

CASE REPORT

A CASE OF NON-SURGICAL PNEUMOPERITONIUM: GAS UNDER THE DIAPHRAGM

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A 58-year-old woman presented with an unexpected episode of vomiting and an acute abdomen. The patient mentioned a vague history of decreased appetite dyspepsia and constipation. Abdominal X-Ray revealed gas under diaphragm. An Open laparotomy was carried out to evacuate the free gas trapped under the diaphragm. The condition is almost always associated with perforation of abdominal viscera and accumulation of air during surgical or gynaecological procedures or peritoneal dialysis. In the reported case, laparotomy revealed no sign of perforation in GIT, uterine fundus or fistulas and nor did the have patient have any history of surgical or gynaecological procedures. This lead to suggestion of spontaneous or non-surgical pneumoperitonium which is extremely rare. Extensive investigations revealed no known cause pneumoperitonium making our case rare and unique.

Keywords: pneumoperitonium; non-surgical pneumoperitonium, diaphragm, pneumoperitonei

INTRODUCTION

Pneumoperitonium is a condition where air is presenting the peritoneal cavity. It may be caused by rupture of a viscus, surgical operation or rarely spontaneously. Pneumoperitonium is diagnosed by an X-Ray of the chest/abdomen in erect posture when gas collected under the diaphragm is visible as a dark crescent under hemi diaphragm, more often on the right side above the outline of the liver. We present a case of pneumoperitonei which was not due to a surgical operation or injury.

CASE REPORT

A 58-year-old female presented with an unexpected episode of vomiting and an acute abdomen. The pain had a sudden onset, involving the entire abdomen, aggravated with movement and refractory to conventional analgesics. There were concurrent episodes of projectile vomiting. The vomitus was described by the patient as a 100 ml yellow mixture of partially digested food without any blood or bile staining. The patient mentioned a vague history of decreased appetite dyspepsia and constipation. Background medical history was unremarkable, as was her family history.

On examination in the Emergency Department, she appeared unwell. However, all her vital signs were normal. There was no evidence of any oral or genital ulceration, ocular inflammation and abdominal examination at this time was normal.

Abdominal X-Ray revealed gas under diaphragm. A peritoneal tap was performed and cultured, reporting an absence of E. coli or other bacterial contamination. History of recent sexual activity and contraceptive use was investigated but in

vain. An open laparotomy was carried out to evacuate the free gas trapped under the diaphragm.

DISCUSSION

Pneumoperitonium is frequently diagnosed on an erect chest radiograph as a dark crescent of gas under each hemi diaphragm, especially on the right side above the outline of the liver. Genuine pneumoperitonium without a hollow viscus perforation could be secondary to an air leak via a weakened phrenic defect or along the sheaths of the visceral blood vessels. Pseudo-pneumoperitonei is a diagnostic pitfall at the hands of the unwary. Its is clear when subphrenic lucency does not correspond to intraperitoneal air, subphrenic fat pad, linear lung atelectasis, abnormal subphrenic shape, abscess or Chilliati syndrome; according to Guillem P. Chilaiditi syndrome is a malpositioning of the large bowel transposed between the liver and the diaphragm, without free air. The condition could be readily evaluated by a CT scan and responds to conservative management.¹

Leading causes of perforation include perforated peptic ulcers in the stomach or the duodenum; Perforation of the jejunum or ileum secondary to inflammatory bowel disease or a cancer of any segment of the gastrointestinal tract. Colonic perforations are relatively common especially when associated with a diverticular perforation and Bechets syndrome. Gas could be introduced into the peritoneal cavity iatrogenic ally, during surgical intervention such as peritoneal dialysis or by gas forming bacterial infestation by pseudomonas aeruginosa and pneumatosis cystoids intestinalis, when the sub serous intraparietal gaseous bubbles rupture into the peritoneal cavity.²

However, 10% of cases diagnosed as pneumoperitonei are not due to a perforation of an air containing viscus but instead because of post hysterectomy sexual activity³, peritonitis, an gas forming bacteria in the peritoneal cavity.

Our patient had no aetiology and neither was any perforation found on examining the viscus during the laparotomy. Although extremely rare but not unseen, 'a spontaneous (non-surgical) pneumoperitonei' is often reported in women using intra-uterine contraceptive devices. Such devices have been speculated to perforate visceral walls which would allow gas to enter the abdominal cavity and accumulate under the diaphragm. Vaginal ruptures due to accidents or violent sexual intercourse could also result in similar consequences.

The ambiguity of our case lies in the fact that no perforation was found gastro intestinal tract by the absence of any leaking contrast into the abdominal cavity. Furthermore, the peritoneal fluid was free from any bacteria that could have indicated a perforation. The patient is sexually inactive and denied using any contraceptive devices or undergoing any previous major or minor surgical procedures ever. The management of a Pneumoperitonei even in the presence of peritonitis is conservative, if no massive visceral perforation is revealed. The patient was managed conservatively, which frequently results in a successful outcome. This experience and a review of the literature suggest that idiopathic

pneumoperitoneum is amenable to conservative management, despite concurrent peritonitis and pneumoperitonei. Except for a perforated viscus, it is unnecessary to rush into performing a laparotomy when a conservative non surgical approach would far be wiser.

The case highlights the importance of irrelevant laparotomies performed in a rush, when similar outcomes could be achieved but a more conservative approach is requires. Developing countries have limited resources and operative planning could result in expiring a patient's retirement fund.

Newer surgeons in training need to be aware the every case of a gas under the diaphragm is not always a perforated viscus. Better surgeons know when not to operate.⁴

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