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Pneumatosis Intestinalis: A Case Report

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ABSTRACT

Pneumatosis intestinalis is a condition in which multiple gas-filled cysts are located in the bowel wall. It can represent a wide spectrum of disease and a variety of underlying diagnoses. The present report describes the case of a 58-year-old man with the complaints of abdominal distension, fever, vomiting and abdominal pain on and off. He had a history of moderately differentiated adenocarcinoma of rectum, Stage IIC (T3N2b) and anterior resection done.

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INTRODUCTION

Pneumatosis intestinalis (PI) is a finding characterized by the presence of gas within the bowel wall (1,2) small or large intestine. Intramural gas can affect the stomach known as gastric pneumatosis(3). Pneumatosis intestinalis has appeared in the literature as pneumatosis cystoides intestinalis, intramural gas, pneumatosis coli, pseudo lipomatosis, intestinal emphysema, bullous emphysema of the intestine and lymphopneumatosis (4,5). Pneumatosis intestinalis usually found with the condition that disrupt mucosal integrity, such as necrotizing enterocolitis, intestinal ischaemia, inflammatory bowel disease, and intestinal infections.

The incident of pneumatosis intestinalis is difficult to ascertain since most patients are asymptomatic and never come to clinical attention (5). Adults are typically diagnosed in the fifth to eighth decade.

Case report

The patient, a 58 years old man, presented with abdominal pain and distension at outpatient department of Suri Seri Begawan Hospital at Kuala belait, Brunei. On examination abdomen was mildly distended and tender, soft, bowel sound was present. Plain X-ray abdomen showed no free gas, small bowel loops were moderately dilated. Blood tests showed increased WBC, CRP and prothrombin time, de arranged liver function tests. Contrast enhanced CT scan of abdomen and pelvis revealed no free gas, dilated small bowel (jejunum), intramural gas in small bowel, ascending and descending colon, mild to moderate ascites, thrombus in portal, superior mesenteric and inferior mesenteric veins and their proximal branches. Portal (21mm) and superior mesenteric (20mm) veins were mildly dilated. Upper GI tract endoscopy showed diffuse gastritis and oesophageal candidiasis. He had a history of moderately differentiated adenocarcinoma of rectum, Stage IIC (T3N2b) and anterior resection was done. However, no recurrence of lesion was seen.

Patient was treated conservatively and discharged.

Regular SOPD (surgical outpatient department) follow-up showed no complain and no recurrence of abdominal pain.

