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Pneumatosis cyst of the sigmoid

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Abstract

We present the case of a pneumatosis intestinalis in a 66 year-old men who was operated for a duodenal ulcer stenosis. This association is commonly found in the literature and several theories attempt to found a link, but the pathogenesis is still not clear. In the present case report. we discuss the pathogenic factors of such association.

1. Introduction

The intestinal cystic *pneumatosis* (PKI) is a rare affection, defined by the accumulation of gas in cystic cavities under mucous membranes or under serous sitting in an any part(party) of the digestive tract; it is a mild affection, most of the time, bound(connected) to a digestive affection or a lung broncho (1). We report an observation of PKI associated with a duodenal ulcerous stenosis.

2. Observation

66-year-old Mr BD, appendectomy forty years ago and operated for a peritonitis by perforating of duodenal ulcer in 1990 by a simple suture. The colonist and the small intestine did not present anomaly during the last intervention .The clinical exam in the admission presented for six months the atypical ulcerous pains associated with vomiting showed a thin and dehydrated sick person. The gastric fiberscopy and the duodenal gastronomic transit objectified a stenosis very tight pyloric bulbar with an important gastric stase.

The surgical operation was decided after rehydration and correction of the hydro electrolytic disorders. The surgical exploration confirmed the pyloric stenosis which was treated by a gastroenteritis anastomosis. We also discovered a cystic diffuse pneumatosis interesting the entire colon sigmoid respecting the small intestine (figure 1). The exploration also found a tumoral mass of the pyloric duodenal region very rich in gaseous cysts and the histological study which showed a connective tissue which sheltered numerous empty cavities has fibrous walls lined sometimes by macrophages cells (figure2). The follow up were simple and the evolution was favorable. After eight years no sign of second recurrence.

3. Discussion

The intestinal cystic pneumatosis was described for the first time on the human corpse in 1730 by Duvernoir (2). It's observes in all the ages of the life with a maximum between 40 and 50 years and a male ascendancy (1). It can sit in all the

parts of the digestive tract of the oesophagus and the rectum with a preference for the small intestine and the colonist .The esophageal, gastric, duodenal localizations, mesenteric and epiploon are exceptional (2). The gaseous cysts measure some millimeters in several centimeters and can be located under mucous membrane or under serous. The forms under mucous membranes are from easy diagnosis to endoscopy .The forms under serous appear in the form of multiple translucent vesicles Stretched on the surface of the digestive handle. Their spontaneous explosion is responsible for an often revealing characteristic pneumo peritoneum of the disease (3). These cysts do not communicate directly with the intestinal light and it seems admitted by most of the authors that the walls of cysts correspond to lymphatic vessels having undergone the local dilations (3). The gaseous contents of cysts are made by nitrogen, by oxygen and by carbon dioxide and sometimes also by tracks of butane, by propane or by methane. Gases of fermentation as hydrogen or carbon dioxide, sometimes found in strong proportions, can suggest a bacterial origin (1)

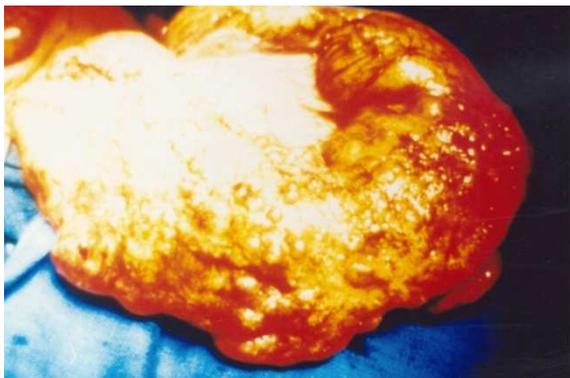


Figure 1. Operating View of a cystic pneumatosis under serous interesting the sigmoid colon.

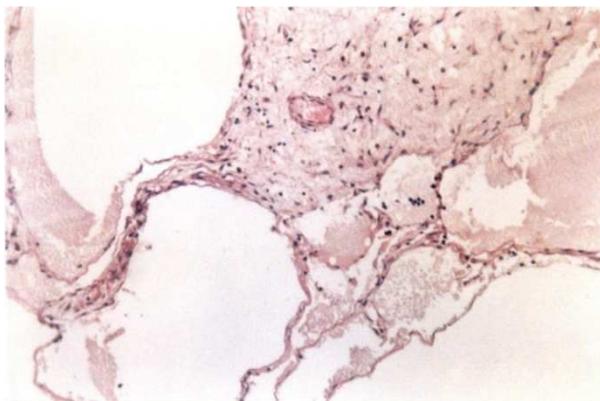


Figure 2. Microscopic aspect of the cystic pneumatosis showing gaseous cysts with an inflammatory cellular reaction of neighborhood.

