

## **An Unexpected Case of Acute Abdomen in a Young Adult: Duodenal Diverticulitis**

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### **Abstract**

Duodenal diverticulitis is a diagnostic and therapeutic challenge for the practitioner. We report our experience with a 29 year-old female who presented with acute abdominal pain and elevated leukocytes and was diagnosed with non-perforated duodenal diverticulitis that was successfully treated with antibiotics.

**Keywords:** *Duodenal Diverticulitis; Antibiotics*

### **Introduction**

Diverticula rarely occur within the lumen of the duodenum, diagnosed only in 2 - 5% of the cases [1]. It is often misdiagnosed because its symptoms mimic multiple other intra-abdominal processes [2]. These include acute pancreatitis, either biliary or infectious like in the case with pancreatic echinococcosis, as well as its complications such as phlegmon, pseudocyst and abscess, cystic pancreatic head neoplasm and peripancreatic lymphadenopathy. Perforating duodenal peptic ulcer disease, Crohn's duodenitis, duodenal neoplasm and post-traumatic intramural duodenal hematoma and epiploic Appendagitis [3-5]. The pain projection may also evoke cholecystitis and ileal diverticulitis [6,7].

CT findings help in ruling [8]. Non operative management carries a lower morbidity and mortality rate than an operative approach, that is reserved to surgical complications [9].

### **Case Report**

We report the case of 29 year-old female patient, with a history of intermittent asthma, who presented to our emergency department with acute epigastric pain associated to postprandial vomiting, occurring on 4<sup>th</sup> post-partum day, evolving 7 days before her admission to our facility in context of fever and conservation of general status.

The first physical examination showed a clinically stable patient with epigastric tenderness. Laboratory tests revealed elevated leukocytes count of 17140/mm<sup>3</sup>, C-reactive protein of 208,7 mg/l. Lipase was mildly high, 192 UI/l (Normal value is 23 - 85 U/l), with normal liver enzymes test (alanine aminotransferases ASAT = 33 UI/l and aspartate aminotransferases ALAT = 47 UI/l) and moderate non icteric cholestasis (alkaline Phosphatase PAL = 315 UI/l, gamma glutamyl transferase GGT = 363 UI/l and total bilirubin= 11,6 mg/dl).

Computed tomography (CT) of the abdomen showed a thick hyper-vascular duodenal wall with an intense contrast enhancement and a herniation of mucosa and sub-mucosa through the muscular wall as well as hypodense areas in the region of head of pancreas

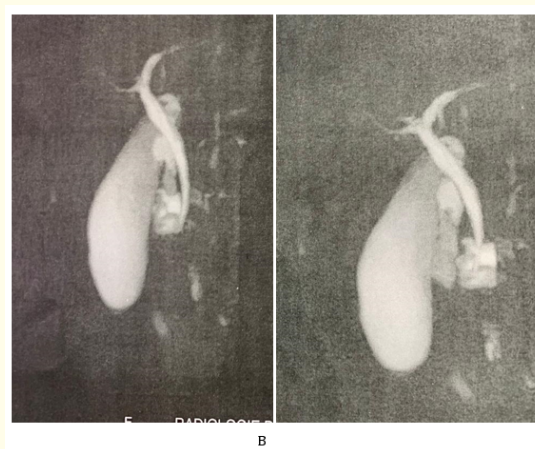
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suggesting peri-diverticular and periduodenal fatty infiltrations without any evidence of abscess, free air nor ascitis, concluding to a non-perforated duodenal diverticulitis with infiltration of surrounding fat. Normal morphology of the pancreas excluded focal pancreatitis (Figure 1). Magnetic resonance imaging (MRI) confirmed the diagnosis and ruled out biliary obstruction and pancreatitis; it was also helpful to eliminate underlying tumors and vascular complications like venous thrombosis (Figure 2).



**Figure 1:** Non perforated duodenal diverticulitis with infiltration of neighboring fat.



**Figure 2:** MRI showing no signs of obstructive biliary tract nor pancreatitis. A) axial slice, B) coronal slices.

Upper gastrointestinal GI endoscopy didn't identify any diverticula in the second and third duodenum.

Patient was treated conservatively with intravenous antibiotics (amoxicillin/clavulanic acid 1g\*3 per day and metronidazole 500mg\*3 per day), thromboembolic prophylaxis, bowel rest and parenteral nutrition. The disease course had a favorable outcome. We noticed that the pain disappeared and the leukocytes count and CRP levels normalized.

### Discussion

Duodenal diverticula are not uncommon entities. It is the second most common site in the digestive tract (1 - 2%) after the colon (5 - 60%) [10,11]. The majority of which are asymptomatic [1]. They usually arise near the papilla of Vater and extend distally [1]. Most duodenal diverticula are extra-luminal as this is secondary to herniation near the entrance of a large vessel, while intraluminal ones tend to be congenital, secondary to incomplete canalization [12].

The most frequently reported complications, though they remain rare, are hemorrhage, infection, fistulation, perforation, duodenal and biliopancreatic obstruction and pancreatitis [13-18]. Under-diagnosed in the absence of pathognomonic symptoms, it is usually mistaken for other intra-abdominal conditions, causing delay in treatment instauration, thus worsening the prognosis [2].

CT is the ideal diagnostic test for upper GI tract diverticula, specially the small ones that can be missed during endoscopy [8,19]; such may have been our case. The possibility of diverticula situated in fourth duodenum, thus unreached with endoscopy, may also explain the disparities in our findings.

Conservative non-operative management is the safest therapeutic choice for stable patients without signs of peritonitis like in our case. It is successful in the majority of cases even when a perforation happens. It is based on antibiotic course and bowel rest [9]. Our patient improved on antibiotics alone and was discharged from hospital stay day 11 without further complications.

Endoscopic therapy is the main therapeutic tool for diagnosis and management of certain complications such as bleeding, pancreatic and biliary obstruction [20,21].

Failure of conservative therapies could be associated with high mortality and demands surgical management. Variety of surgical approaches ranging from simple diverticulectomy with double layer closure to segmental resection, duodenal exclusion/ bypass to pancreatoduodenectomy are available [22-25].

Although pancreatoduodenectomy has a high morbidity rate, it remains an option when we are limited by perforation location and the inability to carry out local/ segmental resection [26,27]. However, sutures on inflamed tissues expose to risk of fistulas, duodenal leak, sepsis and post-operative peritonitis [28,29].

### Conclusion

The literature may be lacking reports but duodenal diverticula are quite prevalent in general population (20%) and only 5% will become symptomatic. CT is the main diagnostic key. Operative treatment carries out high morbidity and mortality rate and should be reserved to complications failing to respond to conservative therapies.

### Conflict of Interest

None.

### Authors Contribution

All authors have read the content of the article and agree with it.

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