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Acute Reversible Duodenitis Following Non-Therapeutic Upper Gastrointestinal Endoscopy. Is Duodenal Diverticulum a Predisposing Factor?

Emre Unal^{ABDEF}, Elif Nurbegum Ayan^{BEF}, Sibel Yazgan^{ADE}

Department of Radiology, Zonguldak Atatürk State Hospital, Zonguldak, Turkey

Author's address: Emre Unal, Zonguldak Atatürk State Hospital, Department of Radiology, Zonguldak, Turkey, 67030, e-mail: emreunal.rad@gmail.com

Background:

Diagnostic upper gastrointestinal (UGI) endoscopy has been regarded as a safe procedure.

Case report:

We report of a 67-year-old woman who developed epigastric pain and dyspeptic complaints following an uneventful upper gastrointestinal endoscopy. The diagnosis of an acute reversible duodenitis was made on the basis of imaging studies. A duodenal diverticulum was also found on CT images, which raised the suspicion that duodenal diverticulum could be a predisposing factor for duodenitis.

Conclusions:

Despite significant inflammation the patient demonstrated rapid clinical improvement with conservative treatment. Presence of a duodenal diverticulum may predispose to acute duodenitis following diagnostic UGI endoscopy.

MeSH Keywords:

Diverticulum • Duodenitis • Endoscopy, Gastrointestinal • Postoperative Complications

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Background

Upper gastrointestinal (UGI) endoscopy is an essential diagnostic tool for the evaluation of the esophagus, stomach and duodenum. There is a growing interest in UGI endoscopy as the number of indications for this procedure is increasing. As any invasive procedure, UGI endoscopy carry its own risks. However, major complications related to diagnostic UGI endoscopy are reported to be rare [1]. Bleeding, perforation, infection (transient bacteremia, infectious endocarditis), and cardiopulmonary adverse events related to analgesia (ranging from subtle hypoxia to aspiration pneumonia, respiratory arrest, myocardial infarction) are the recognized yet infrequent complications [1]. A higher incidence and a wider range of complications are reported for endoscopic interventions [1]. Nevertheless, acute duodenitis was not recognized as an adverse event of upper GI endoscopy in a guideline (endoscopic retrograde cholangiopancreatography and endoscopic ultrasound not included) published in 2012 by American Society for Gastrointestinal Endoscopy [1]. On the other hand, acute duodenitis may occur following ERCP [2]. However, ERCP is a more invasive and complicated

procedure compared to UGI endoscopy. We will discuss potential predisposing factors and relevant literature relating to this rare complication, since, to the best of our knowledge, this is the first reported case of acute reversible duodenitis following diagnostic UGI endoscopy.

Case Report

A 67-year-old woman was admitted to the emergency room with a one-week history of left lower quadrant abdominal pain. Initial CT examination revealed acute sigmoid colonic diverticulitis. Follow-up CT examinations demonstrated regression of the colonic diverticulitis. Upper GI endoscopy and colonoscopy were scheduled before discharge. Although both procedures were performed uneventful, the patient developed epigastric pain and dyspeptic complaints on the next day after the UGI endoscopy. The symptoms did not resolve or worsen on follow-up. A CT examination was performed on the fourth day after the UGI endoscopy to rule out potential complications, which demonstrated extensive duodenal inflammation without signs of perforation (Figures 1, 2). The laboratory results did not support the presence of hemorrhage or inflammation. However, the

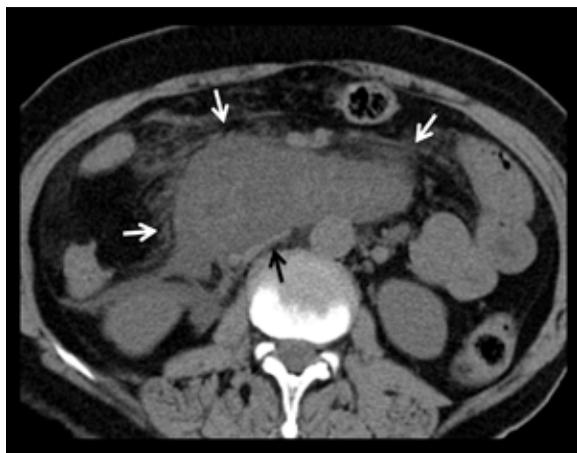


Figure 1. Acute duodenitis following diagnostic upper gastrointestinal endoscopy. Axial unenhanced CT scan at the level of the third part of duodenum demonstrates extensive duodenal inflammation (*white arrows*) and periduodenal fat stranding. Compression of the inferior vena cava is also noted (*black arrow*).

