

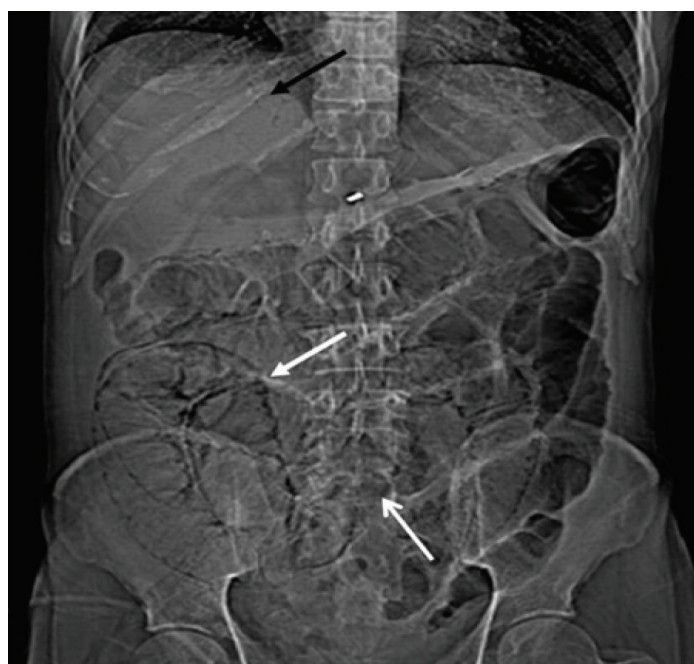
# Acute Mesenteric Ischemia with Intrasplenic Gas: A Rare Occurrence

SENTHIL KUMAR AIYAPPAN<sup>1</sup>, UPASANA RANGA<sup>2</sup>, SAVEETHA VEERAIYAN<sup>3</sup>

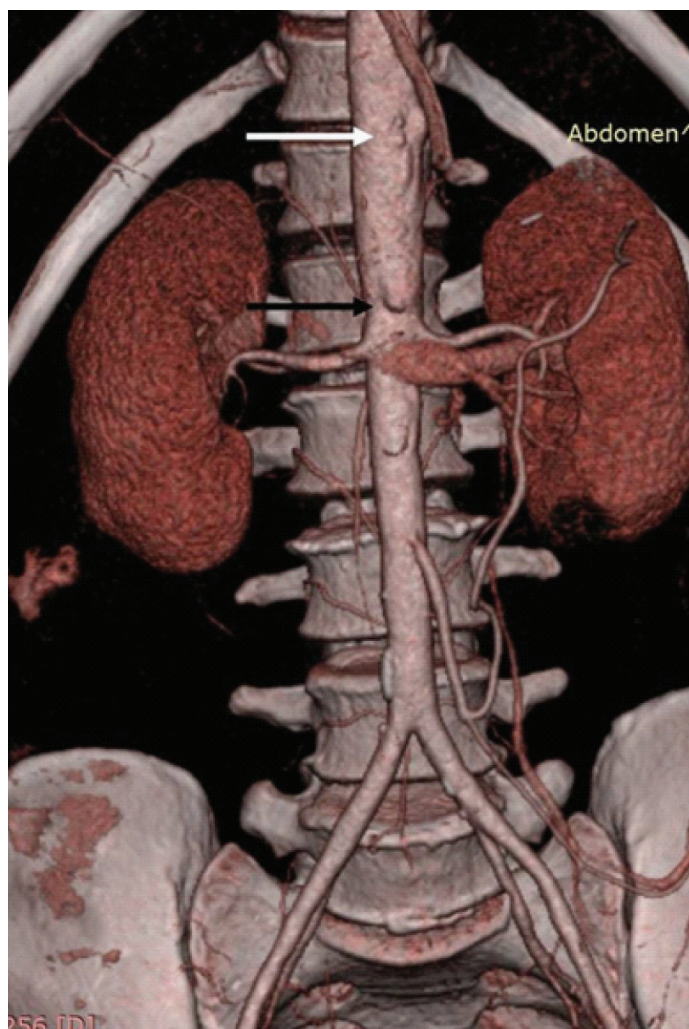
**Keywords:** CT, Infarct, Intrasplenic gas, Mesenteric ischemia

