

Idiopathic Massive Pneumoperitoneum

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Citation

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Abstract

Pneumoperitoneum is usually caused by perforation of the hollow viscus but there are several other causes leading to pneumoperitoneum e.g. entry of air from lungs or fallopian tubes in females, iatrogenic (post operative). Immediate surgical intervention is essential in pneumoperitoneum due to features of peritonitis. Idiopathic pneumoperitoneum is a condition associated with therapeutic dilemma. We report a case of idiopathic massive pneumoperitoneum in 15 year female who underwent laparotomy.

INTRODUCTION

Pneumoperitoneum results from a perforated viscus in 90% of the cases causing peritonitis and requiring immediate surgical intervention¹. Free gas in the peritoneal cavity is detected radiologically in about 85% of patients with ruptured viscus, most often from a perforated gastric or duodenal ulcer, although perforated colon or small bowel may also present with pneumoperitoneum^{2,3}. Pneumoperitoneum, without evidence of visceral perforation has been reported in 5% to 14% of all occurrences^{2, 4}. Patients undergo laparotomy without intraoperative evidence of visceral disease. A case of idiopathic massive pneumoperitoneum was operated by us and no evidence of peritonitis & visceral pathology were detected intraoperatively.

CASE REPORT

A fifteen year female presented with acute pain abdomen for 2 days and one episode of vomiting. Bowel sounds were diminished. Abdominal examination revealed marked distension, diffuse tenderness and involuntary guarding with absent bowel sounds. A chest roentgenogram revealed massive pneumoperitoneum. The leukocyte count was normal. An exploratory laparotomy was performed that showed no evidence of visceral perforation. On opening peritoneum, large amount of gas escaped out. No evidence of intra abdominal sepsis, or peritonitis was found and all viscera were normal. She improved clinically and was discharged on day 7th of hospital stay.

Figure 1

Figure 1: X-ray abdomen in erect posture showing massive Pneumoperitoneum



DISCUSSION

Pneumoperitoneum usually denotes a perforation of intra-abdominal hollow viscus, but in about 10% patients, a nonsurgical source is responsible for free air in the peritoneum⁵. Spontaneous, non-surgical or idiopathic

pneumo-peritoneum denotes a condition in which no evidence of visceral perforation is present despite radiological evidence of free intra-peritoneal air. Non-surgical causes of pneumo-peritoneum can be categorized as postoperative, thoracic, abdominal, gynecologic and idiopathic.

Abdominal surgical procedures either open or laparoscopic leads to free intra-peritoneal air. Postoperative pneumoperitoneum may persist for 4 weeks, although complete resorption occurs within the first week. Spontaneous pneumoperitoneum from an intrathoracic route is the most frequently reported cause in non-surgical peritoneal air collections. Intrathoracic causes of spontaneous pneumoperitoneum includes intermittent positive-pressure ventilation, barotrauma, asthma, bronchoscopy, adenotonsillectomy, pulmonary tuberculosis, blunt trauma, bronchopulmonary fistula, spontaneous rupture of pulmonary blebs, increased intrathoracic pressure e.g. cough, retching, valsalva manoeuvre⁵. Abdominal causes of spontaneous pneumoperitoneum are pneumatosis cystoides intestinalis, endoscopic procedures, postsplenectomy syndrome, peritoneal dialysis, collagen vascular diseases, pneumocholecystitis, jejunal and sigmoid diverticulosis, distended hollow viscus and subclinical perforated viscus. Gynecologic causes are vaginal insufflation, knee chest exercises, benign inflammatory disease, coitus, gynecologic examination procedures, and vaginal douching⁵.

Our case was different from all causes mentioned above, as no cause could be identified. Idiopathic pneumoperitoneum may be caused by subclinical microperforation of hollow viscus. Subclinical microperforation permits escape of gases

from bowel without leakage of bowel contents. Usually peritonitis is absent and vitals are stable in majority of the cases. Conservative treatment is usually preferred mode of treatment. Laparotomy is usually performed if signs are suggestive of peritonitis and the patient deteriorates on conservative treatment. Laparotomy was performed in our case due to distension, guarding and rigidity of abdomen.

Management dilemma persists for surgeons in cases of idiopathic massive pneumo-peritoneum. Detection of pneumoperitoneum by X-ray chest & CT scan without any cause & evidence of perforation of viscus should be labeled as idiopathic non-surgical pneumoperitoneum. If signs of peritonitis are absent, patient should be managed conservatively. In cases of peritonitis, it is better to perform exploratory laparotomy rather than going on conservative treatment.

In conclusion, each of the idiopathic pneumoperitoneum should be assessed and categorized for conservative or operative treatment. Majority of cases should be managed on conservative treatment. Only a small subset of patients with evidence of peritonitis or deterioration on conservative treatment should be managed by laparotomy.

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