

# Superior mesenteric artery syndrome leading to gastric pneumatosis and portal venous air

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## CASE REPORT

A 30-year-old male patient with the past medical history of diabetes and gastroparesis was admitted to our acute care hospital with one day history of abdominal pain associated with nausea/vomiting. He had been in his usual state of health prior to the onset of these symptoms. The patient had been on insulin for several years but had been only partially compliant with medications. He denied any significant weight loss in the few months prior to this presentation. After a few hours of symptom onset he noticed abdominal distention and worsening of his pain so he presented for further evaluation.

On arrival the patient was afebrile, and his blood pressure was stable but he was tachycardic with pulse rate around 120–130. Physical examination showed distended abdomen with generalized tenderness. Laboratory evaluation showed mild leukocytosis (11,700 cells/ $\mu$ l) and elevated lactic acid of 2.70 mmol/L (normal range 0.5–2.2 mmol/L).

Further evaluation with a contrast-enhanced computed tomography of the abdomen showed marked distention of the stomach with pneumatosis involving gastric wall. The descending duodenum was also markedly distended. There was narrowing of the duodenum in the region of the third portion where it crosses between the superior mesenteric artery and aorta (Figure 1). Extensive portal venous gas was also noted (Figure 2).

The patient was admitted to intensive care unit and started on aggressive resuscitative measures including intravenous fluids/nasogastric tube suctioning/nil-

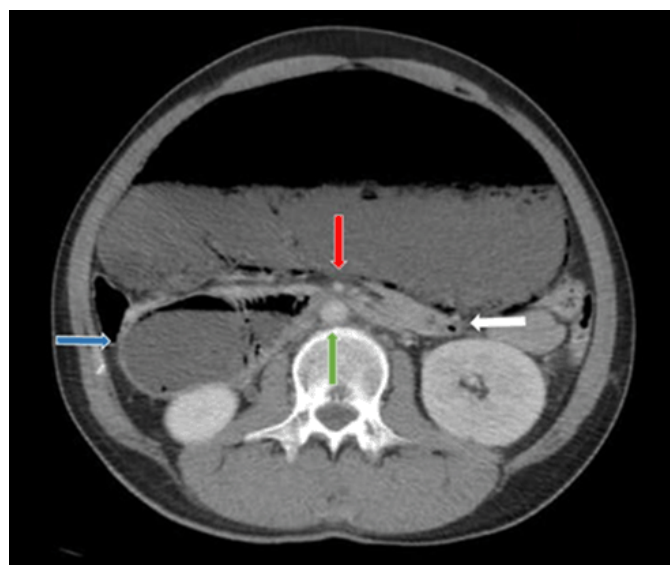


Figure 1: Superior mesenteric artery is shown compressing the duodenum leading to distended stomach and up to third part of the duodenum has been distended. Fourth part of duodenum is seen compressed.

Red arrow: Superior mesenteric artery, Green arrow: Aorta, Blue arrow: 3rd part of the duodenum, distended, White arrow: 4th part of the duodenum



Figure 2: Very enlarged stomach due to superior mesenteric artery syndrome. Also seen is gastric pneumatosis along with portal venous gas.

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by-mouth/IV antibiotics. Over the few hours his pain improved and lactic acid levels came down. Surgical consult was obtained, as patient was improving conservative management was chosen. Over the next two days his symptoms resolved and vitals have been stable, he was able to tolerate liquid diet. He was discharged with close outpatient follow-up to discuss further about management for superior mesenteric artery syndrome.

## DISCUSSION

Superior mesenteric artery syndrome is an uncommon cause of small bowel obstruction due to compression of the third part of duodenum between the superior mesenteric artery and aorta. Treatment for superior mesenteric artery syndrome depends on the cause and also on the presence/absence of bowel infarct, but conservative with jejunal or parenteral nutrition for restoration of the aortomesenteric fatty tissue can be attempted initially depending on the clinical situation. If conservative management fails, surgical options include open or laparoscopic duodenojejunostomy or duodenal mobilization and division of the ligament of Treitz [1]. Superior mesenteric artery syndrome usually presents with epigastric pain, nausea/vomiting but serious complications like severe gastric dilation associated with ischemia or perforation and portal venous gas were also reported [2, 3]. High degree of suspicion and initiating management is crucial to prevent complications from superior mesenteric artery syndrome.

Also historically portal venous gas has been considered an indication for surgery and was associated with severe mortality as most cases were due to bowel necrosis from mesenteric ischemia [4]. But presence of portal venous itself does not lead to poor prognosis, but depends on the underlying etiology for this radiologic finding. With advancement in imaging techniques, early recognition of portal venous gas can help aggressive management of underlying pathology and avoid surgery [5].

## CONCLUSION

Portal venous gas by itself does not represent a poor outcome as seen in our patient but at times this can be an indication of serious pathology like bowel infarct. Successful identification and treatment of the underlying condition that lead to portal venous gas is crucial to minimize morbidity and mortality.

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**Keywords:** Diabetes, Gastric pneumatosis, Portal venous air, Superior mesenteric artery syndrome

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Praveen Guturu – Substantial contributions to conception and design, Acquisition of data, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

### Guarantor

The corresponding author is the guarantor of submission.

### Conflict of Interest

Author declare no conflict of interest.

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