

CASE REPORT

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A duodenal diverticula causing a Lemmel syndrome: A case report

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ABSTRACT

Introduction: Lemmel syndrome corresponds to cholestatic disease secondary to compression of the main bile duct by a periampullary duodenal diverticulum. **Case Report:** We report a new case of Lemmel syndrome, caused by a periampullary duodenal diverticulum compressing the bile ducts leading to cholestasis. **Computed tomography and MRI allows diagnosis, eliminate pancreatic origin, and avoid heavy surgery.** **Conclusion:** The duodenal diverticulum is a rare entity, remains asymptomatic for a long time, often discovered by the stage of complications, CT and MRI make it possible to make the diagnosis and to propose an adequate treatment.

Keywords: Cholestasis, Duodenal diverticula, Lemmel syndrome, Magnetic resonance imaging

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INTRODUCTION

The duodenal diverticulas are rare, the incidence can be as high as 20% [1]. They are most often located in the second or third portion of the duodenum, along the medial wall, when they are less than 2.0 cm from Vater's bulb, and are referred to as juxtapapillary or periampullary diverticula (DPA) [2]. These are mainly asymptomatic, but can rarely give pancreatic or non-pancreatic complications when simultaneously inflamed [3].

Rarely can be complicated by Lemmel's syndrome, it corresponds to cholestatic disease secondary to compression of the main bile duct by a periampullary duodenal diverticulum in the absence of gallstones with resultant dilatation of the extra- and intra-hepatic bile ducts. This syndrome develops secondarily at the irritation of the Oddi sphincter and has a mechanical compression of the intrapancreatic portion of the main bile duct [4]. This syndrome must be recognized, in order to avoid additional often invasive diagnostic investigations [5].

CASE REPORT

A 68-year-old patient was admitted to the emergency department with complaints of abdominal pain worsening with vomiting, in an afebrile context. She had a history of non-specific chronic abdominal pain. A mild mucocutaneous jaundice was reported on physical examination. An ultrasound was made in the emergency department and a dilatation of the extra- and intra-hepatic bile ducts, without visualization of obstacle was made. Laboratory values revealed a very important cholestasis measuring with total bilirubin 18 mg/dL, direct bilirubin 12 mg/dL, ALT 120 UI/L, AST 150 UI/L, an abdominopelvic scan was realised urgently.

The scanner (Figures 1 and 2) showed the presence of a continuous additional of image with the latero-internal edge of the second portion of duodenum, which is rounded to a fine wall with similar enhancement as the duodenal wall, this formation had a heterogeneous aerial content, it compressed the low bile duct with dilatation of the bile ducts upstream, it was concluded to be an extraluminal duodenal diverticulum compressing the bile ducts.

A cholangio-pancreatography IRM (CP-IRM) was realized in our unit (Figures 3–6), which demonstrated a large fluid and air filled periaampullary duodenal diverticulum measuring ~5cm, as a well-rounded formation with a fine wall, and a content without signal,

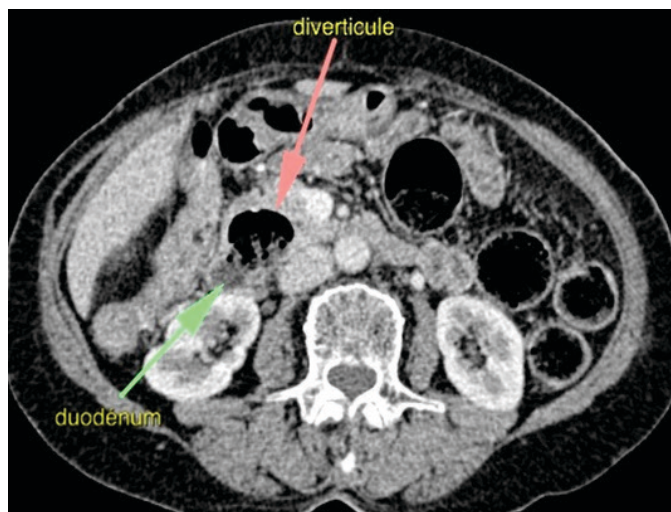


Figure 1: Contrast-enhanced Axial CT of abdomen and pelvis demonstrate an diverticula (red arrow) of the second portion of duodenum (green arrow), which obstructs the common bile duct.

