

**BEYOND GALL STONES: RECOGNIZING LEMMEL SYNDROME IN BILIARY OBSTRUCTION****Dr. GunnalaSnigdhaReddy¹, Dr.SubashReddy², Dr.G.RamakrishnaReddy³, Dr.R.Naveen⁴,
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DOI: <http://dx.doi.org/10.24327/ijrsr.20251605.0055>**ARTICLE INFO****Article History:**Received 15th April 2025Received in revised form 27th April 2025Accepted 14th May 2025Published online 28th May 2025**Key words:**

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ABSTRACT

Lemmel syndrome, characterized by biliary and pancreatic duct obstruction secondary to a periamplary duodenal diverticulum (PAD), remains a rare and often overlooked diagnosis, which can lead to a variety of gastrointestinal and biliary complications. This condition is often associated with obstructive jaundice, intermittent abdominal pain, cholangitis, and pancreatitis, resulting from the mechanical obstruction or compression of the biliary and pancreatic ducts. The pathophysiology behind Lemmel Syndrome is thought to involve the anatomical diverticulum causing disruption in normal bile and pancreatic fluid flow, leading to secondary biliary stasis and inflammation.

The accuracy of diagnosis was made possible by multimodal imaging methods, such as ultrasound, magnetic resonance cholangiopancreatography (MRCP), and computed tomography (CT) with oral contrast.

Management of Lemmel Syndrome typically involves relieving biliary obstruction and addressing the diverticulum's associated complications. Therapeutic approaches may include endoscopic interventions, such as sphincterotomy or stent placement, or surgical resection in more severe cases.

This case report aims to increase awareness of Lemmel Syndrome, emphasizing the importance of early recognition, accurate radiologic assessment, and appropriate management. Given the rarity of this condition, further research and clinical studies are needed to develop standardized diagnostic and treatment protocols, ultimately improving patient outcomes in individuals affected by Lemmel Syndrome.

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INTRODUCTION

Lemmel syndrome, first described by Lemmel in 1934 is a rare condition characterized by a periamplary duodenal diverticulum (PAD) causing extrinsic compression and obstruction of the biliary and pancreatic ducts.

Duodenal diverticula are common, only about 5% of these cases result in the type of obstruction seen in Lemmel syndrome. Its infrequent occurrence, diverse clinical presentations, and nonspecific symptoms often lead to considerable diagnostic

delay, with many cases initially misattributed to more common biliary or pancreatic pathologies.

The limited literature on Lemmel syndrome, primarily consisting of case reports and small case series, highlights the need for analysis of individual cases to enhance our understanding of its clinical spectrum, diagnostic challenges, and optimal management strategies.

