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Simultaneous occurrence of perforated peptic ulcer and acute pancreatitis: A case report

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ABSTRACT

Acute abdomen is a life-threatening condition caused by various conditions such as perforated peptic ulcer and acute appendicitis. This critical illness usually requires urgent investigations and treatment. The main diagnostic methods for acute pancreatitis are clinical and paraclinical examination, and for perforated peptic ulcer clinical and imaging diagnosis (abdominal X-ray and endoscopy). These two critical conditions can be encountered simultaneously, making it difficult to diagnose and treat acute abdomen as soon as possible. Therefore, it is essential to consider these two conditions both individually and simultaneously in a patient with acute abdomen symptoms. This article presents an elderly man with diagnostically confirmed symptoms of association between perforated peptic ulcer and acute pancreatitis.

Category: Case Presentation

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Introduction

Acute abdomen is an emergency situation that can be caused by various conditions such as perforated peptic ulcer and acute pancreatitis [1,2]. As a result of the evolutive implications of this condition, an early diagnosis and treatment is necessary [3,4]. Peptic ulcer perforation (PPU), which is an aggression on the mucosa of the upper tract of the digestive system, is the second most common complication of this disease, with an incidence of 4 to 14 cases per 100,000 people [5,6]. Acute pancreatitis (AP) is also a common cause of emergency department admission, with an increasing incidence ranging from 13 to 45 per 100,000 population-years [7,8]. Although many risk factors can lead to PA, cholelithiasis and heavy alcohol consumption are the most important causes [9,10]. This case report describes a person who was admitted to the hospital complaining of acute abdominal pain and, upon further investigation, he was diagnosed with concomitant perforated peptic ulcer and acute pancreatitis.

Case Presentation

The patient was a 71-year-old man who presented to a university hospital, Poursina Medical Center, in Rasht, Guilan, Iran, in February 2022, with the main suffering related to abdominal pain that started the day before. The pain was periumbilical, not related to position, and without implications for feeding or defecation. The pain was intermittent at first and then became permanent, without associated nausea or vomiting. The patient had a medical history of hypertension (HTN) and an old cerebrovascular accident (CVA). His past drug history was unrevealing.

On arrival, he had normal vital signs: a pulse rate (PR) of 78, respiratory rate (RR) of 13, blood pressure (BP) of 100/40 mmHg, and no fever at presentation (temperature of 37.2^0C. During the physical examination, the inspection was within normal limits, intestinal sounds were absent on auscultation, while a generalized sensitivity/ pain to palpation was observed with maximum intensity in the epigastric area. A positive rebound test was also detected on the epigastric area, thus suggesting acute abdomen. The patient underwent an up-right chest and supine abdominal X-ray, which showed no suggestive changes, as can be seen in Figures 1 and 2. Abdominal ultrasound showed free fluid in the perisplenic and subhepatic spaces and Morrison's area. A thorough blood investigation was performed at the time of presentation, the data obtained being presented in the Table 1.

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Figure 1. Upright chest X-ray

Figure 2. Supine abdominal X-ray

The rise in the serum level of pancreatic enzymes (amylase=2320 U/L and lipase=1854 U/L), C-reactive protein (CRP=72 mg/L), and creatine phosphokinase (CPK=631 U/L) were suggestive of the diagnosis acute pancreatitis. Due to the acute abdomen objectified on clinical examination (generalized tenderness), the patient underwent laparotomy. A sealed-off (1/1cm) pre pyloric perforated peptic ulcer was found, with localized debris and free fluid in the epigastric area. Debris was cleaned out, gastrorrhaphy and omental patch were done, and the abdominal incision was closed. The patient was hospitalized for ten days. 4 days after the surgery, he was NPO and treated with intravenous liquids. After that, he started to eat food and got PO, and was under control. After five days, due to the decreasing pattern of pancreatic enzymes (as can be seen in Table 2) and the stable clinical condition of the patient, he got discharged.

Table1. Blood test analysis at presentation

Blood Tests		
Hematology	WBC	6500
	Neutrophil	90
	Lymphocyte	8
	RBC	4.01
	HB	11.1
	Plt	269000
Biochemistry	BS	130
	BUN	35
	Cr	2.6
	Alt	18
	Ast	17
	Alp	168
	Total Bilirubin	2.0
	Direct Bilirubin	0.5
	Amylase	2320
	Lipase	1854
	Na	140
	K	4.8
	Ca	9.7
	Ph	3.0
	Mg	2.6
VBG	PH	7.31
	PCO2	33.2
	HCO3	16.2
	BE	-9.1
Serology	CRP	72
Coagulation	PT	15
	PTT	38
	INR	1.3