## CASE

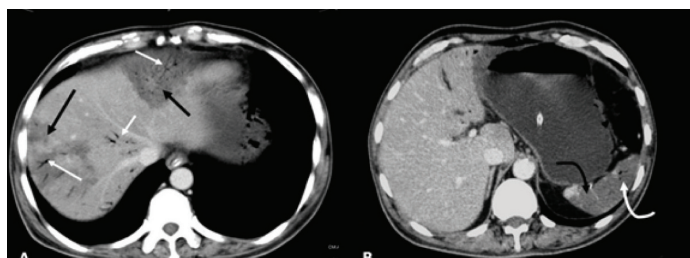
A 55-year-old male patient came to emergency department of our hospital with history of acute onset severe diffuse abdominal pain for one day. There was no history of diabetes or hypertension. However, he gave vague past history of chest pain for which he did not avail any treatment. On admission, patient had tachycardia with pulse rate of 120 beats per minute and blood pressure was 90/60 mmHg. Electrocardiogram showed features of ischemic heart disease. Clinical examination revealed distended abdomen with absent bowel sounds. There were no signs of peritonitis. Clinically a diagnosis of mesenteric ischemia was suspected. Immediately, he was resuscitated with intravenous fluids and ryle's tube was inserted. His blood urea, sugar, serum creatinine and electrolyte levels were within normal limits. The total white cell count was elevated with 18,000 cells per cu.mm and neutrophilia. He was rushed to radiology department for computed tomography (CT) angiography with contrast CT of the abdomen. Topogram of CT abdomen itself showed presence of pneumatosis intestinalis in lower abdomen with doubtful presence of portal venous gas [Table/Fig-1]. CT angiography and contrast CT abdomen showed occlusion of both celiac axis and superior mesenteric artery from its origin [Table/Fig-2] with presence of portal venous gas in both lobes of liver [Table/Fig-3a]. Multiple hepatic and splenic infarcts were also noted [Table/Fig-3b]. Splenic



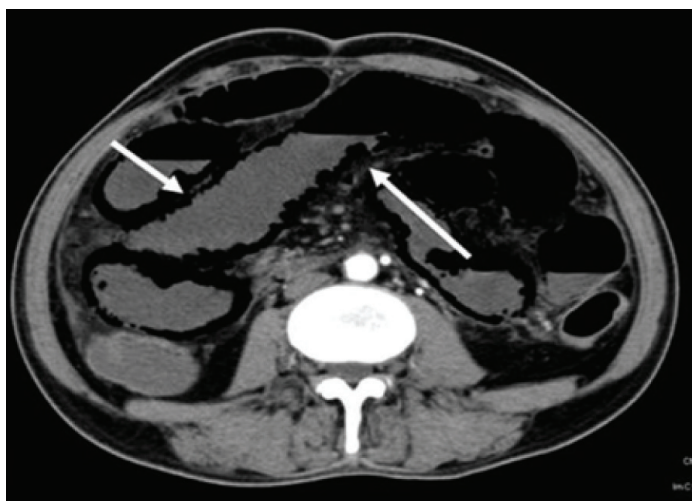
**[Table/Fig-1]:** CT topogram image showing presence of air lucencies outlining the small bowel loops in lower abdomen suggestive of pneumatosis intestinalis (white arrows) Faint linear gas lucencies were also seen in right hypochondrium suggesting portal venous gas (black arrow)



**[Table/Fig-2]:** Coronal Volume rendered technique (VRT) image of CT angiogram showing complete occlusion of celiac axis (white arrow head) and superior mesenteric artery (black arrow head) from its origin



**[Table/Fig-3]:** Axial Venous phase CT image showing A) wedge shaped hepatic infarcts (black arrow) with presence of branching gas lucencies in liver (white arrows) suggesting portal venous air, and B) infarcts in spleen (curved black arrow) with gas pockets within infarcted area (curved white arrow)



