

Lemmel's Syndrome in an Elderly Patient with Recurrent Biliary Obstruction: A Detailed Case Report

Shivaom Chaurasia¹, Umid Kumar Shrestha¹

¹ Nepal Medicti Hospital, Department of Gastroenterology and Hepatology, Lalitpur, Bagmati, Nepal

Keywords: Lemmel's syndrome, perampullary duodenal diverticulum, biliary obstruction, ERCP, cholangitis



This work is licensed under a Creative Commons Attribution 4.0 Unported License.

Abstract

Lemmel's syndrome, an uncommon cause of obstructive jaundice due to a perampullary diverticulum, can pose significant diagnostic and therapeutic challenges. This report describes an 80-year-old male who presented with right upper quadrant pain and jaundice. Initial cross-sectional imaging, including contrast-enhanced Computed Tomography and Magnetic Resonance Cholangiopancreatography, demonstrated marked dilation of the bile ducts and distal common bile duct narrowing without any discernible intraluminal lesion. A large diverticulum near the ampulla of Vater was also identified, and tumor markers were negative, which led to us suspecting Lemmel's syndrome. Endoscopic retrograde cholangiopancreatography with sphincterotomy yielded temporary symptom relief and normalization of liver function tests. However, the patient experienced recurrent postprandial pain and abnormal liver enzymes shortly thereafter, both of which resolved spontaneously with conservative management. These findings confirmed the diagnosis of Lemmel's syndrome, underscoring the importance of a high index of clinical suspicion, advanced imaging modalities, and a multidisciplinary approach in elderly patients with anatomical variations. This case highlights the need for a thorough investigation of refractory biliary obstruction and emphasizes the role of careful follow-up to optimize patient outcomes.

Introduction

Periampullary duodenal diverticula are relatively common incidental findings on imaging studies, yet they can occasionally lead to significant pancreaticobiliary complications, including cholangitis, pancreatitis, and mechanical biliary obstruction^{1,2}. When such a diverticulum causes extrinsic compression of the distal CBD, the clinical picture is called Lemmel's syndrome^{3,4}. Although noninvasive modalities such as MRCP help delineate biliary anatomy⁵, ERCP remains the cornerstone for diagnosis and therapeutic intervention. The Tokyo Guidelines 2018 provide essential criteria for diagnosing and managing acute cholangitis, guiding both antibiotic therapy and endoscopic management in these patients^{6,7}. Here, we present a case that illustrates the diagnostic challenges and management decisions in a patient with Lemmel's syndrome.

Case Presentation

An 80-year-old male presented in our hospital with acute-onset epigastric pain without vomiting or fever. He denied previous biliary surgery or known gallstones. His medical history included hypertension. The patient was hemodynamically stable, but physical examination revealed mild jaundice and tenderness in the epigastrium. Initial laboratory results showed elevated alkaline phosphatase (320 U/L), total bilirubin (2.8 mg/dL), and mild transaminitis. Magnetic Resonance Cholangiopancreatography revealed distal common bile duct narrowing without any stones, masses or intrahepatic duct

dilation; however, a periampullary duodenal diverticulum was also noted. Contrast-enhanced computed Tomography confirmed the diverticulum and distal CBD narrowing but showed no evidence of malignancy or lymphadenopathy.

Based on the clinical history, laboratory reports and imaging findings, Endoscopic retrograde cholangiopancreatography was performed, which revealed a sizeable periampullary diverticulum measuring 23 mm near the ampulla of Vater. The CBD was dilated to 16.8 mm, with a tight distal stricture preventing cannulation. A limited sphincterotomy was performed. The patient was started on intravenous antibiotics per Tokyo Guidelines 2018 for suspected cholangitis⁶.

*Corresponding Author:

Dr Umid Kumar Shrestha

Nepal Medicti Hospital

Department of Gastroenterology and Hepatology

Lalitpur, Bagmati, Nepal

Email: umidshrestha@gmail.com

The patient's jaundice initially resolved following sphincterotomy, but he developed recurrent postprandial epigastric pain associated with mild jaundice and deranged liver function tests. These symptoms suggested intermittent biliary obstruction caused by extrinsic compression from the diverticulum, consistent with Lemmel's syndrome⁸. The patient was advised to follow a low-fat diet to minimize postprandial distension of the diverticulum and reduce symptoms.

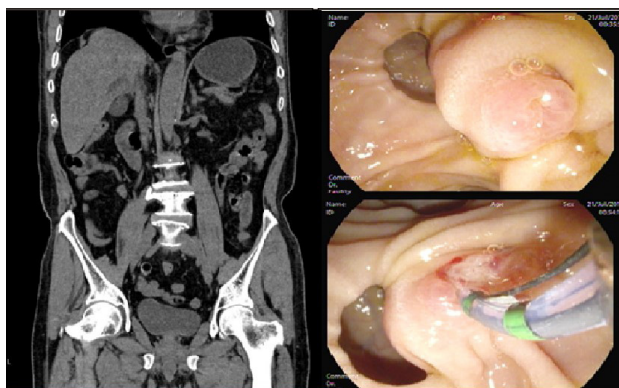


Figure 1: MRCP image showing distal common bile duct narrowing and a perampullary diverticulum; Figure 2: Side-viewing endoscopy showing a juxtapapillary diverticulum next to the papilla; Figure 3 : Side-viewing endoscopy showing sphincterotomy

Discussion

Periampullary diverticula are generally asymptomatic but can occasionally precipitate pancreaticobiliary complications. In this case, the diverticulum caused extrinsic compression of the distal CBD, leading to recurrent biliary obstruction and cholangitis. MRCP is a valuable, noninvasive diagnostic tool that can accurately delineate biliary anatomy and detect associated diverticula⁵. However, ERCP remains the gold standard for diagnosis and therapeutic intervention despite technical challenges when a diverticulum is present^{1,3}.

