

An Obscure Source of Pneumomediastinum

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Abstract

The current article revolves around the problem of free air in a patient that is a-symptomatic. We bring forth an example of a 62-years-old male who came to our ER with a complaint of abdominal distension. Total body computed tomography (CT) showed pneumoperitoneum, pneumomediastinum, and subcutaneous emphysema in the neck, and comparing it to previous scans showed pneumatosis intestinalis (PI), which was determined to be the most likely source of the patient's peritoneal, mediastinal, and subcutaneous free air. The patient was admitted to the surgical ward and managed conservatively with nil per os (NPO), intravenous fluids, and antibiotics. In the article, we describe the patient's history and a brief review of how to deal with free air seen only in imaging.

Case

A 62-year-old male arrived at the emergency department complaining of one week of abdominal distension without pain. Patient history included Crohn's disease complicated by intestinal perforation 10 months prior to the current presentation and cardiac transplantation in 2001 due to non-ischemic cardiomyopathy

with continued immunosuppressant therapy. A physical exam revealed a distended abdomen without peritoneal signs. Crepitations were auscultated in the neck, right shoulder, and groin. Total body computed tomography (CT) showed pneumoperitoneum, pneumomediastinum, and subcutaneous emphysema in the neck [Figure A]. A review of imaging from six months prior to the current presentation showed pneumatosis intestinalis (PI), which was determined to be the most likely source of the patient's peritoneal, mediastinal, and subcutaneous free air [Figure B]. The patient was admitted to the surgical ward and managed conservatively with nil per os (NPO), intravenous fluids, and antibiotics. His clinical condition improved with this treatment and he was discharged home on day 6.

Pneumatosis intestinalis is defined as gas within the submucosa or subserosa of the bowel wall. It may be idiopathic or secondary to a variety of gastrointestinal or non-gastrointestinal pathologies. Our patient's history of Crohn's disease and intestinal perforation put him at risk for PI, however, some cases of PI do not come to clinical attention unless discovered incidentally on imaging or during surgery [1]. Symptomatic PI may have a variable presentation depending on the involved segment of the bowel. Vomiting, abdominal distension and discomfort, and weight loss are seen with involvement of the small intestine, while diarrhea and hematochezia are more common with large intestine involvement [2]. The presence of pneumoperitoneum, as in our patient, may be seen in up to 9% of patients, due to rupture of subserous cysts [3] [Galandiuk, 1986]. The additional findings in this patient of pneumomediastinum and subcutaneous emphysema are rare manifestations of this condition. Finally, this case illustrates the importance of careful evaluation of the clinical setting following the discovery of free abdominal air.

Significant pneumoperitoneum, though most commonly is due to abdominal organ perforation, may be managed conservatively when occurring secondary to pneumatosis intestinalis, as in our case. In fact, laparotomy in this setting may be unnecessary and non-therapeutic [4].

Learning Points/Take Home Messages (2-3 Bullet Points)

- Most cases of free abdominal air occur secondary to abdominal organ perforation, however, in the appropriate clinical setting, other causes should be investigated to determine appropriate treatment
- Even in the presence of significant pneumoperitoneum, uncomplicated pneumatosis intestinalis may be managed conservatively; In these cases, laparotomy may be unnecessary and ultimately non-therapeutic [2].
- Just like in love and war, in medicine nothing is always or never true, and one should always take into consideration the clinical status of the patient.

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