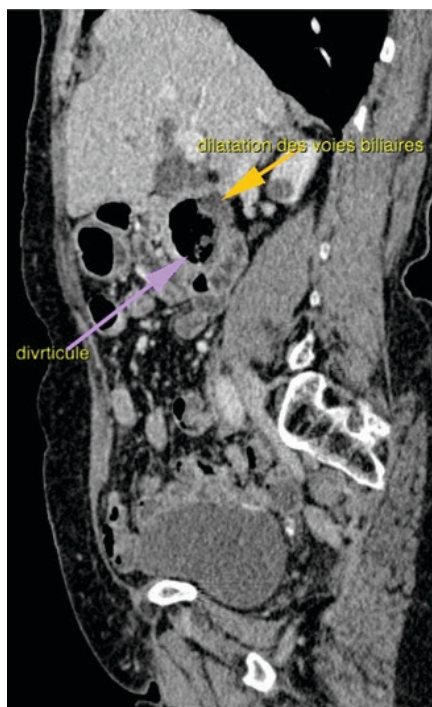


Figure 2: Contrast-enhanced sagittal CT of Abdomen and Pelvis demonstrate an diverticula duodenal (purple arrow) which obstructs the common bile duct (orange arrow).

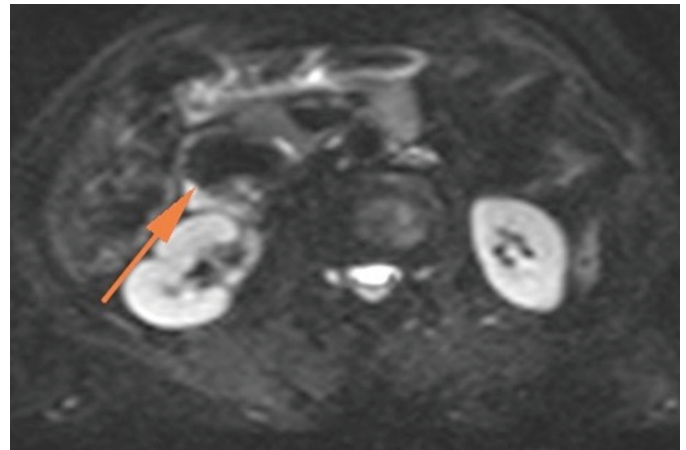


Figure 3: Axial T2-weighted MRI of abdomen showing the periaampullary diverticulum.

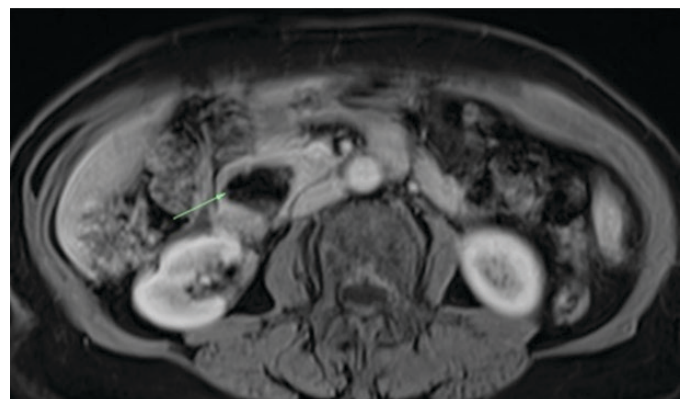


Figure 4: Axial T1-weighted MRI of abdomen showing the periaampullary diverticulum.



Figure 5: Coronal T1-weighted MRI of abdomen showing the periaampullary diverticulum.

