

Pneumatosis Intestinalis: When We Need to Operate?

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Pneumatosis intestinalis has a varied presentation and is diagnosed by a set of informations, including imaging, clinical signs, physical exam and laboratory test. This condition has a great variation of presentation and needs a high degree of suspicion for operating when there is evidence of a potentially fatal condition and treating conservatively when there is a benign etiology underlying.

Different from newborns, in which the therapeutic decision can be guided by Bell's criteria, older children and adults don't have a score or protocol for helping the decision-making process in these patients. Therefore, the amount of patient data is interpreted by the surgeon's personal knowledge and feeling, with a preference for overtreating (performing non-therapeutic laparotomies) over conservative management (nonoperative treatment).

This caution on choosing a more aggressive treatment is based, most of the time, on the catastrophic complications of pneumatosis intestinalis following a vascular occlusion, complete obstruction or peritonitis. But, how can we decide between nonoperative and operative treatment?

As a secondary finding in a wide range of underlying diseases, pneumatosis intestinalis reveals the information that there is mucosal disruption and increased intraluminal pressure by intraluminal gas, which can be addressed to many causes:

- **Intraluminal pressure:** Excessive vomiting, intestinal occlusion (mechanical or not), blunt trauma

- **Mucosal injury:** Inflammatory bowel disease/ immunosuppression, intestinal distension and vascular occlusion.
- **Intraluminal gas:** Alveolar rupture/dissection and high diffusion gradient toward the submucosal vessels.

Even knowing these probable causes, we still need to know where the gas came from and how it got there as soon as possible, because surgical conditions progress and there is a short therapeutic time window. So, how can we decide (early) on the best treatment?

Initially, all patients are eligible for nonoperative treatment, since they don't present clear signs of toxemia and clinical compromise (signs of organ failure) identified by compromised perfusion status due to altered vital signs, laboratory exams (especially arterial blood gas) and an image exam. On image, the extent of pneumatosis is not associated with the severity of the underlying disease, and the presence of pneumoperitoneum or portal venous gas are important pieces of information that can guide a surgical condition if associated with clinical deterioration.

No information observed alone can be used for decision-making without association with clinical and laboratory evolution. Patients who don't respond to the initial nonoperative management are more likely to receive surgical treatment, especially those with signs of abdominal sepsis, perforation or peritonitis [1-5].

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