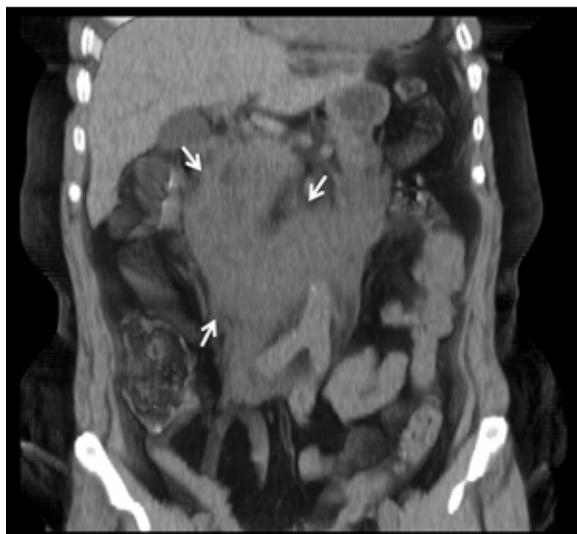


Figure 2. Coronal reformatted CT image demonstrates duodenal thickening due to inflammation.

patient was treated for acute sigmoid diverticulitis, and therefore clinical and laboratory findings were not reliable. The diagnosis of acute duodenitis was made based on CT findings. The density of the paraduodenal fluid collection (8 HU) also diminished the possibility of hemorrhage (Figure 3). It is more likely that the antibiotics and anti-inflammatory agents administered for the acute sigmoid diverticulitis were also efficient for duodenal diverticulitis. Therefore, no additional treatment was necessary, and the patient's clinical status improved significantly with conservative treatment. A follow-up CT scan performed three days later demonstrated complete resolution of the findings (Figure 4).

A duodenal diverticulum arising from the third portion of the duodenum was demonstrated on CT (Figure 5). Moreover, duodenal inflammation was also localized to the same part of the duodenum. However, the diverticulum was seen only on a single CT scan.



Figure 3. Axial unenhanced CT image of the lower part of the duodenum demonstrates a small amount of right paraduodenal fluid collection. The density of fluid collection indicates etiology other than hemorrhage.



Figure 4. Follow-up axial contrast enhanced CT scan reveals complete resolution of the findings.

Discussion

Diagnostic upper gastrointestinal endoscopy has been regarded as a safe procedure compared to ERCP or therapeutic endoscopy. However, herein we presented a case of acute reversible duodenitis following an uneventful non-therapeutic UGI endoscopy. Although the patient demonstrated rapid clinical improvement, this was mainly due to absence of perforation, since duodenitis complicated by a perforation understandably results in increased morbidity and mortality.

Our patient's clinical status and imaging findings demonstrated rapid improvement (within a week). Rapid radiological improvement supports the lack of hemorrhage, since duodenal hematomas are expected to resolve in 1–3 weeks [3]. On the other hand, one may speculate that the reported rate of acute duodenitis following diagnostic UGI endoscopy could be underestimated considering such a rapid recovery. For instance, if a timely follow-up imaging had not been obtained in our patient, the duodenitis could have been unnoticed. However, further studies are warranted to confirm our observation. The next issue that should be addressed is whether a duodenal diverticulum is a predisposing factor for acute duodenitis following

