

Duodenal Diverticulum Causing Lemmel Syndrome

Diagnosis by computed tomography

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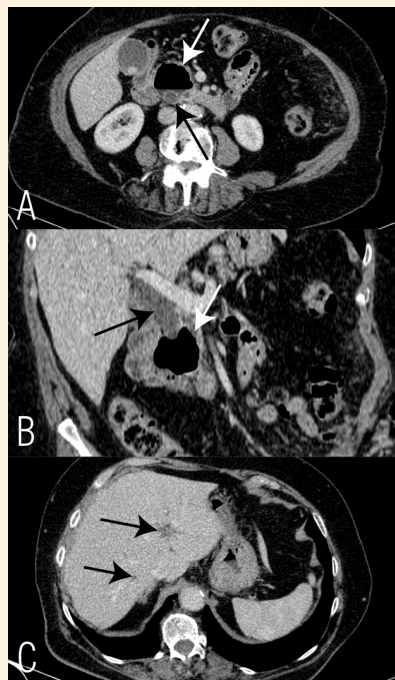


Figure 1: Contrast-enhanced computed tomography (CT) scans in (A) axial and (B) coronal sections of an 81-year-old female patient showing a periamпуляр duodenal diverticulum (white arrow) and dilation of the common bile duct (black arrow). Contrast-enhanced CT in the (C) axial section showing ectasia upstream of the intrahepatic bile ducts (black arrows).

AN 81-YEAR-OLD FEMALE PATIENT PRESENTED to a local hospital in São Bento do Sul, Brazil in 2023 for a post-operative follow-up. She had undergone a partial colectomy for rectal neoplasia 9 years earlier and reported feeling clinically well, with her colostomy functioning properly; 3 years later, she had had a parastomal hernia repair. She had been receiving regular follow-up care for rectal cancer, which was treated in 2015 with a terminal colostomy, radiotherapy and chemotherapy. Additionally, she had been diagnosed with diabetes and hypertension. She was on metformin, atenolol, puran T4 and simvastatin. A computed tomography (CT) scan of her abdomen revealed a duodenal diverticulum compressing the common bile duct, causing dilation upstream and of the intrahepatic bile ducts [Figure 1]. As the patient was asymptomatic and had a history of neoplasia under follow-up with no signs of complications, it was

decided to continue with annual follow-ups using CT scans. Patient consent for publication purposes was obtained.

Comment

Lemmel syndrome is a rare and underdiagnosed condition characterised by a diverticulum in the duodenum that can compress the common bile duct or ampulla of Vater. This compression blocks the passage of bile, leading to dilation of the bile ducts causing obstructive jaundice.¹ The syndrome presents considerable diagnostic challenges due to its insidious nature and vague symptoms, such as right upper quadrant abdominal pain and jaundice, which are associated with biliary obstruction but without evidence of choledocholithiasis. Lemmel syndrome can manifest in 3 different ways depending on the

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location of the main duodenal papilla. Although it is associated with obstructive jaundice, it is often diagnosed in the absence of these symptoms, as in the current case, and may present with obstructive gastroparesis.²

The most frequent manifestations of Lemmel syndrome are abdominal pain, jaundice, nausea, vomiting, gastric fullness and changes in intestinal functioning. However, symptoms can vary and not all patients present with all these symptoms. This variability can lead to confusion with other pathologies, resulting in misdiagnosis.³

The presence of diverticula in the duodenum can increase the likelihood of gallstone formation and the risk of choledocholithiasis.⁴ Lemmel syndrome is typically diagnosed using imaging tests such as CT scans and endoscopic ultrasound, which can detect the periampullary duodenal diverticulum. Laboratory tests often show elevated leukocytes, inflammatory markers, total and direct bilirubin and liver enzymes. However, it is important to consider other causes of obstructive jaundice in the differential diagnosis.⁵

One of the most significant challenges is interpreting contrast-enhanced CT findings, as a duodenal diverticulum may go unnoticed, especially in the absence of gallstones or other obvious abnormalities. In such cases, magnetic resonance cholangiopancreatography is a more sensitive option.⁵ Extramural diverticula, as seen in the current case report, are acquired due to a herniation of the duodenum through a duodenal wall muscular defect possibly due to neovascularisation of the duodenal mucosa.³ Additionally, CT scans can be used to study the walls and contents of these lesions and look for signs of complications, carcinoma and effects on the biliopancreatic junction.⁶

Conservative or surgical treatment is necessary only for symptomatic periampullary duodenal diverticula, as its complications, although rare, can be very serious. For biliopancreatic and haemorrhagic complications, endoscopic treatment is the preferred option. Indirect surgical treatment involves bilioenteric bypass or duodenal exclusion, while direct surgical treatment involves diverticulectomy.⁵

AUTHORS' CONTRIBUTION

All authors contributed equally to the conceptualization and design, data collection and analysis, as well as drafting and revising the manuscript. All authors approved the final version of the manuscript.

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