the possibility of HCC. It is well known that most HCC occurs in patients with a history of cirrhosis or hepatitis B. For patients who meet the clinical diagnostic criteria for HCC, diagnostic needle biopsy is usually not required, and the preferred treatment is surgical treatment or liver transplantation. Although this patient has high risk factors for HCC, combined with imaging data and clinical laboratory tests, it does not support HCC or diagnose other liver malignancies. The patient underwent liver biopsy and the pathological result was NRH. Isolated NRH is a benign liver tumor without any clinical significance, and although hepatocellular carcinoma, cholangiocarcinoma, and angiosarcoma have been reported in patients with NRH, but NRH is not considered precancerous. At present, the main method of clinical management of NRH is to prevent and treat the complications of portal hypertension. Chronic bile duct disease and hepatocyte degeneration due to recurrent episodes of suppurative cholangitis may be the underlying cause of NRH in this patient, whose present symptoms are aggravated by obstructive cholangitis. Because NRH is not common in clinical practice, and there is no typical clinical and imaging manifestations, the diagnosis of NRH may be missed or misdiagnosed, and the occurrence of misdiagnosis will have different degrees of impact on the treatment and prognosis of patients. We have expanded the cases of benign lesions with isolated hepatic space occupying in the context of chronic liver disease. With the increasing discovery and attention of NRH, whether there is a correlation between hepatic lithiasis and NRH is still worthy of further verification.

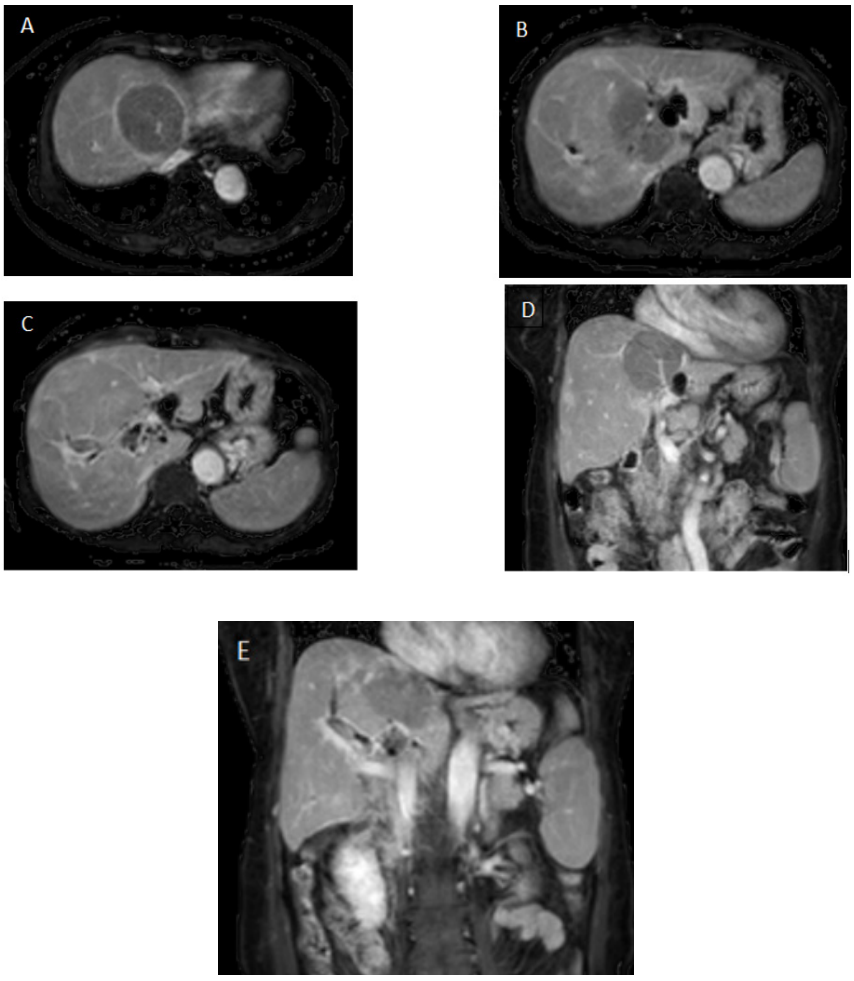
References

1. Nunes-Santos CJ, Koh C, Rai A, et al. Nodular regenerative hyperplasia in X-linked agammaglobulinemia: An

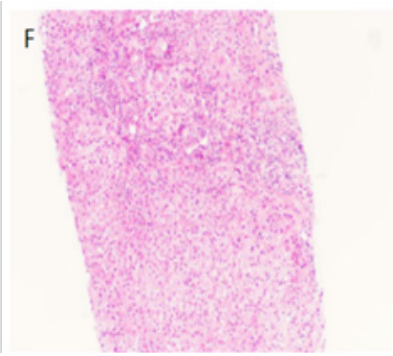
underestimated and severe complication. J Allergy Clin Immunol. 2022; 149: 400-409.e3.

2. Bakshi N, Gulati N, Rastogi A, et al. Nodular regenerative hyperplasia - An under-recognized vascular disorder of liver. Pathol Res Pract. 2020; 216: 152833.
3. Reshamwala PA, Kleiner DE, Heller T. Nodular regenerative hyperplasia: not all nodules are created equal. Hepatology. 2006; 44: 7-14.
4. Hartleb M, Gutkowski K, Milkiewicz P. Nodular regenerative hyperplasia: evolving concepts on underdiagnosed cause of portal hypertension. World J Gastroenterol. 2011; 17: 1400-1409.
5. Horita T, Tsutsumi A, Takeda T, et al. Significance of magnetic resonance imaging in the diagnosis of nodular regenerative hyperplasia of the liver complicated with systemic lupus erythematosus: a case report and review of the literature. Lupus. 2002; 11: 193-196.
6. Ames JT, Federle MP, Chopra K. Distinguishing clinical and imaging features of nodular regenerative hyperplasia and large regenerative nodules of the liver. Clin Radiol. 2009; 64: 1190-1195.
7. Guo T, Qian JM, Zhu LM. Zhonghua Gan Zang Bing Za Zhi. 2010; 18: 230-231.
8. Sarin SK, Khanna R. Non-cirrhotic portal hypertension. Clin Liver Dis. 2014; 18: 451-476.
9. Piao C, Koul A, Gui D, et al. Noncirrhotic Portal Hypertension Secondary to Nodular Regenerative Hyperplasia Postrenal Transplant. ACG Case Rep J. 2019; 6: e00257.
10. Zhu KL, Li DY, Jiang CB. Primary squamous cell carcinoma of the liver associated with hepatolithiasis: a case report. World J Gastroenterol. 2012; 18: 5830-5832.
11. Lavenant-Borja MI, Fernández-Rivero J, Pachuca-González D, et al. Hepatolithiasis with secondary cholangitis and supernumerary left hepatic lobe. Ann Hepatol. 2013; 12: 966-968.
12. Zhang Jp. Pathological diagnosis of cholestatic liver disease. J Clin Hepatol. 2024; 40: 1093-1099.

Supplementary Figures



A-E: MRI enhancement scan showed a regular mass with a size of about 6cm*6cm*5cm at the junction of segent4/8 in the liver, the degree of enhancement was lower than that of the same level of liver parenchyma.
A, D: The left hepatic vein and the middle hepatic vein were compressed and the blood vessels in the mass were not invaded.
B, C, E: Hepatolithiasis and choledocholithiasis, inflammatory infiltration around bile duct.



F: Histology of punctured liver masses.

© 2025 Xiang Feng, et al. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License