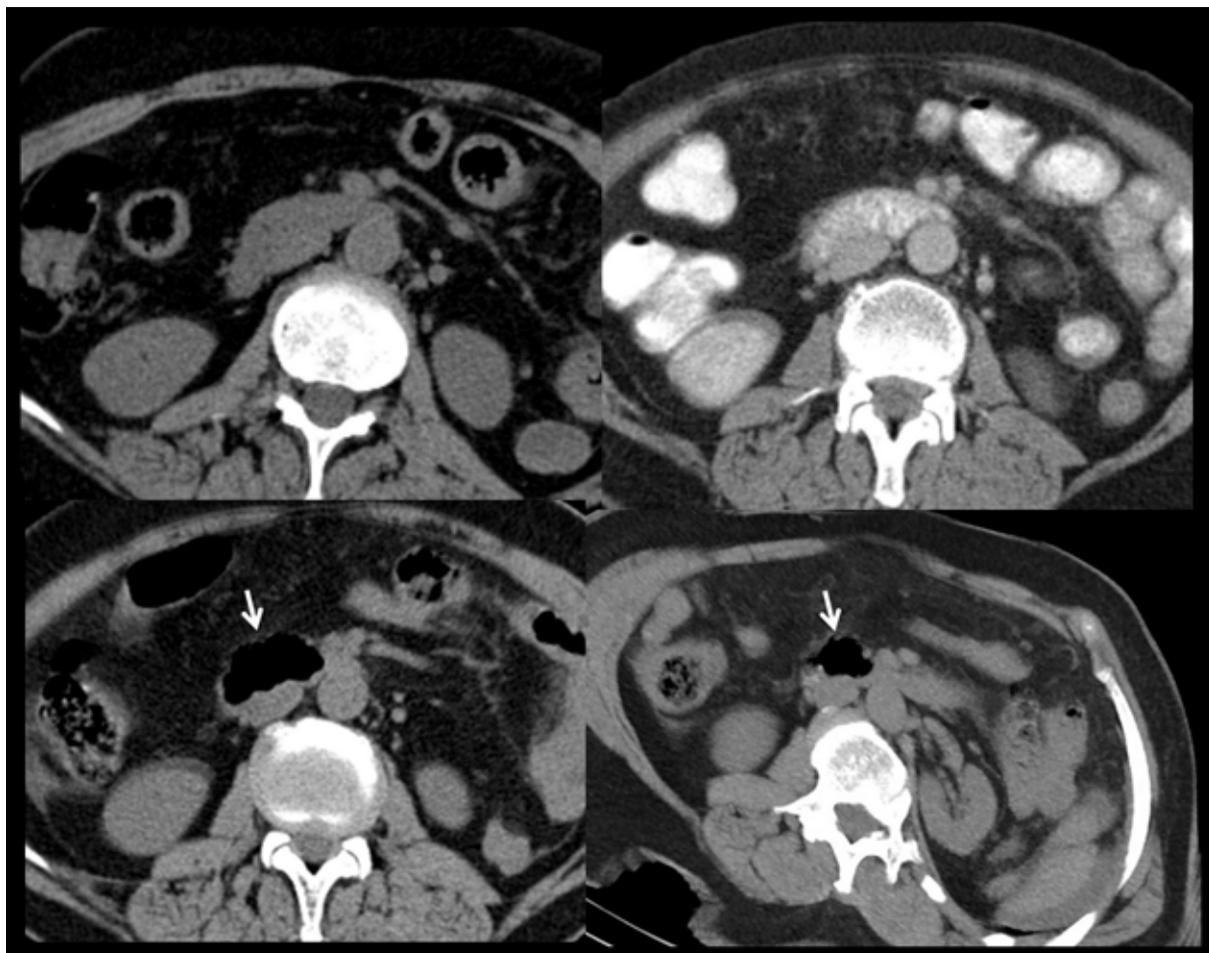


Figure 5. Axial CT images of the same patient at different time points. Duodenal diverticulum (*arrow*) arising from the third portion of the duodenum is seen only in a single CT study (*arrows in axial and reformatted unenhanced CT images*) suggesting that duodenal diverticulum may not always be apparent on CT images.

diagnostic UGI endoscopy. Although duodenal diverticulum substantially increases the risk of perforation [1,2] patients with diverticuli may also present with diverticulitis and duodenal inflammation [4,5]. However, it should be noted that inflammation due to diverticulitis is predominantly local [3,5]. Nevertheless, the reported cases of duodenal diverticulitis, in general, had not had a history of any predisposing invasive procedure. Our patient had a duodenal diverticulum arising from the third portion of the duodenum where inflammation was also localized. Therefore, we speculate that the presence of a duodenal diverticulum may predispose to acute duodenitis following diagnostic UGI endoscopy. Currently, there is no consensus as to what procedure constitutes the gold standard for the diagnosis of a duodenal diverticulum. There is inconsistency between clinical and post-mortem studies concerning the incidence of duodenal diverticulum [4,5]. The duodenal diverticulum does not consist of tunica muscularis (false diverticle) and is formed mainly by a protrusion through a focal weakness in the duodenal wall [4,5]. Consequently, a

distinct contour may not always be apparent on CT images (Figure 3). Therefore, the incidence of duodenal diverticulum may be underestimated by imaging as compared to autopsy studies.

Conclusions

Rapid improvement of clinical and radiological findings, as seen in our patient, may lead to an underestimation of the rate of acute duodenitis following diagnostic UGI endoscopy. However, further studies are needed to confirm our observation. Moreover, presence of a duodenal diverticulum may be a risk factor for acute duodenitis following UGI endoscopy.

Statement

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