Table 2. Blood test analysis after five days

Blood Tests		
Hematology	WBC	10000
	Neutrophil	40
	Lymphocyte	58
	RBC	3.49
	HB	9.6
	Plt	401000
Biochemistry	BS	102
	BUN	28
	Cr	1.9
	Alt	20
	Ast	21
	Alp	395
	Total Bilirubin	0.6
	Direct Bilirubin	0.2
	Amylase	530
	Lipase	398
	Na	152
	K	3.6
	Ca	8.1
	Ph	2.8
	Mg	2.3
Coagulation	PT	13
	PTT	31
	INR	1.0

Discussion

Acute abdomen is a critical condition caused by various causes such as infection, inflammation, or vascular problems [11,12]. The condition requires an urgent examination consisting of clinical and paraclinical investigations, to establish the diagnosis and an appropriate treatment. A variety of potentially fatal diseases, including perforated peptic ulcer (PPU) and acute pancreatitis (AP), can contribute to this condition [13-15].

Peptic ulcer disease (PUD), which is usually defined as an attack on the mucosa of the upper digestive tract, occurs most commonly in the stomach and duodenum [5, 16]. Helicobacter pylori infection and nonsteroidal anti-inflammatory drugs consumption are two significant factors leading to peptic ulcer disease [5]. Perforation is the second most common complication of PUD, which happens in 4 to 14 cases per 100,000 individuals, and the risk increases with age [17]. The patient usually presents with the complaint of sudden severe epigastric pain [18]. PPU is divided into four groups based on its location: 1) in the antrum, near the lesser curvature; 2) combined gastric and duodenal ulcer; 3) prepyloric ulcer; 4) ulcer in the proximal stomach or cardia [19,20]. The evaluation consists of a thorough blood test and imaging investigations, including an abdominal and chest X-ray [21]. Although free air under the diaphragm is the most common finding in PPU, some studies have shown that it may be absent in some patients based on the condition of the ulcer [22]. The main treatment for PUD is surgical operation [23,24].

Acute pancreatitis is an inflammation of the pancreas, frequently caused by bile stones or massive consumption of alcohol, which happens in 13 to 45 per 100,000 population-years [7,8]. It is divided into three groups based on the severity of the disease: 1) Mild - no organ failure; 2) Moderate - transient organ failure which resolves in less than 48 hours, and 3) Severe - persistent organ failure that remains more than 48 hours [25,26]. The most common clinical symptom is epigastric pain which radiates to the back [27]. A rigorous blood test (including blood count, lipase, C-reactive protein, glucose, calcium, and liver and cholestasis enzymes) is mandatory for the diagnosis [27]. Imaging tools such as CT scans are usually not recommended in patients at the onset of the disease and with typical clinical manifestations and suggestive laboratory tests [28,29]. The primary treatment strategy is fluid resuscitation between 150 and 250 mL/h in the first 24–48 h, with Ringer lactate as the best choice [27-29]. It is also recommended that oral feeding be encouraged in the first days of admission if possible [30,31].

In this case report, a 71-year-old patient presented to the hospital with a chief complaint of sudden epigastric pain that had started the night before. Although the patient did not have free air under the diaphragm, he underwent surgery due to the positive acute abdomen on physical examination. As the perforated peptic ulcer was small and sealed off, the absence of free air in the abdomen on the X-ray can be justified. All the debris was washed out with normal saline, and the perforation was fixed with the gastrorrhaphy and the omental patch. The patient was hospitalized for ten days and treated both surgically (for perforated peptic ulcer) and with intravenous fluid and supportive treatment (for acute pancreatitis).

Because of the similar clinical presentation of perforated peptic ulcer and acute pancreatitis, as well as the absence of free air on abdominal X-ray in some patients (which is strongly suggestive for PPU), it is crucial to take both diseases into account for differential diagnosis of the underlying cause of the acute abdomen. Consequently, physical examination and thorough laboratory tests are essential in the diagnosis and treatment of such cases, in which the two diseases may have different degrees in terms of the severity of the evolution.

Conclusions

Acute abdomen is an urgent condition caused by different underlying conditions like PPU or AP. Because of the relatively similar clinical presentation of both diseases, it is essential not to focus on just one condition. For the most correct approach to the patient, a rigorous anamnesis, detailed physical examination and thorough laboratory tests are necessary. Finally, it should be noted that these two conditions (PPU and AP) can be encountered simultaneously, even if such association is relatively rare.

Highlights

- ✓ Acute abdomen is a life-threatening condition caused by different incidences such as perforated peptic ulcers and acute appendicitis.
- ✓ This critical condition needs urgent investigation and specific treatment.
- ✓ It is essential to consider these two conditions in a patient simultaneously, especially if one of them cannot be excluded based on the differential diagnosis.

Authors' contributions

All authors contributed equally to the manuscript and read and approved the final version of the manuscript.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

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