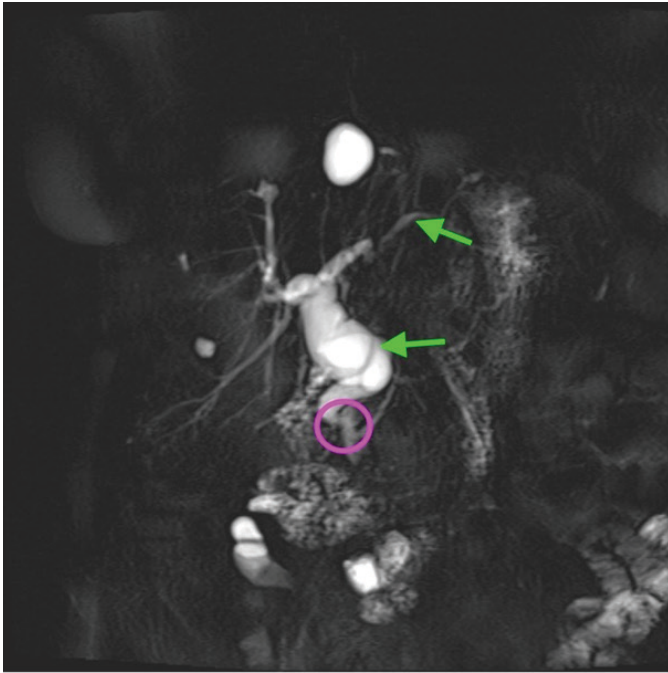


Figure 6: CP-IRM sequences showing intra- and extra-hepatic biliary dilatation (green arrow) to the level of the ampulla (Purple circle).

not modified by the injection of gadolinium. It does not communicate with the bile ducts or with the main pancreatic duct, it exerts a mass effect on the bile ducts in a periampullary with intra-hepatic and extra-hepatic biliary dilatation upstream.

The association of a periampullary duodenal diverticulum, bile ducts dilatation with cholestasis is compatible with Lemmel syndrome.

DISCUSSION

Diverticula are sac-like protrusion of all or part of the bowel wall that can occur anywhere along the gastrointestinal tract [4]. Duodenum is second most common site of diverticula in alimentary tract after colon followed by jejunum, ileum and stomach. It's commonly located in the second portion, near the ampulla of Vater [6]. The incidence of duodenal diverticula is estimated to be around 20% in the general healthy population [1]. Duodenal diverticula can be classified as extraluminal or intraluminal, intraluminal is classically congenital and is due to incomplete recanalization of the intestinal lumen, extraluminal are the most common type, and are acquired due to herniation of weakened mucosa by protruding large vessels [7], may be intra-retropancreatic seat or in the papillary region [8]. This is a common pathology, but not very noisy condition [9]. Patients are often asymptomatic. The discovery is generally made around the fifth decade, fortuitously during upper endoscopies or by complications [10], unlike the sigmoid diverticulum, duodenal diverticula becomes complicated in 1 to 5% of cases [11]. The complications can be separated into

two parts, those caused by inflammation or called local and which are: diverticular hemorrhage, diverticulitis and perforation. Those related to the pressure exerted by the diverticulum on the adjacent structures, in particular bilio-pancreatic, and which are represented by: formation of gallstones, attacks of acute cholangitis with or without gallstones, access of acute pancreatitis or biliary obstruction including Lemmel syndrome.

Lemmel's syndrome was first described by Lemmel in 1934 as a cholestatic disease secondary to the compression of the main bile duct by a periampullary duodenal diverticulum [12]. It is due to two mechanisms, the first by a direct mechanical irritation evolving towards the ductal fibrosis, the second would be due to a bile duct mechanical compression, as in our case.

Imaging is essential for the diagnosis of Lemmel's syndrome as a preoperative, it makes it possible to better plan the therapeutic modality.

CT findings include thin-walled cavitory lesions on the medial wall of the second duodenum, rounded, with clear margins and enhanced contours after injection, containing air, air fluid levels, fluid contrast material or debris [13]. The use of orally administered contrast material, particularly neutral or negative, and intravenous administered contrast material may have been helpful to appreciate the continuity between this mass and the duodenum.