**[Table/Fig-4]:** Axial CT angiogram image showing presence of air lucencies outlining the small bowel loops suggestive of pneumatosis intestinalis (white arrows)

parenchymal gas was also noted associated with splenic infarct [Table/Fig-3b]. There was presence of band like gas within both anterior and posterior walls of most of the jejunal loops and few of proximal ileal loops suggestive of pneumatosis intestinalis [Table/Fig-4]. Superior mesenteric vein appeared normal. Minimal free fluid was noted within peritoneal cavity, however no pneumoperitoneum was seen. Hence, a diagnosis of acute mesenteric ischemia due to arterial occlusion was given and the patient was immediately taken up for surgery. Unfortunately the patient sustained cardiac arrest before surgery and could not be revived. In this case, the underlying cause of mesenteric arterial occlusion was presumed to be embolic phenomenon secondary to ischemic heart disease.

## DISCUSSION

Acute mesenteric ischemia is a serious condition which requires immediate diagnosis and management. The reported mortality

rate is between 50 to 90% [1,2]. The causes for acute mesenteric ischemia include arterial occlusion, venous occlusion, strangulating obstruction and hypoperfusion associated with nonocclusive vascular disease [1]. CT scan of abdomen with contrast is very accurate in diagnosing acute mesenteric ischemia with reported sensitivity of 64 to 96% and specificity of 92 to 100% [1]. Pneumatosis intestinalis is typically observed in transmural bowel infarction although there are many other conditions like infectious diseases, trauma and interventional procedures associated with pneumatosis of bowel [3,4]. If there is associated portomesenteric venous gas, then it is usually linked to intestinal ischemia [3]. Contrast CT scan can also demonstrate coexisting embolism of other organs like liver or spleen as in our case which supports the diagnosis of mesenteric ischemia [1]. Prompt diagnosis with urgent surgical therapy is the key for successful management of acute mesenteric ischemia from major arterial occlusion [5]. Gas in splenic parenchyma has been only rarely demonstrated on CT in cases of acute mesenteric ischemia and in this case we presume it to be due to ischemic necrosis in the areas of splenic infarct [6,7].

## REFERENCES

- [1] Furukawa A, Kanasaki S, Kono N, Wakamiya M, Tanaka T, Takahashi M, et al. CT diagnosis of acute mesenteric ischemia from various causes. *AJR Am J Roentgenol.* 2009;192(2):408-16.
- [2] Oldenburg WA, Lau LL, Rondenburg TL, Edmonds HJ, Burger CD. Acute mesenteric ischemia. *Arch Intern Med.* 2004; 164:1054-62.
- [3] Sivrioglu AK, Incedayi M, Saglam M, Sonmez G. Portomesenteric venous gas and pneumatosis intestinalis due to intestinal ischaemia. *BMJ Case Rep.* doi:10.1136/bcr-2013-009214.
- [4] Wiesner W, Mortel  KJ, Glickman JN, Ji H, Ros PR. Pneumatosis intestinalis and portomesenteric venous gas in intestinal ischemia: correlation of CT findings with severity of ischemia and clinical outcome. *AJR Am J Roentgenol.* 2001;177(6):1319-23.
- [5] Sise MJ. Mesenteric ischemia: the whole spectrum. *Scand J Surg.* 2010;99(2):106-10.
- [6] Frola C, Cantoni S, Turtulici I, Loria F. Case report: bowel infarction with splenic air embolism: computed tomography findings. *Br J Radiol.* 1994;67(804):1272-74.
- [7] Barzilai M, Schlag-Eisenberg D, Peled N, Bitterman A. Noninfectious gas accumulation in an infarcted spleen. *Dig Surg.* 2000;17(4):402-04.

### PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.
2. Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.
3. Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Senthil Kumar Aiyappan,  
Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital,  
Thandalam, Kancheepuram, Tamilnadu- 602105, India.  
Phone : 9941501382, E-mail : ssenthilkumarpgi@yahoo.co.in

**FINANCIAL OR OTHER COMPETING INTERESTS:** None.

Date of Submission: **Feb 11, 2014**

Date of Peer Review: **Jun 16, 2014**

Date of Acceptance: **Jun 16, 2014**

Date of Publishing: **Sep 20, 2014**