CASE REPORT

A RARE CAUSE OF PNEUMOPERITONEUM: PERFORATED APPENDICITIS

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Peptic ulcer perforation is the most common cause of pneumoperitoneum (75%). The rate of the perforation of acute appendicitis is 20–30% and the rate of its co-occurrence with pneumoperitoneum is 0–7%. In this report, a patient with sub-diaphragmatic free air due to perforated appendicitis.

Keywords: Pneumoperitoneum, Perforated appendicitis

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INTRODUCTION

Peptic ulcer perforation is the most common cause of pneumoperitoneum (75%).[1] Concurrent perforated appendicitis and pneumoperitoneum are rare (0-7%).[2] In our case, a patient with subdiaphragmatic free air due to perforated appendicitis was reported.

CASE REPORT

A 66 years old female patient presented to emergency department with abdominal pain for one week. She had been constantly using non-steroidal anti-inflammatory drugs for joint pain. She also started to have nausea and vomiting for the last three days. She had a septic appearance on admission. She had comorbidity as hypertension and COPD. On physical examination, she had abdominal guarding at all four abdominal quadrants. Her vital signs were as follows: body temperature 40°C, blood pressure 96/62 mmHg, and pulse rate 140 beats per minute. She had a white blood cell count of 16100. An upright plain abdominal radiogram revealed free air beneath the right diaphragm (Figure). The patient was operated for an initial diagnosis of peptic ulcer perforation. However, laparotomy showed no peptic ulcer perforation, but free fluid in abdominal cavity. Further exploration made clear that the appendix had a gangrenous appearance and it was perforated from its radix. Appendectomy and drainage was performed and antibiotic therapy was commenced. She developed no postoperative complications. Postoperative pathology examination confirmed gangrenous appendicitis.

DISCUSSION

Peptic ulcer perforation is the most common cause of pneumoperitoneum (75%).[1] The rate of the perforation of acute appendicitis is 20–30% and the rate of its co-occurrence with pneumoperitoneum is 0–7%.[2–4] This difference is because perforated appendiceal segment lies distal to the obstructed segment.[5]

Luminal air leak from perforated appendix occurs when appendiceal lumen is patent, and the appendix is observed to be completely or partially obstructed in approximately a third of appendectomies operations.[6] Submucosal bacterial penetration following obstruction may cause transmural suppurative necrosis of appendiceal wall, gangrene, or localized or generalized peritonitis. However, luminal air cannot pass to peritoneal cavity because of luminal obstruction.[7] In delayed cases of perforated appendicitis as in our case, on the other side, a proximally extending perforation may lead to pneumoperitoneum.

Perforated appendicitis has a high mortality and morbidity rate. This rates is more higher in elderly patients with comorbid disease.[8] Although peptic ulcer is still the most common cause of pneumoperitoneum, advanced imaging modalities such as abdominal CT can be of benefit for differential diagnosis in cases where the diagnosis of acute appendicitis is either missed, or delayed.[9]

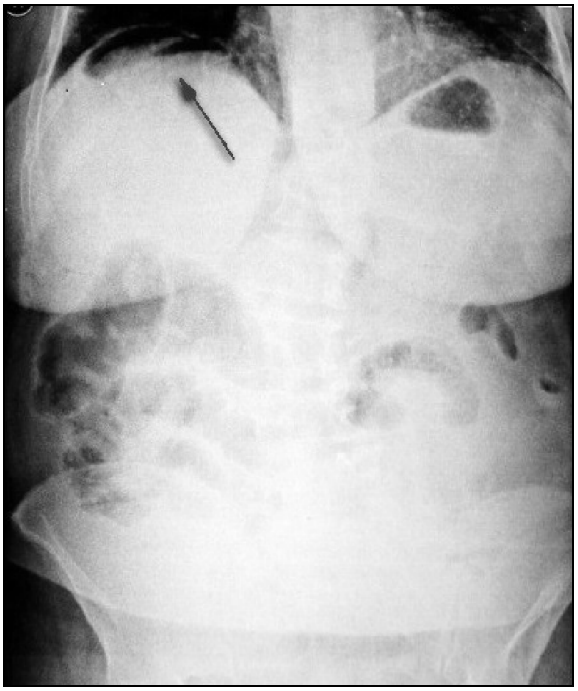

Figure: Plain abdominal radiography showing of free air beneath the right leaf of the diaphragm

CONCLUSION

Appendix perforation should be considered in the differential diagnosis of intraabdominal free air.

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