

# Pneumatosis Cystoides Intestinalis: A Case Report

*Saeed Jarbou MD\**

## ABSTRACT

This study presents a case of pneumatosis cystoides intestinalis affecting the terminal ileum in a 25-year old male patient, discovered accidentally during laparotomy for acute abdomen which was proved to be due to perforated duodenal ulcer, Pneumatosis cystoides intestinalis is characterized by the presence of subserosal or submucosal gas filled cysts in the wall of gastrointestinal tract, this condition is rarely seen in the surgical practice.

**Key words:** Pneumatosis cystoides intestinalis, Pneumoperitonium.

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### Case Report

A 25-year old male presented to the Emergency Department at Prince Rashid Bin Al-Hasan Hospital on 22<sup>th</sup> June 2008 with recent history of severe, generalized abdominal pain that started suddenly. It was associated with nausea and vomiting. On admission his pulse was 80/min, blood pressure was 120/70mm Hg, body temperature 37c° and WBC was 14800/mm<sup>3</sup>. Abdominal examination revealed board –like rigidity, his chest X-ray showed air under diaphragm bilaterally as shown in Fig. 1. Our impression was perforated viscous mostly perforated duodenal ulcer as demonstrated in Fig. 1.

He was resuscitated with intravenous fluids and antibiotics, laparotomy was performed and revealed 2x1cm duodenal perforation affecting the anterior aspect of the first part of duodenum and multiple air filled subserosal cysts over 90cm of the terminal ileum with normal colour and viable bowel as illustrated in Figures 2 and 3.

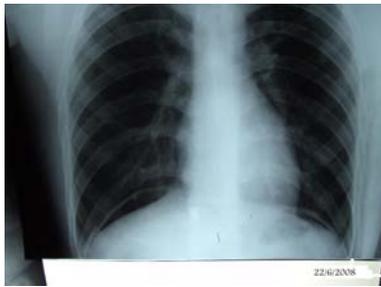
Bilroth 1 procedure was performed because the perforation was big with friable edges, and the gas filled cysts was treated conservatively post operatively with O<sub>2</sub> mask 4 liters/min and antibiotics including metronidazole. The post operative course was uneventful, and without complications. Seven days later the patient was discharged in a good condition.

### Discussion

Pneumatosis Cystoides Intestinalis (PCI) is an uncommon condition not often seen in surgical practice; it is characterized by multiple gas filled cysts. It is found in the subserosa or submucosa of the gastrointestinal tract from the oesophagus to the rectum also the mesentery, peritoneum and falciform ligament may be involved, the cysts are translucent, thin walled of variable sizes containing gas mainly nitrogen, carbon dioxide and hydrogen.<sup>(1-3)</sup>

PCI could be primary in 15% of cases without obvious cause or secondary to other pathology in 85% of cases like: Mesenteric vascular disease, necrotizing enterocolitis, inflammatory bowel disease and connective tissue disorder as scleroderma, another cause is drug therapy as immunosuppressive and chemotherapeutic drugs. Also PCI can result as a complication of sigmoidoscopy, colonoscopy and post surgical anastomosis, furthermore cases have been reported secondary to obstructive pulmonary diseases and artificial ventilation.<sup>(1,3-5)</sup> Two theories were suggested for PCI, the mechanical and the bacterial theory, the mechanical theory suggests that PCI arises when gas is forced into the bowel wall as a result of trauma, obstruction, increased intraluminal pressure or increased peristalsis in the presence of mucosal alteration or injury that provide a pathway for gas and bacteria to enter the intestinal

\*From the Department of General Surgery, Prince Rashid Ben Al Hassan Hospital, Irbid-Jordan.  
Correspondence should be addressed to Dr. S. Jarbou, P. O. Box 2360 Irbid 21110 Jordan, E-mail: saeedjarbou@yahoo.com  
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**Fig. 1.** Chest X-ray showing air under diaphragm bilaterally



**Fig. 2.** An Intraoperative photo showed multiple subserosal gas filled cysts at the terminal ileum



**Fig. 3.** An intraoperative photo showed multiple subserosal translucent gas filled cysts over about 90cm of the terminal ileum.

wall, the bacterial theory was suggested because of abnormally high levels of hydrogen in the cysts which is mainly produced by bacteria and this was proved in the laboratory animals by injecting bacteria in their intestinal wall to produce PCI.<sup>(3,5-9)</sup> PCI can lead to certain complications like intestinal obstruction, tension pneumoperitoneum, rectal bleeding and cyst – induced volvulus.<sup>(1,4)</sup> PCI can not be definitely diagnosed based on clinical and laboratory findings but plain abdominal radiographs or CT scan can suggest the diagnosis.<sup>(5,6)</sup> The treatment of PCI is according to the underlying cause and when discovered incidentally during laparotomy and the affected bowel is healthy and not in obstruction only post operative oxygen therapy and metronidazole usually beneficial, as we did in our case, but when life-threatening cause is present we should deal with it, especially among patients with increased inflammatory parameters in laboratory findings or signs of sepsis, peritonitis or bowel perforation.<sup>(3,4,8,10)</sup>

### Conclusion

PCI is a rare condition usually benign, discovered accidentally during laparotomy for another disease, but could lead to surgical emergency that need interference in the presence of complications.

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