Magnetic resonance cholangiopancreatography (MRCP) is specifically helpful to eliminate a choledocholithiasis, an abscess or pancreatic tumor, demonstrates the absence of communication with the bile ducts and main pancreatic duct, and the mass effect on the common bile duct in peri-ampullary, with the dilation upstream [14].

Treatment of Lemmel syndrome is symptomatic, endoscopic treatment is based on sphincterotomy or biliary stent placement, surgery is based on diverticulectomy or bilio-digestive anastomosis [15, 16].

CONCLUSION

Lemmel syndrome is a rare condition that must be considered as a differential in cases of obstructive jaundice with no choledocholithiasis or tumor. The CT scan and MRCP are very important in Lemmel's syndrome, making it possible to diagnose and illustrate the mechanism of biliary obstruction, as well as to condition the therapeutic modality associated with a reduced risk of morbidity and mortality.

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Author Contributions

Hind Boukhalit – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of

the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Suzanne Rita Aubin Igombe – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Nabil Moatassim Billah – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ittimad Nassar – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

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Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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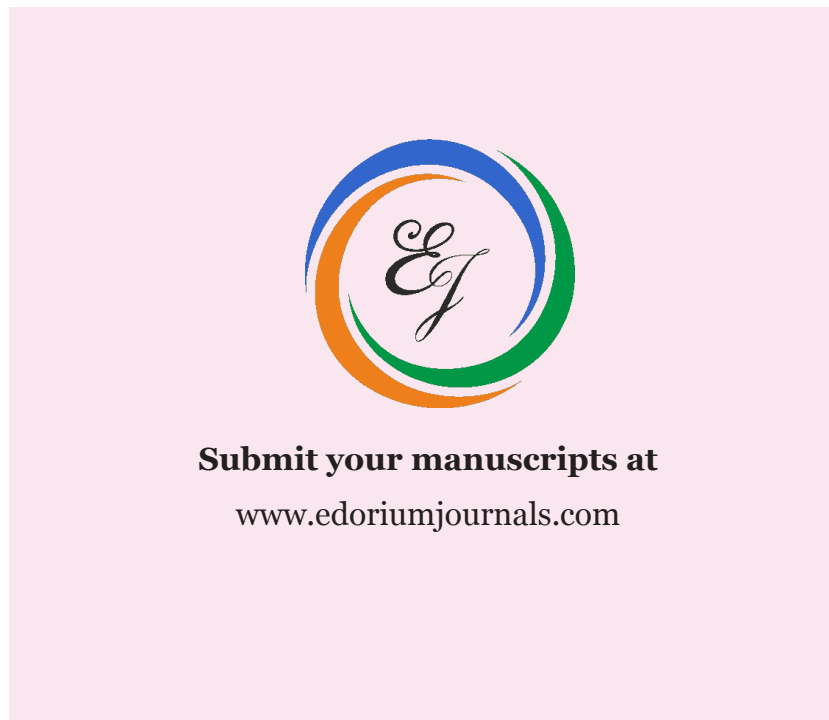
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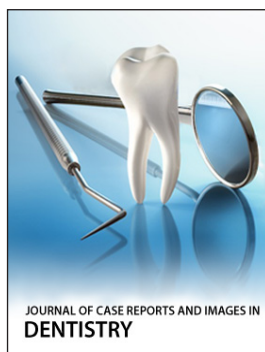
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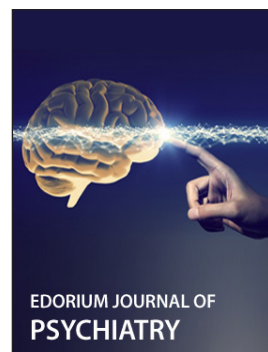
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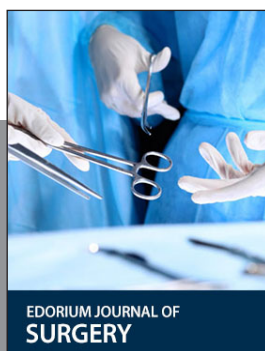
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