Asian Journal of Case Reports in Surgery

Volume 6, Issue 1, Page 231-235, 2023; Article no.AJCRS.99064

Cystic Intestinal Pneumatosis Revealed by Stomach Pain: A Case Report

Amal Hajri [a], Khadija Kamal [a], Kenza Benjelloun Touimi [a*], Driss Erguibi [a], Rachid Boufettal [a], Saad Rifki Jai [a] and Farid Chehab [a]

[a] Department of Digestive Cancer Surgery and Liver Transplantation, Faculty of Medicine and Pharmacy, Hassan II University of Casablanca, CHU Ibn Rochd, Casablanca, Morocco.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/99064

Case Study

Received: 25/02/2023
Accepted: 27/04/2023
Published: 13/05/2023

ABSTRACT

Cystic intestinal pneumatosisis a rare condition characterized by the presence of gaseouscysts in the intestinal wall, whichcan affect the entire digestive tract, with a predilection for the small intestine and the colon. The diagnosis is evoked on the scanner, making it possible to avoid surgical intervention in the absence of complications. We report a rare observation of pneumatosis cysticacolica, source of stomach (abdominal) pain whosethe chestX-ray (radiograph) showing (demonstrated) pneumoperitoneum requiring surgical intervention.

Keywords: Cystic intestinal pneumatosis; stomach pain; abdominal pain or pain abdomen.

**Corresponding author: E-mail: kenzabenjelloun08@gmail.com;*

1. INTRODUCTION

Cystic intestinal pneumatosisis a rare entity, defined by the presenceofcysts of gaseous content in the intestinal wall [1] which remains poorly understood, posing diagnostic and therapeutic problems [1,2]. It canbeprimary or secondary associate dwith multiple gastrointestinal pathologies .We report the observation of a primarycystic intestinal pneumatosis revealed by astomach painwhosethe chest X-ray showing pneumoperitoneum requiring surgical intervention.

2. CASE PRESENTATION

Patient was 41-year-old man.

He had no medicalhistory.

He wasreferred to our emergency, he had stomach pain and a swollenbelly.

He had no external gastrointestinal bleeding.

On examination, hewasafebrile, with normal respiratory rate and normal restingheart rate.

The abdomen was sensitive on palpation.

The chest X-ray showed pneumoperitoneum.

On the sameadmission day, the patient wastransferred to the operating room.

He gave hisapproval to do surgery.

During laparotomy under general anesthesia, the exploration showed cystic pneumatosis intestinalis and thereis no sign of peritonitis.

The abdomen wasclosedwith all precautions and counts of surgical items.

The post-operative care was simple, he was discharged from hospital on post operative day5 with a medicaltreatment.

