

Case Report: Conservative Management of Massive Pneumoperitoneum Secondary to a Sealed Gastroduodenal Ulcer

Issam Yazough¹, Achraf Laiz^{1*}, Ismail Sriri¹, Aymane Jbilou¹, Younes Aggouri¹, Said Ait Laalim¹

¹Mohamed VI University Hospital. Tangier. Morocco

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*Corresponding author: Achraf Laiz

Mohamed VI University Hospital. Tangier. Morocco

Abstract

Case Report

Pneumoperitoneum is traditionally considered a surgical emergency, signaling the perforation of a hollow viscus. However, in rare situations, pneumoperitoneum may occur in the absence of digestive tract perforation, defining spontaneous or non-surgical pneumoperitoneum. This rare entity exposes clinicians to a diagnostic and therapeutic dilemma. We report the case of a 63-year-old man presenting with massive pneumoperitoneum despite remarkable clinical and biological stability. The diagnosis of a sealed gastroduodenal ulcer was made. Exclusive medical treatment led to a successful recovery without surgical intervention.

Keywords: spontaneous pneumoperitoneum, non-surgical pneumoperitoneum, conservative management, computed tomography.

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1. INTRODUCTION

Pneumoperitoneum refers to the presence of free air within the peritoneal cavity (Karaman A, 2005). While over 90% of pneumoperitoneum cases result from a perforation requiring surgery, approximately 10% can be managed medically (Williams NMA, 1997;). The challenge for the surgeon is to identify these cases to avoid an unnecessary "negative" laparotomy, which increases patient morbidity. This case illustrates the primary importance of clinical stability and Computed Tomography (CT) in determining the therapeutic strategy.

2. CASE PRESENTATION

Patient Background: A 63-year-old male with a medical history of pulmonary tuberculosis treated 25 years ago.

Clinical History: The patient reported an episode of abdominal pain 15 days prior to admission, which resolved with symptomatic treatment. He eventually consulted the emergency department for isolated abdominal distension, without active pain, vomiting, or disturbances in bowel transit.

Physical Examination:

On admission, the patient was hemodynamically stable, afebrile, with a blood pressure of 130/60 mmHg, heart rate of 75 beats per minute, and oxygen saturation of 97% on room air. Abdominal

examination revealed marked abdominal distension with a soft, non-tender abdomen, without guarding or rigidity. Hernial orifices were free, and digital rectal examination was unremarkable.

Diagnostic Workup:

- **X-ray (Abdominal):** Revealed a massive bilateral pneumoperitoneum. Figure 1
- **Laboratory Tests:** Completely normal. White Blood Cell (WBC) count at 8,500/mm³, CRP at 33 mg/L (relatively low for such a large volume of air), and normal electrolytes.
- **Abdominal CT scan** with oral contrast was performed. It confirmed the presence of a massive pneumoperitoneum, absence of intra-abdominal fluid collection, no infiltration of mesenteric fat, and no extravasation of oral contrast. It did, however, reveal inflammatory thickening in the antro-pyloric region.
- Figure 2.

3. Management and Outcome

Given the patient's perfect clinical stability and the absence of radiological signs of peritonitis (no free fluid), the diagnosis of a sealed perforated gastroduodenal ulcer was made. A conservative strategy (Modified Taylor's Method) was initiated:

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1. Nothing by mouth and intravenous fluid resuscitation.
2. Broad-spectrum antibiotics.
3. High-dose Intravenous Proton Pump Inhibitors (PPIs).

The clinical follow-up was marked by steady improvement and stable laboratory results. The patient was discharged on day 5 (D5) with outpatient follow-up and a scheduled upper GI endoscopy.