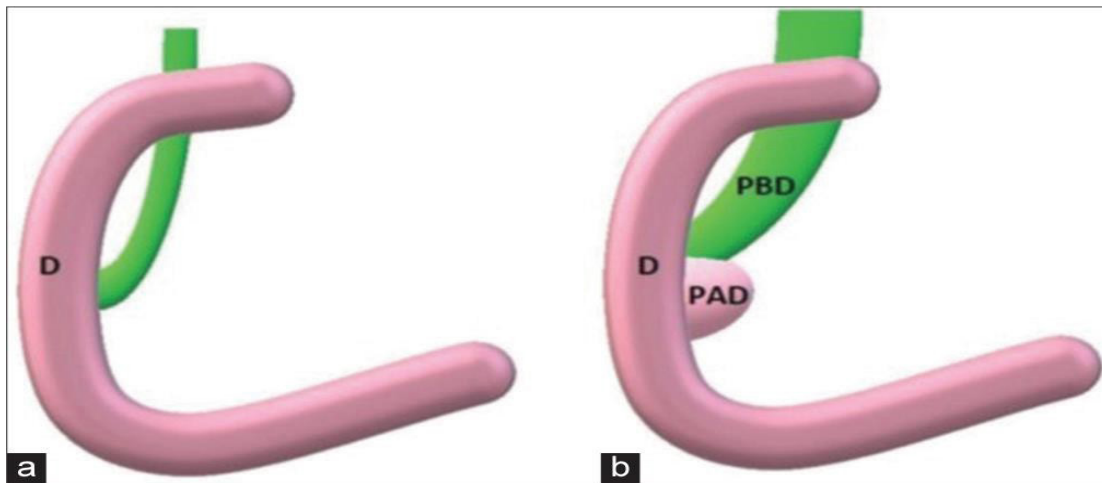
DISCUSSION

A 69 years old male presented with history of intermittent high grade fever since one month associated with chills and rigors. History of on and off intermittent jaundice since one month. History of decreased appetite associated with weight loss of 3kgs.

CBPs showed anemia with Hb8.3 and leukocytosis.

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The schematic representation of perampullary diverticulum (PAD). (a) The normal size of PBD which joins to the ampulla of Vater, marking the entry point of bile into the second part of the duodenum. (b) Extrinsic Compression of The Biliary Tract by the PAD causing PBD dilatation. PBD: bile duct, PAD: Periampullary duodenal diverticulum, d: duodenum.

LFT showed elevated ALP-650. Bilirubin was in the normal limits at the time of presentation. Viral markers were negative. CRP was 106.

On Ultrasound gallbladder was not visualized with significantly dilated common bile duct (CBD), abrupt tapering just proximal to the ampulla of Vater raising suspicion of obstruction. However, the ultrasound did not reveal any stones in the CBD or gross lesions in the pancreatic head.

To further investigate the cause of CBD dilatation in the absence of a distal calculus or a peri-ampullary mass, a CT scan was performed.

The plain CT scan identified a suspicious periampullary region diverticulum containing air foci. Given this finding, Lemmel syndrome was suspected, and subsequent CT with oral contrast clearly demonstrated a small periampullary duodenal diverticulum with internal air foci arising from the second part of the duodenum, compressing CBD extrinsically, with resultant upstream dilatation of CBD and mild IHBR dilatation was noted in the liver.

MRCP and upper abdominal MRI confirmed the medial periampullary duodenal diverticulum and the extrinsic compression of the CBD, causing the upstream dilatation of the CBD with mild IHBR dilatation in both lobes of liver.

No evidence of flow voids were noted in the CBD. The pancreas was normal.

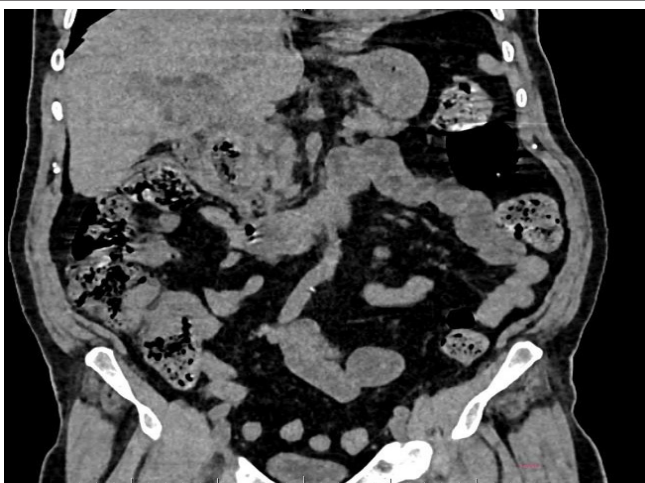
No Significant Intra-abdominal lesions findings seen.

Patient was referred to higher center where he underwent ERCP, which revealed Dilated CBD with the periampullary diverticulum.