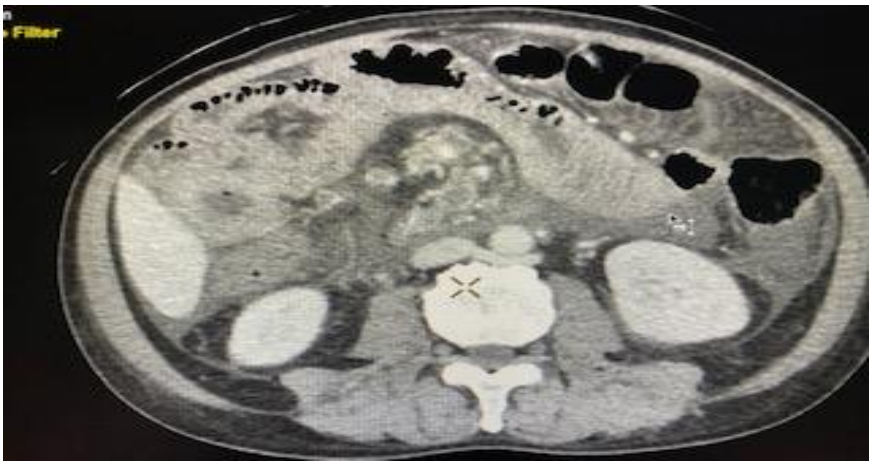

Fig-A

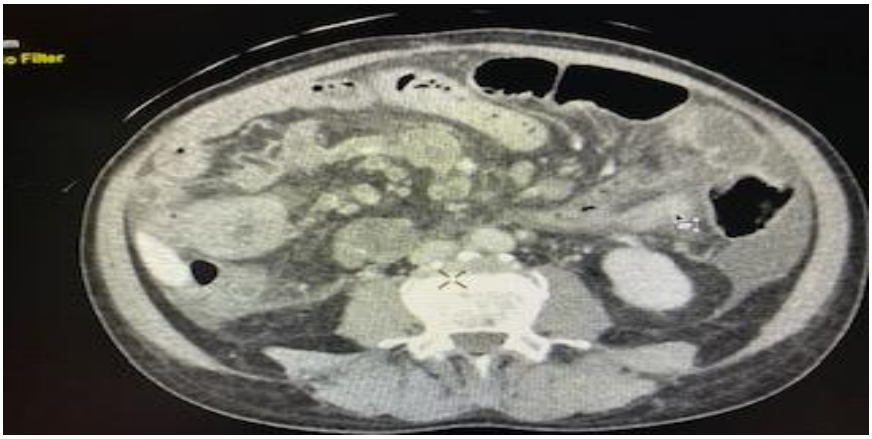

Fig-B

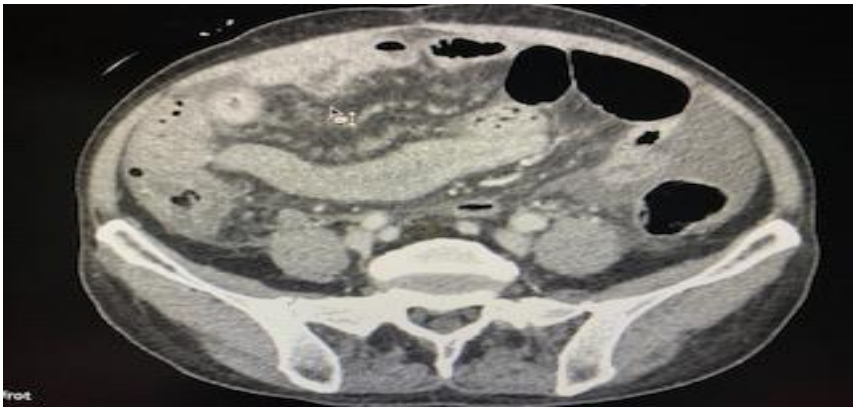

Fig C

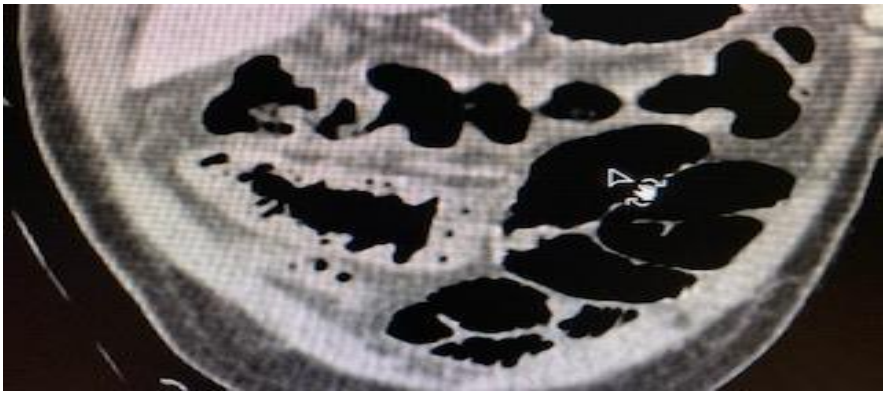

Fig-D

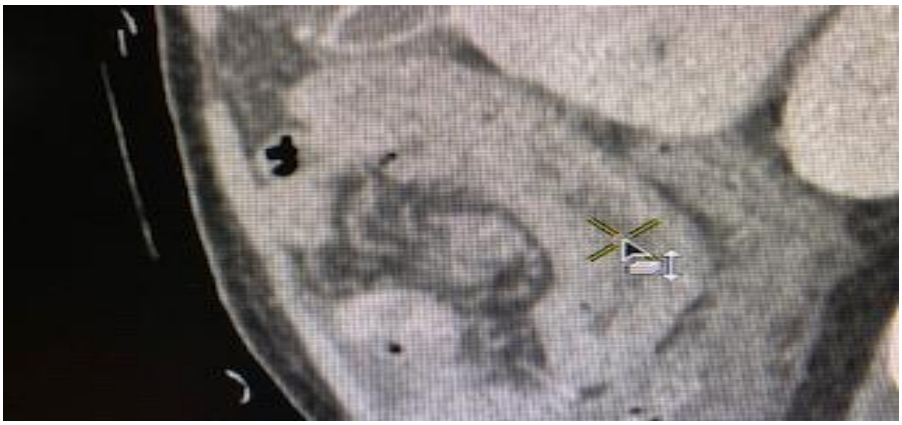

Fig-E

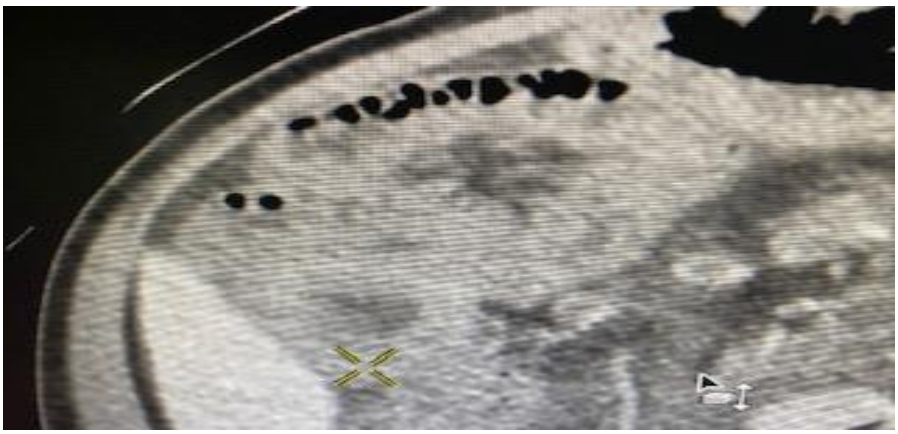

Fig-F

Fig-A to F, CECT scan of abdomen showing pneumatosis intestinalis.

DISCUSSION

Pneumatosis intestinalis (PI) is idiopathic (15 percent) or secondary (85 percent) to a variety of gastrointestinal and non-gastrointestinal illness (6,7).

A mechanical theory hypothesizes that gas dissects in to the bowel wall from either the intestinal lumen (breaks in the mucosa or through serosal surface by tracking along mesenteric blood vessels) (8). From bowel wall gas may spread along the mesentery to distant sites (9). Or from the lungs (obstructive pulmonary disease) via rupture of alveoli due to coughing air track along blood vessels in to the mediastinum, through the diaphragm, and ultimately to the mesenteric root to mesenteric blood vessels and penetrate to bowel wall.

A bacterial theory proposes that gas-forming bacilli enter the submucosa through mucosal rents or increased mucosal permeability and produce gas within the bowel wall (9,10).

Biochemical theory proposes that luminal bacteria produce excessive amount of hydrogen gas produces pressure within the intestinal lumen, gas may force directly through the mucosa and become trapped within the submucosa (11).

PI has been reported in patients with small bowel bacterial overgrowth and in patients taking alpha glucosides inhibitors which increases intestinal gas (12-16).