The idiopathic forms represent only 15 % of all the observed cases, while numerous digestive or lung pathological associations were described with the cystic pneumatosis (4). It involves most of the time a lesion

pulling a gastro intestinalis obstruction : gastro duodenal ulcer, pyloric stenosis, volvulus, anastomosis digestive and the hypertrophic stenosis of the pyloric at the child (5) .The association of the pyloric stenosis ulcerous is frequently reported in the literature and would be responsible for 32 % of the cases (2,4,6) .The pathogenic understanding hypothetical rest in spite of the various advanced theories. The mechanical theory proposed by Nelson in 1972 seems to us the most accepted (7).

It brings in a tissue dissection by gases from the intestinal light .The increase of the intra luminal pressure secondary to the distal organic obstruction or functional, associated with a mucous gastro duodenal lesion represent the initial lesion necessary for the constitution of the gaseous cysts (5).There is a burglary of the gastro duodenal mucous membrane by the gas which spreads to the root of the cross-functional meso colon or the sigmoid to go to take place in the colonic wall by following the route of lymphatic vessels (1,2,8).This gaseous distribution can also interest the gastric wall pulling the constitution of a gastric pneumatosis, an entity often described by numerous authors (5). These conditions are also combined in the insufflation of the air during the endoscopies gastroenteritis duodenal by pulling the passage of the air in the gastric wall without talking of perforating. This is confirmed by the observations of Myhre and Wilson which described two cases of pneumatosis cystic observed on 119 fiberscopies (5). Fierst found seven cases of pneumo peritoneum secondary sectors in fiberscopies realized without incident (5) .

We also note that the formation of gaseous cysts on the big epiploon can be caused by an accidental insufflation of the carbon dioxide during the creation of the pneumo peritoneum during a video abdominal laparoscopy surgery. All these observations plead in favour of the mechanical theory of the pneumatosis. In our sick person, the ulcer represents the mucous lesion initiator who conjugates with the gastric hyper pressure due to the bulbar stenosis to pull the gaseous distribution of the gastric light towards the wall .The tumoral mass rich in gaseous cysts discovered in the pyloric duodenal region represent in our opinion the zone of passage and distribution of the gas towards the mesocolon then towards the intestinal wall.

Other theories were moved forward to give an explanation to the PKI. The bacterial theory gases of cysts would be produced by bacteria within cysts (1).The infertility of the cultures and the negativity of the research for germs in the electronic microscopy represent arguments against this .The food theory, the gas, in particular the hydrogen, would be produced by the bacterial fermentation of the carbohydrates and would cross the colonic mucous membrane to accumulate in the lymphatic under mucous membrane (1,2,6,8) .

The PKI can be asymptomatic, its discovery by chance during a laparotomy as it is the case of our observation or revealed by a pneumo peritoneum without signs of peritonitis (9,10). The symptoms, when they exist, are in

touch with the size, the location and the area of the cysts which can cause a luminal occlusion, an extrinsic compression or a mucous suffering (1,10). The abdominal pains and the disorders of transit are noted in half of the cases. Proctorrhagia, mucous saddles or a tenesmus can reveal the first side sigmoid forms (1,2). The little specific character of the symptoms and the poverty of the clinical examination make that the diagnosis bases essentially on the complementary examinations. The radiography without preparation and the lung radiography can show an interposition of the gaseous clarities between the diaphragm and the liver (sign of Moreau-Chilaiditi), a pneumo peritoneum or gaseous cysts grouped in "bunch of grapes" drawing the outlines of the digestive viscera (1,4,9). The scanning is the exam of choice to make the diagnosis by specifying the location and the extension of the pneumatosis. The endoscopy is interesting in the colonic forms by showing cysts under mucous giving a dented and translucent aspect to the mucous membrane (2). The complicated forms represents 3% of described cases. It can involve an occlusion, a volvulus, an invagination or a perforating. These forms require most of the time a surgical treatment (6, 10).

4. Conclusion

The spontaneous evolution of the PKI is favorable in a large number of the cases, its treatment is badly codified, but rest closely linked to the various physio pathological theories. The therapeutic abstention is of rule in the forms not or little symptomatic. In case of invalidating symptoms, a medical treatment is imperative. The hyperbaric oxygen

therapy or more often mono bare in strong concentration is widely proposed, it favors the distribution of gases outside cysts.

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