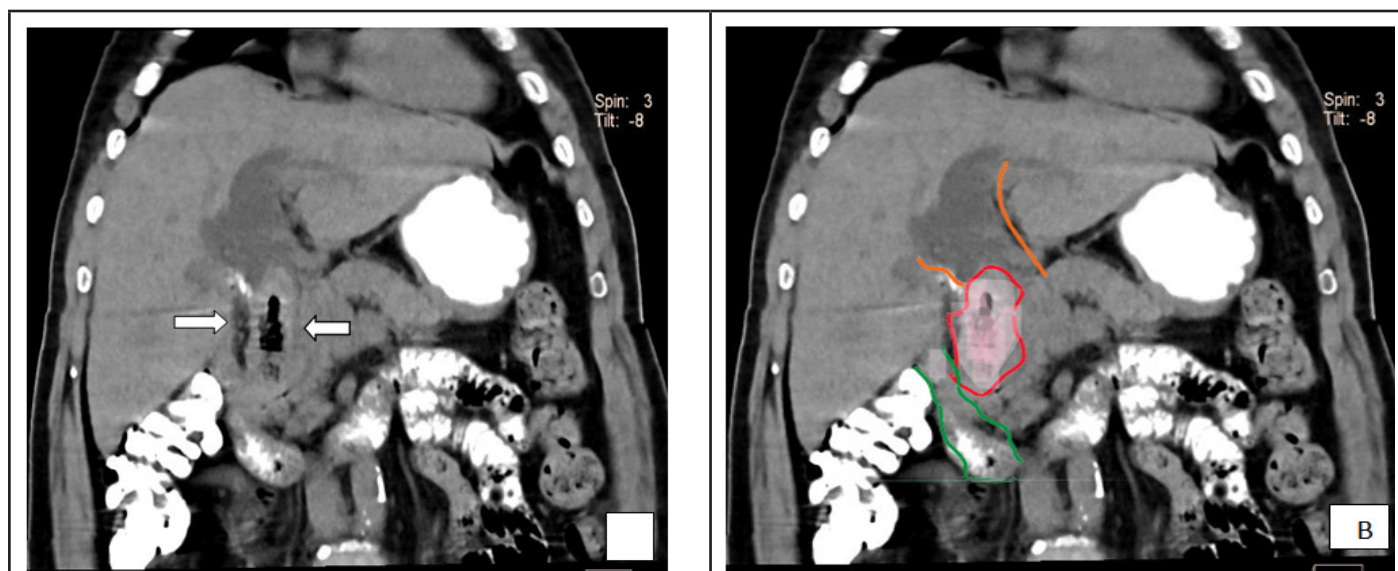
The case was advised for sphincterotomy after settling the cholangitis and is being closely followed up.

