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Primary Intestinal Cystic Pneumatosis Revealed by Pneumoperitoneum: Report of a Case

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Abstract | **Case Report**

Cystic intestinal pneumatosis is the presence of gas bubbles in the wall and serosa of the digestive tract. It is asymptomatic or minimally symptomatic, and is most often discovered during an imaging or endoscopic examination. We bring the case of a 50 years old man, chronic smoker not weaned, never operated, admitted to the emergency room for management of an acute abdomen associated with vomiting. The clinical examination on admission objective of a generalized abdominal contracture. An unprepared abdominal film showed a pneumoperitoneum. An abdominal CT scan was performed showing a diffuse pneumoperitoneum the patient underwent surgery and exploration found a stasis stomach associated with diffuse small bowel pneumatosis without gastric or small bowel perforation.

Keywords: Intestinal cystic pneumatosis; pneumoperitoneum; acute abdomen.

INTRODUCTION

Cystic intestinal pneumatosis is the presence of gas bubbles in the wall and serosa of the digestive tract. It is a benign, rare, pauci-symptomatic pathology with radiological diagnosis and medical treatment. Classically, a distinction is made between a primary or idiopathic form (15% of cases) and a secondary form (85% of cases) with numerous pathological associations, of etiological treatment [1, 2].

PATIENT AND OBSERVATION

50 years old man, chronic smoker not weaned, never operated, He was admitted to the emergency room for late postprandial vomiting for one week associated with epigastric pain without other accompanying signs, The clinical examination found a patient apyretic, with abdominal contracture, fasting lapping and signs of dehydration. The biological workup showed hypokalemia at 3 mEq/l, hypoalbuminemia at 26g/l, hemoglobin at 11g/dl and leukocytosis at 17,000 elements/mm an abdominal computed tomography (CT) scan, which showed cystic pneumatosis at the expense of a digestive wall with pneumoperitoneum and an abnormal arrangement of the small intestines on the right flank (Figure 1). There was no mesenteric vascular thrombosis or aeroportosis.

The patient was operated by median approach and exploration found a stasis stomach associated with diffuse small bowel pneumatosis without gastric or small bowel perforation (Figure 2 & 3). A large drainage was performed and the postoperative follow-up was simple.