The Tokyo Guidelines 2018 provide a standardized approach to diagnosing and grading the severity of acute cholangitis, advocating prompt initiation of antibiotic therapy alongside endoscopic management^{6,7}. Although sphincterotomy can alleviate the obstruction temporarily, recurrent symptoms may occur if the diverticulum continues to exert pressure on the CBD^{3,4}. In such cases, alternative endoscopic strategies (including single-operator cholangioscopy for targeted biopsy of indeterminate strictures⁸ or endoscopic ultrasound-guided biliary drainage after failed ERCP⁹ have been explored. Furthermore, long-term endoscopic management of biliary strictures—such as the staged placement of multiple stents—has yielded favourable outcomes in selected patients¹⁰.

The clinical significance of duodenal diverticula is further supported by studies demonstrating their association with pancreaticobiliary diseases^{1,11}. Although the current case did not involve complications such as duodenal diverticulitis² or PEG-related issues¹², awareness of these entities is essential in the comprehensive management of patients with biliary pathology.

Conclusion

This case highlights the diagnostic and therapeutic challenges associated with Lemmel's syndrome. A multimodal approach

incorporating noninvasive imaging (MRCP and CT) and invasive endoscopic techniques (ERCP with sphincterotomy) is essential for accurate diagnosis and initial management. Nonetheless, persistent extrinsic compression by a periampullary diverticulum may lead to recurrent symptoms, warranting a combination of endoscopic intervention and conservative measures such as dietary modification. Awareness of the condition and its management options is crucial in optimizing patient outcomes.

Author Contributions

Shivaom Chaurasia: conceptualisation, writing- original draft, writing – review, and editing. Umid Kumar Shrestha: conceptualisation, supervision, writing – review and editing.

Ethics Statement

The authors have nothing to report.

Consent

Written informed consent regarding the publication of the case was acquired from the patient.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

No funding was received for this study

Data Availability Statement

All information is given in the text, other supplementary information can be obtained via email from the corresponding author.

References

1. Lobo DN, Balfour TW, Ifthikhar SY, et al. Periampullary diverticula and pancreaticobiliary disease. *Br J Surg.* 1999;86(5):588–97.
2. Gore RM, Ghahremani GG, Kirsch MD, et al. Diverticulitis of the duodenum: clinical and radiological manifestations of seven cases. *Am J Gastroenterol.* 1991;86(8):981–5.
3. Loffeld RJLF, Dekkers PEP. The Impact of Duodenal Diverticuli and the Execution of Endoscopic Retrograde Cholangiopancreatography. *Int Sch Res Not.* 2016;2016:5026289.
4. Zoepf T, Zoepf DS, Arnold JC, et al. The relationship between juxtapapillary duodenal diverticula and disorders of the biliopancreatic system: analysis of 350 patients. *Gastrointest Endosc.* 2001;54(1):56–61.
5. Griffin N, Wastle ML, Dunn WK, et al. Magnetic resonance cholangiopancreatography versus endoscopic retrograde cholangiopancreatography in the diagnosis of choledocholithiasis. *Eur J Gastroenterol Hepatol.* 2003;15(7):809–13.
6. Kiriya S, Kozaka K, Takada T, et al. Tokyo Guidelines 2018: diagnostic criteria and severity grading of acute cholangitis (with videos). *J Hepato-Biliary-Pancreat Sci.* 2018;25(1):17–30.
7. Lan Cheong Wah D, Christophi C, Muralidharan V. Acute cholangitis: current concepts. *ANZ J Surg.* 2017;87(7–8):554–9.

8. Navaneethan U, Hasan MK, Lourdusamy V, et al. Single-operator cholangioscopy and targeted biopsies in the diagnosis of indeterminate biliary strictures: a systematic review. *Gastrointest Endosc.* 2015;82(4):608-614.e2.
9. Poincloux L, Rouquette O, Buc E, et al. Endoscopic ultrasound-guided biliary drainage after failed ERCP: cumulative experience of 101 procedures at a single center. *Endoscopy.* 2015;47(9):794-801.
10. Costamagna G, Pandolfi M, Mutignani M, et al. Long-term results of endoscopic management of postoperative bile duct strictures with increasing numbers of stents. *Gastrointest Endosc.* 2001;54(2):162-8.
11. Psathakis D, Utschakowski A, Müller G, et al. Clinical significance of duodenal diverticula. *J Am Coll Surg.* 1994;178(3):257-60.
12. Lynch CR, Fang JC. Prevention and management of complications of percutaneous endoscopic gastrostomy (PEG) tubes. *Pract Gastroenterol.* 2004;28:66-76.