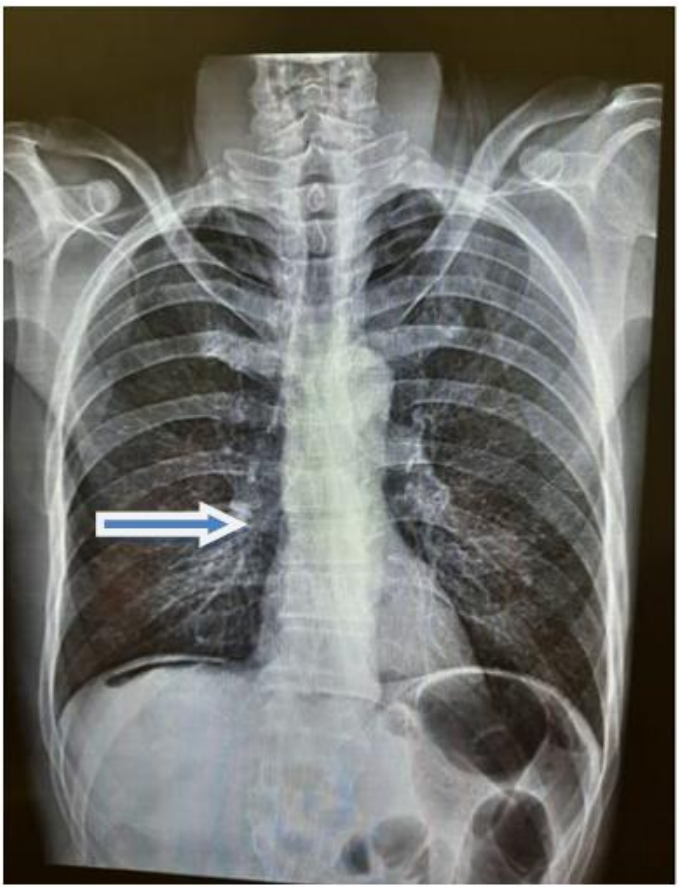

Fig. 1. The chest X-ray showing pneumoperitoneum

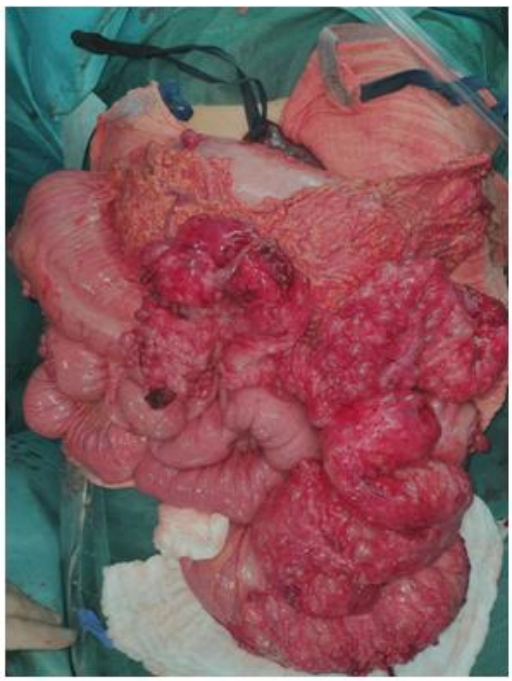

Fig. 2. Cystic pneumatosis intestinalis

3. DISCUSSION

Intestinal cysticpneumatosisisa rare condition characterized by the presence of gaseouscysts in the intestinal wall, whichcan affect the entire digestive tract, with a predilection for the small intestine and the colon [1].

Cystic Intestinal pneumatosis is defined as the presence of cyst-like lesions in the intestinal wall and is divided into two categories: life-threatening intestinal pneumatosis and benign intestinal pneumatosis [2]. It has a low incidence and its etiology is unclear; besides an incidence of 3 cases per 10 000 individuals has been estimated in the general population [3].

As for its pathophysiology, three possibilities have been proposed as a source of gas: intraluminal gastrointestinal gas, bacterial gas production and pulmonary gas. The first theory occurs due to increased intraluminal pressure in the context of mucosal barrier injury. The second theory involves colonization of gas-producing bacteria in intramural compartments due to mucosal involvement; these bacteria produce hydrogen tensions that exceed blood nitrogen pressures, leading to a hydrogen diffusion gradient into the submucosal vessels. The last theory proposes that alveolar rupture could cause gas dissection into the vascular channels of the mediastinum, tracking caudally to the retroperitoneum and then to the mesentery of the bowel [4].

In anatomicalpathology**,** the cystic formations are especially developed in the submucosa in particular in the colicattacks, and/or in the subserous in particularsmall intestine [5].

Cystic intestinal pneumatosis preferentially affects men between 40 and 50 yearsold and isoftensecondary or associated with other gastrointestinal pathologies (inflammatory bowel disease, pepticulcer, pyloricstenosis, abdominal trauma) or extra gastrointestinal (broncho-pneumonopathy chronic obstructive disease, heartdisease, cysticfibrosis, lupus, periarteritis nodosa), the primaryforms are uncommon [6].

In our patient, given the absence of associated pathologies, we concluded that he had primary cystic pneumatosis. The mechanism of formation and maintenance of gaseous cysts is multifactorial, involving in variable parts several components: loss of integrity of the mucosa (infectious or inflammatory damage), elevation of endoluminal pressure, changes in the bacterialflora, constitutional and/ or acquired and hyperproduction of intestinal gaswith disruption of their degradation mechanisms [7].