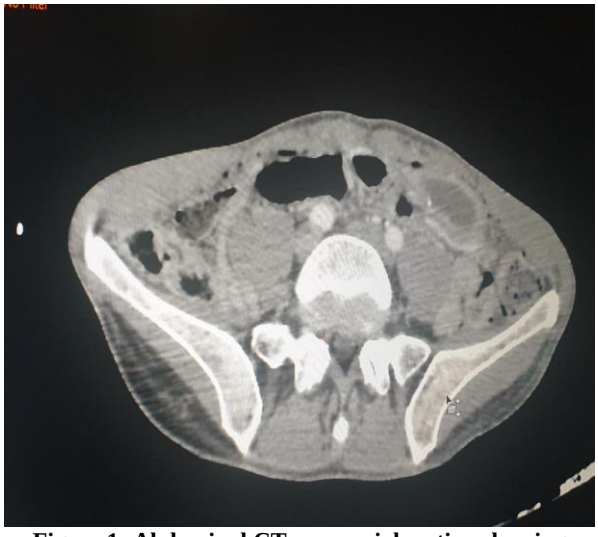

Figure 1: Abdominal CT scan, axial section showing intestinal cystic pneumatosis

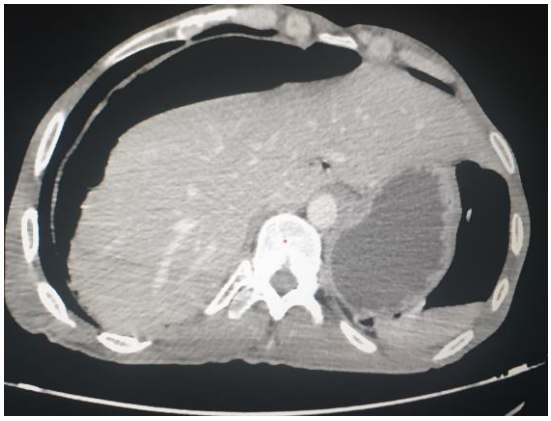

Figure 2: Abdominal CT scan, axial section showing intestinal cystic pneumatosis

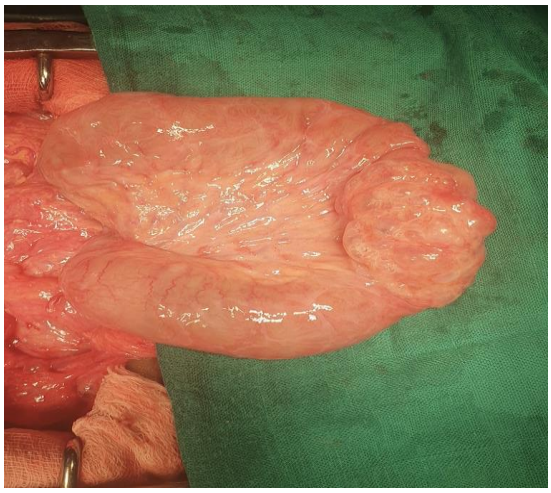

Figure 3: Intraoperative image showing intestinal cystic pneumatosis

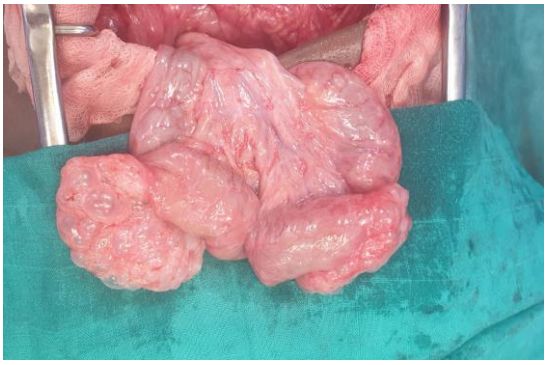

Figure 4: Intraoperative image showing intestinal cystic pneumatosis

DISCUSSION

Intestinal cystic pneumatosis is defined as the presence of gas cysts in the digestive wall that can occur from the esophagus to the rectum, but preferentially in the small intestin and left colon [1-3]. It is a benign pathology, infrequent, with a male preponderance after 50 years of age [4] and mostly secondary, described in association with various conditions (Table 1) as systemic diseases (lupus, erythema nodosum), or certain digestive and (abdominal trauma, inflammatory diseases of the intestin, pyloric stenosis, peptic ulcer, intestinal anastomoses, shortened small bowel, jejuno-ileal short circuit, diabetic enteropathy, caeliac disease; hirschsprung's disease).

Cysts affect the small intestine in 42% of cases, the colon in 36%, and more rarely the esophagus and rectum [5]. The majority of primary pneumatoses are limited to the colon, particularly the sigmoid and the left colon; those involving the small intestine are more secondary [2]. From an anatomical point of view, cysts measure from a few millimeters to several centimeters, present a bluish polypoid aspect and are located preferentially in the submucosa for the colon and the subserosa for the small intestine. As cysts age, they become surrounded by fibrosis and giant cells filling their lumens.

The clinical symptomatology of intestinal pneumatosis is usually aspecific and usually that of the causative disease. The clinical symptomatology of intestinal pneumatosis is usually aspecific and usually that of the causative disease (e.g., postprandial vomiting, dehydration, weight loss, and abdominal pain) [1, 7-11]. This lack of specificity makes imaging of major interest for positive and etiologic diagnosis. The ASP shows cystic hyperclartes in "grape cluster" adjacent to the digestive lumen realizing a double gas contour aspect suggestive of the diagnosis [12]. The multidetector CT scan is very effective in demonstrating the beaded appearance or gas parietography [13]. The use of large lung windows is essential. The CT scan also allows to specify the extent of the pathological lesions, to follow the anatomical diffusion of the gaseous fluid, to specify the primary or secondary character of the condition and especially to distinguish cystic pneumatosis from acute mesenteric ischemia with parietal pneumatosis and will look for signs of complications such as perforation, hemorrhage or occlusion [14], such as what was found in our patient. Pneumoperitoneum and retro-pneumoperitoneum are the hallmark of ruptured subserosal cysts [15].

Primary cystic fibrosis usually evolves spontaneously without treatment [16] and in secondary forms by a treatment combining a residue-free diet, antibiotic therapy with metronidazole (Flagyl®) to combat bacterial gas production and, for some, hyperbaric oxygen therapy [17]. Ineffective treatment, the nature of the causative pathology or the occurrence of complications will modify the therapeutic management, which will then become surgical.

CONCLUSION

Cystic pneumatosis of the small intestine is a little-known benign condition, diagnosed by radiology. It should not be confused with a simple pneumoperitoneum, nor with pneumatosis on intestinal gangrene. For this reason, the multidetector scanner is

extremely efficient for studying the diffusion of gases in the digestive serosa, the different peritoneal, preperitoneal and retroperitoneal spaces. It guides the surgeon to treat a possible complication

Interests: The authors declare no competing interest.

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