

In the name of God



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Asymptomatic Spontaneous Pneumoperitoneum.

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Abstract:

Pneumoperitoneum usually is synonymous to perforation of hollow viscus and in an ordinary presented as a frank peritonitis. However, about 10% of patients may presented with an unusual cause of pneumoperitoneum, without obvious sign and symptoms related to this event, so called spontaneous pneumoperitoneum.

Spontaneous pneumoperitoneum may pose a diagnostic dilemma, especially when an evaluating patient has no or minimal abdominal findings. Conservative, non surgical treatment should be considered in those patients with pneumoperitoneum if perforation of hollow viscus have been excluded. We believe that this case report may help to selected of patients who can be treated without operation, thus diminishing a negative diagnostic laparotomy.

Keywords: Spontaneous pneumoperitoneum, Subcutaneous emphysema, post operative

Case Report:

A 23-year-old woman who was a case of car accident and referred to our university hospital center for left humeral fracture. The patient underwent general anesthesia for open reduction and internal fixation in a few hours after admission. Two hours later the patient developed progressive subcutaneous emphysema without any sign of respiratory impairment. Control chest X-ray demonstrated pneumoperitoneum without pneumothorax or pneumomediastinum (Fig.1), and subsequent abdominal computed tomography (not shown) revealed intraperitoneal free air around the liver, but there is no evidence of serious intra-abdominal pathology. Physical examination showed soft and flat abdomen and requested lab tests showed no significant findings. With exclusion of other intra-abdominal pathology, conservative therapy including fasting and resuscitation was planned for her. During the hospital course the patient was followed for resolution of intraperitoneal free air and finally she was discharged in good health on the 5th day of admission.

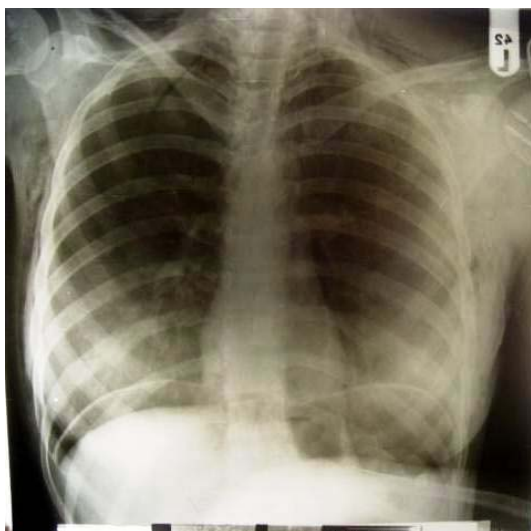


Fig.1, Chest x-ray showed pneumoperitoneum.

Discussion:

Pneumoperitoneum seems to be synonymous with perforated hollow viscus and is accompanied by peritonitis. The most common causes of pneumoperitoneum are perforated gastric or duodenal ulcers, perforation of the appendix, or diverticulum of the colon.⁽¹⁾ Most patients with spontaneous pneumoperitoneum continue to undergo emergency laparotomy, because surgeons are taught throughout their training, that free diaphragmatic air mandates emergency surgery. However, about 10% of patients with an unusual cause of pneumoperitoneum, may have not accordance symptoms and so called spontaneous pneumoperitoneum^(2,3,4)

The various causes of non-surgical spontaneous pneumoperitoneum have been reviewed^(2,5,6) and they include intra-abdominal causes, such as pneumatosis cystoides intestinalis, jejunal diverticulum and recent abdominal surgery; intrathoracic causes such as pneumothorax, pneumomediastinum, pulmonary disease (pneumonia, bullous emphysema, asthma, etc), trauma, mechanical ventilation and cardiopulmonary resuscitation; gynecologic causes, such as pelvic examination, knee-chest exercises, and vaginal douching; iatrogenic causes such as laparoscopy, endoscopy and peritoneal dialysis; miscellaneous causes such as tonsillectomy, aerophagia and dental extraction.

Spontaneous pneumoperitoneum may pose a diagnostic dilemma, especially when an

evaluating patient has no or minimal abdominal or constitutional findings.⁽⁷⁾ Some authors have recommended plain abdominal films as the first diagnostic step in patients who suspected of pneumoperitoneum. CT scan or Ultrasonography (the scissors maneuver) may consider for selected cases, such as, persistence clinical findings with negative or questionable radiographic findings, exclusion of other acute abdominal pathology, and finally in patients has been presented with pneumoperitoneum and referred for different clinical reasons.^(8,9)

Conservative, non surgical treatment should be considered in those patients with pneumoperitoneum if perforation of hollow viscus have been excluded.

The patient presented herein is a case of car accident with left humeral fracture which undergone general anesthesia with positive pressure ventilation. Gas may dissected through the weak points of terminal bronchioles then tracked along the pre-bronchial sheath to the mediastinum and subfacial surface, and induced subcutaneous emphysema, finally gas may entered the peritoneal cavity through the foramen of Winslow similar to the passway that intrathoracic source can cause pneumoperitoneum⁽¹⁾

In conclusion an appreciation of the condition and its likely etiological factors should improve awareness and possibly reduce the imperative to perform emergency laparotomy on an otherwise in stable patient with an unexplained pneumoperitoneum.

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