

Classic pneumatosis intestinalis and hepatic portal venous gas in setting of severe abdominal aorta atherosclerosis

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Abstract: An 86-year-old man with extensive past medical history was referred to Emergency Department for evaluation of dehydration, hyperkalemia and worsening of mental status. In physical examination, abdomen was distended and tender with no bowel sounds. Abdominal computed tomographic imaging revealed pneumatosis intestinalis (PI) and hepatic portal venous gas (HPVG) in presence of severe atherosclerotic calcification of abdominal aorta.

Keywords: Pneumatosis intestinalis (PI); hepatic portal venous gas (HPVG); abdominal aorta; atherosclerosis; acute abdomen



Submitted Oct 27, 2013. Accepted for publication Nov 06, 2013.

doi: 10.3978/j.issn.2223-4292.2013.11.01

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An 86-year-old man with extensive past medical history including cardiovascular diseases and coronary artery bypass grafting, chronic heart failure (EF 35-40%), hypertension, cerebrovascular attack, dementia (poor baseline mental status); deep vein thrombosis, history of falls and recent admission for right non displaced tibial and fibular fractures who was referred from skilled nursing facility to Emergency Department for evaluation of dehydration, hyperkalemia and worsening of mental status. Patient was found hypotensive and hypoxic. Severe sepsis was suspected and patient was resuscitated with intravenous fluid. On physical examination, abdomen was distended and tender with no bowel sounds. *Figures 1-3* show hepatic portal venous gas (HPVG), pneumatosis intestinalis (PI) indicated by intestinal submucosal gas, and severe atherosclerotic calcification of the aorta at the same time on computed tomography (CT).

The patient clinical condition was too critical to be stabilized by surgical intervention, and eventually he died of septic shock. PI is most commonly developed as a result of bowel ischemia and mesenteric infarction, but might be the result of various non-ischemic conditions like



Figure 1 Hepatic portal venous gas on abdominal CT. Abbreviation: CT, computed tomography.

trauma, infection, inflammation, obstruction, neoplasm, iatrogenic and idiopathic causes (1). Presence of PI and HPVG at the same time is an important radiological sign,



Figure 2 Hepatic portal venous gas and pneumatosis intestinalis are shown at same time on coronal view of computed tomography.

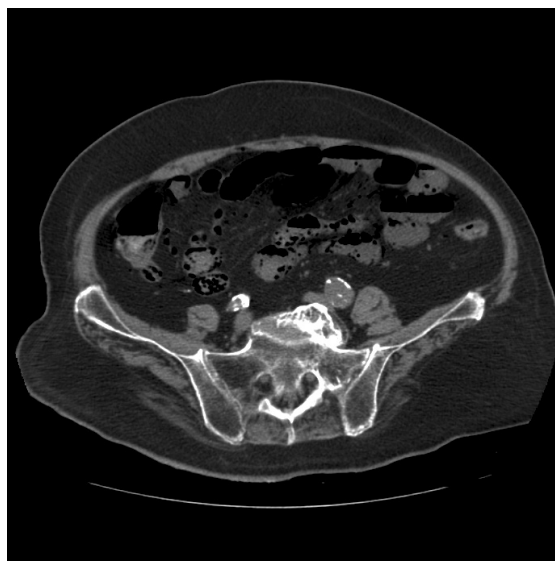


Figure 3 Pneumatosis intestinalis which is indicated by intestinal submucosal gas.

since it usually shows portentous abdominal pathology (2). Advanced imaging techniques such as CT have increased the sensitivity for detection. CT has allowed visualization of small amounts of intraabdominal air that could not be seen at conventional abdominal radiography, and effectively reveals PI and HPVG earlier which results in early intervention and increased likelihood of survival (3,4).

The presence of severe abdominal aorta atherosclerosis in this patient might be an indicator of mesenteric atherosclerotic disease and ischemia, which is common in the elderly population. Such an ischemic condition could turn into angina or infarction by acute arterial occlusion due to emboli, specifically originated from unstable atherosclerotic plaques.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

Cite this article as: Khosraviani K, Guelfguat M, Nezami N. Classic pneumatosis intestinalis and hepatic portal venous gas in setting of severe abdominal aorta atherosclerosis. *Quant Imaging Med Surg* 2013;3(6):339-340. doi: 10.3978/j.issn.2223-4292.2013.11.01

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