Figure 1:x-ray image

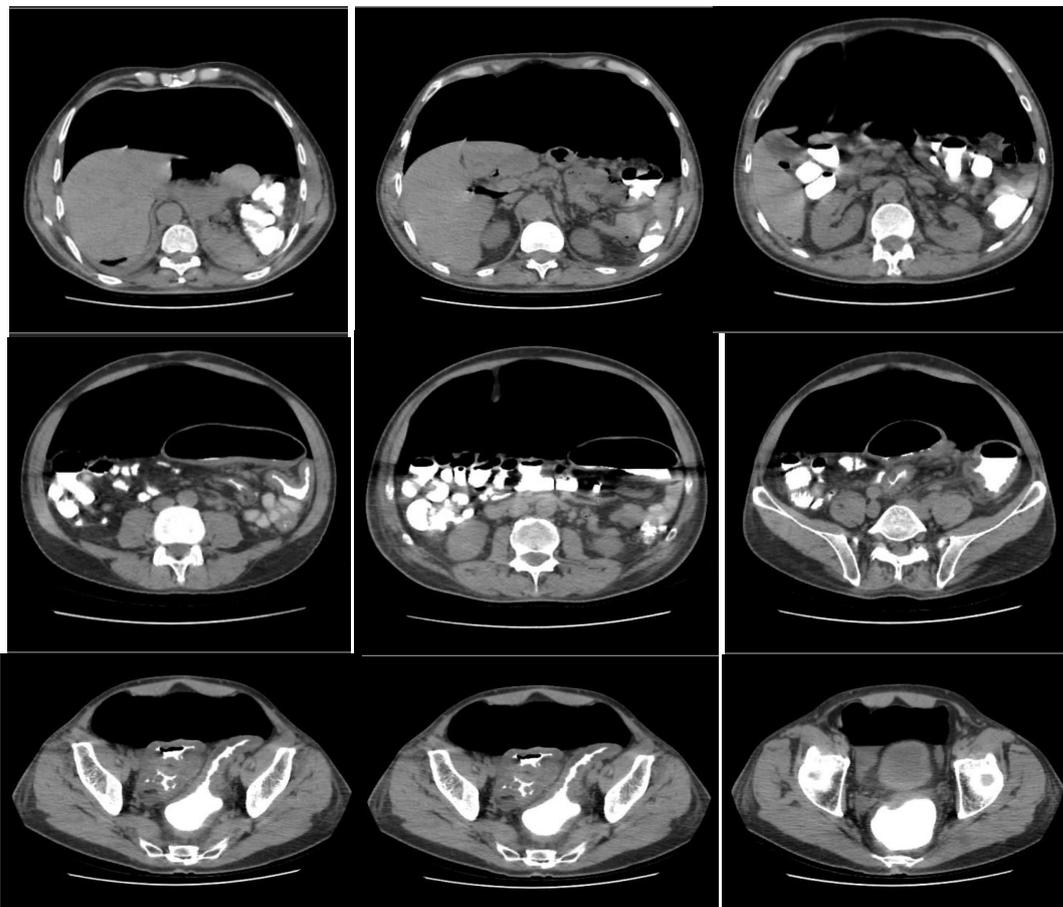


Figure 2 : CT scan image

4. DISCUSSION

Spontaneous pneumoperitoneum accounts for less than 10% of all cases of pneumoperitoneum (Williams NMA, 1997;). Several mechanisms have been described, including thoracic causes (mechanical ventilation, pneumothorax, cardiopulmonary resuscitation), gynecological causes, iatrogenic causes, and non-perforative abdominal conditions such as pneumatosis cystoides intestinalis (Laren., 2013). In some cases, no etiology is identified, leading to the diagnosis of idiopathic spontaneous pneumoperitoneum (Williams NMA, 1997;) (Mularski RA, 1999;).

In this patient, the pain dating back 15 days suggests an old perforation that was spontaneously sealed by the omentum or adjacent organs, leaving only residual air in the cavity.

The CT is the decisive tool (Hsueh KC, 2011;). The absence of peritoneal fluid is the best predictor of the absence of severe chemical or bacterial peritonitis, justifying medical management. however, the volume of pneumoperitoneum on imaging does not always correlate with clinical severity (Mezghebe HM, 1994;). an "unnecessary laparotomy" can be avoided if the patient is asymptomatic.

5. CONCLUSION

The presence of pneumoperitoneum alone does not constitute an absolute indication for surgery. Nonsurgical spontaneous pneumoperitoneum is an entity that must be recognized to avoid unnecessary aggressive surgery. Rigorous clinical monitoring is the cornerstone of conservative treatment. This case demonstrates that a

sealed perforated ulcer, even with massive pneumoperitoneum, can be successfully managed with medical treatment alone.

Conflicts of Interest

The authors declare no conflicts of interest.

Authors' Contributions

All authors contributed to patient management and manuscript preparation. All authors read and approved the final version of the manuscript.

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