CONCLUSION

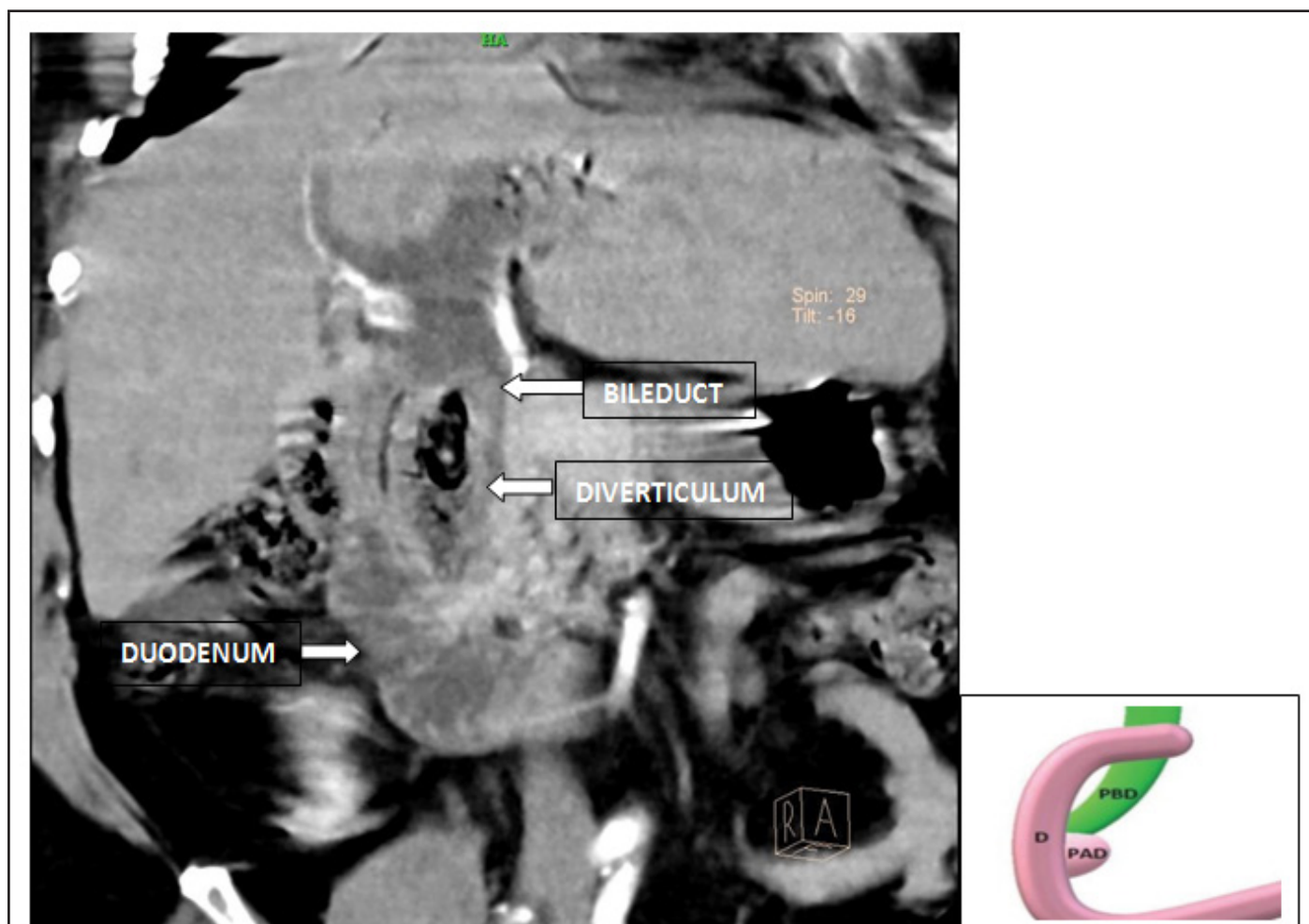
This case emphasizes the importance of diagnostic significance and the use of advanced imaging techniques when investigating suspected biliary obstruction without an apparent cause. Lemmel syndrome should be considered as a potential diagnosis.



Non-contrast CT abdomen sagittal and coronal reformatted images showing -hypodense lesion (arrows) with internal air foci arising from the medial wall of the distal second part/proximal third part of the duodenum. The terminal CBD in the retro-pancreatic portion is compressed with resultant severe dilatation of proximal and mid CBD with maximum diameter measuring 3 cms.



CORONAL REFORMAT HD IMAGES (A and B)-with positive oral contrast administrations showing the perampullary duodenal diverticulum(arrows) (A) with accompanying annotated illustration (B) demonstrating the perampullary diverticulum (red highlight) with internal air foci arising from the medial wall of the distal second part/proximal third part of the duodenum (green), compressing the CBD extrinsically (orange).



Contrast coned-down image at the level of the second and third part of the duodenum-Periampullary duodenal diverticulum causing compression on the CBD. (On the left corner animated image illustrating the perampullary duodenal diverticulum)

sis when biliary dilation is observed in the absence of calculi or mass lesions. MRCP and CT imaging played a crucial role in identifying the PAD compressing the distal bile duct, confirming the diagnosis of Lemmel syndrome.

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