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Diagnosis of Lemmel syndrome by air insufflation during endoscopy

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A 91-year-old female presented with jaundice. She denied abdominal pain and fever. Her medical history included hypertension and ischemic heart disease. Physical examination revealed stable vital signs and non-tender abdomen. Complete blood cell counts showed white
blood cells of 9,000/mm$^3$, hemoglobin of 11.9 g/dL, and platelets of 191,000/mm$^3$.

Biochemical tests showed elevated levels of C-reactive protein (6.27 mg/dL [reference range, <0.14 mg/dL]), total bilirubin of 3.7 mg/dL [0.4-1.5 mg/dL], aspartate aminotransferase (263 U/L [13-30 U/L]), alanine aminotransferase (293 U/L [7-23 U/L]), $\gamma$-glutamyl transpeptidase (265 U/L [9-32 U/L]), and alkaline phosphatase (1181 U/L [106-322 U/L]). Computed tomography (CT) scan showed dilatation of common bile duct (CBD) measuring 10 mm and a duodenal diverticulum measuring 36 mm but no CBD stones. With a suspicion of acute cholangitis, endoscopic retrograde cholangiopancreatography (ERCP) was performed. The large juxtapapillary duodenal diverticulum was noted (FIGURE 1A). In the cholangiography, no gallstones or tumor were identified (FIGURE 1B). The distal CBD was laterally compressed by the enlarged juxtapapillary diverticulum (asterisk) with endoscopic air insufflation (FIGURE 1C). This compression was resolved with air suction. Acute cholangitis by Lemmel syndrome was diagnosed. Endoscopic sphincterotomy (EST) was performed. No lithiasis was present and culture of the bile yielded *Klebsiella pneumoniae*. The patient improved uneventfully with antibiotics. She has been asymptomatic for years.

Lemmel syndrome is defined as obstructive jaundice due to juxtapapillary diverticulum in the absence of cholelithiasis or other detectable obstacle [1]. Pathological mechanisms are hypothesized as follows; a) distal CBD or ampulla can be directly compressed by juxtapapillary diverticulum filled with food material or enterolith, b) diverticulitis may cause chronic inflammation of ampulla, and c) juxtapapillary diverticulum may cause sphincter of Oddi dysfunction [1-3]. Although CT scan, magnetic resonance cholangiopancreatography and endoscopic ultrasonography, are safe and useful modalities in diagnostic process in patients with obstructive jaundice, ERCP has advantages of real time correct confirmation of the disorder and subsequent treatment, as shown in this case. Preferred treatment includes EST and biliary stent placement which reduce the risks of morbidity and mortality [1, 2].
conclusion, although rare, Lemmel syndrome should be included in the differential diagnosis of biliary stenosis when juxtapapillary diverticulum exists.

References.


Figure 1A. An endoscopic retrograde cholangiopancreatographic finding of the large juxtapapillary diverticulum.
Figure 1B. Endoscopic retrograde cholangiopancreatography showing no gallstones or tumor in the common bile duct.
Figure 1C. The distal common bile duct (arrow) was laterally compressed by the enlarged juxtapapillary diverticulum (asterisk) with endoscopic air insufflation.