Most patients with pneumatosis intestinalis (PI) are asymptomatic and probably never come to clinical attention (5). Patients who come with clinical attention presents with abdominal pain, distension, vomiting, diarrhoea, weight loss and loss of appetite.

Imaging play an important role in diagnosis. In abdominal X-ray intramural gas can appear as linear, curvilinear or circular appearances. Pneumoperitonium or dilated bowel loops can be seen. An abdominal ultrasound may reveal bowel wall gas echoes with acoustic shadowing. Contrast enhanced CT scan can confirm the diagnosis and underlying causes. Usually intramural gas, free gas in peritoneum, portal venous gas, dilated bowel loops are the common findings. (17).

In upper GI tract endoscopy submucosal cysts may appear as pale or bluish in appearance.

Laboratory studies usually show leucocytosis, elevated haematocrit, metabolic acidosis and increased serum lactate.

Complication is less likely and are intestinal obstruction, volvulus, intussusception, adhesion, hematochezia and pneumoperitonium.

CONCLUSION

Exploratory laparotomy is done. If there are signs of peritonitis, metabolic acidosis, lactate >2.0mmol/L, portal venous gas. However, our case was successfully managed conservatively.

Localization of lesions and identifications of PI patterns; integration of imaging, laboratory and clinical findings permit clinicians to suspect the onset of complications and to distinguish benign from life threatening PI and to decide proper management.

Conflict of interest: None.

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