Cystic intestinal pneumatosisisusually pauci-symptomatic. It canberevealed by non-

specificsignsin 30% of cases: diarrhea, bloody or mucousstools, meteorism, vomiting, constipation, tenesmus. Intestinal obstruction is a rare complication related to the number and bulky size of cysts that can narrow the intestinal lumen and lead to an occlusive syndrome [8].

Other complications related to cystic volume have been described: volvulus, intussusception, perforation, hemorrhage [9]. Computed tomography has good diagnostic accuracy. It reveals images of gasdensity in the digestive wall, better visible in the pulmonary window [8].

Multiplanar reconstructions makeit possible to preciselystudy the topography, volume and extent of the cysts. The association with asymptomatic pneumoperitoneum is almost pathognomonic [1].

Ultrasoundexaminationis non-specific, itmay suspect the diagnosis by showingthinning of the intestinal wall and echoes with acoustic shadow [9,10].

Endoscopic examinations confirm submucosal cysts, which produce a characteristic noise whenthey are collapsed by the biopsy forceps (poppingsound). There is an important diagnostic criterion to make the differentialdiagnosiswith acute intestinal pneumatosis or intestinal gangreneis the absence of aerosis on computed tomography or ultrasound [9].

The treatment is still poorly codified, it is most often a medical treatment whose goal is to reduce or eliminate the cysts by reducing the anaerobic bacteria that cause them. It calls for lifestyle and dietary measures, anti-anaerobic antibiotic therapy with metronidazole [10,6] and hyperbaric oxygen therapy. Surgical treatment is indicated in the event of complications, in the event of symptoms resistant to medical treatment and in the event of associated surgical pathology. It consists in resecting the intestinal segment affected by laparotomy or even better by laparoscopy [10].

4. CONCLUSION

Cystic intestinal pneumatosisis an uncommon affection, oftenasymptomatic and benign. Its recognition is important to avoidundertaking abusive therapeutic attitudes, that's why Computedtomographyisrecommanded.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Goel A, Tiwari B, Kujur S, Ganguly PK. Pneumatosiscystoides Intestinalis. World J Gastroenterol. 2011;17(44)
2. Di Pietropaolo M, Trinci M, Giangregorio C, Galluzzo M, Miele V. Pneumatosis cystoides intestinalis: Case report and review of literature. Clin J Gastroenterol. 2020;13(1):31-36.
   Ling F, Guo D, Zhu L. Pneumatosis cystoides intestinalis: A case report and literature review. BMC Gastroenterol. 2019;19(1):176.
3. Khalil PN, Huber-Wagner S, Ladurner R, Kleespies A, Siebeck M, Mutschler W, Hallfeldt K, Kanz KG. Natural history, clinical pattern, and surgical considerations of pneumatosis intestinalis. Eur J Med Res. 2009;14(6):231-9.
4. St Peter SD, Abbas MA, Kelly KA. The spectrum of pneumatosis intestinalis. Arch Surg. 2003;138(1):68-75.
5. Behnoush B, Bazmi B, Mohammadi F, Bazmi E, Dorvashi GA. Pneumatosis Intestinalis: Autopsy Finding. Acta MedicaIranica. 2009;47(5):415–417.
6. Serraj I, El kihal N, Mohcine R, Essaid A. Pneumatose kystique intestinale avec ascite: association exceptionnelle. Acta Endoscopica. 2006;36(3):357–362.
7. Rivera Vaquerizo PA, Caramuto Martins A, Lorente García1 MA, BlascoColmenarejo M, Pérez Flores R. Pneumatosis cystoides intestinalis. Rev Esp Enferm Dig. 2006; 98(12):959–961.
8. Lê P, Benazzouz A, Fritsch L. Une pneumatose kystique colique révélée par un syndrome pseudo occlusif. Ann Chir. 2003;128(2):117–120.

9. Braham R, Said M, Rehaiem A, JerbiOmezzine S, Memmi F, Bouabid Z, et al. Imagery of pneumatosiscysticaintest inalis. J Chir. 2004;14(3):201–204.

10. El Bouhaddouti H, Ousadden A, Benjelloun B, Mazaz K, Aït Taleb K. Pneumatose kystique iléale révélée par un volvulus du grêle. Pan Afr Med J. 2010;6:9

© 2023 Hajri et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/99064