

# Intermittent Superior Mesenteric Artery Syndrome Secondary To Aggressive Low-Fat Diet

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## Introduction

Superior mesenteric artery (SMA) syndrome is a very rare and potentially life-threatening disorder that is caused by the compression of the third part of the duodenum between the SMA and the origin. We present a rare case of intermittent SMA syndrome in a young patient who presented with symptoms of gastric outlet obstruction and was diagnosed with SMA syndrome based on the radiology on admission and during the hospital course the symptoms improved. Repeat imaging showed the resolution of the compression of the duodenum.

## Case Report

A 19-year-old male patient with no past medical history presented to the emergency department after having epigastric abdominal pain associated with non-bilious, non-bloody vomiting for the past two days. He endorsed 30 kilograms of intentional weight loss in the last six months, using a low-fat diet. The patient denied any changes in bowel movements or urinary symptoms. He denied smoking, alcohol, and illicit drug use. On physical examination, the patient was severely malnourished with a body mass index (BMI) of 18.

Abdominal examination showed moderate distention with mild tenderness in the epigastric area. Laboratory workup showed hypokalemic hypochloremic metabolic alkalosis. CT scan of the abdomen revealed gastro-duodenal distension with a transition point at the third part of the duodenum due to compression between the SMA and aorta (Figure.1) with an acute aortomesenteric angle close to 8 degrees.

## Figures



Figure.1

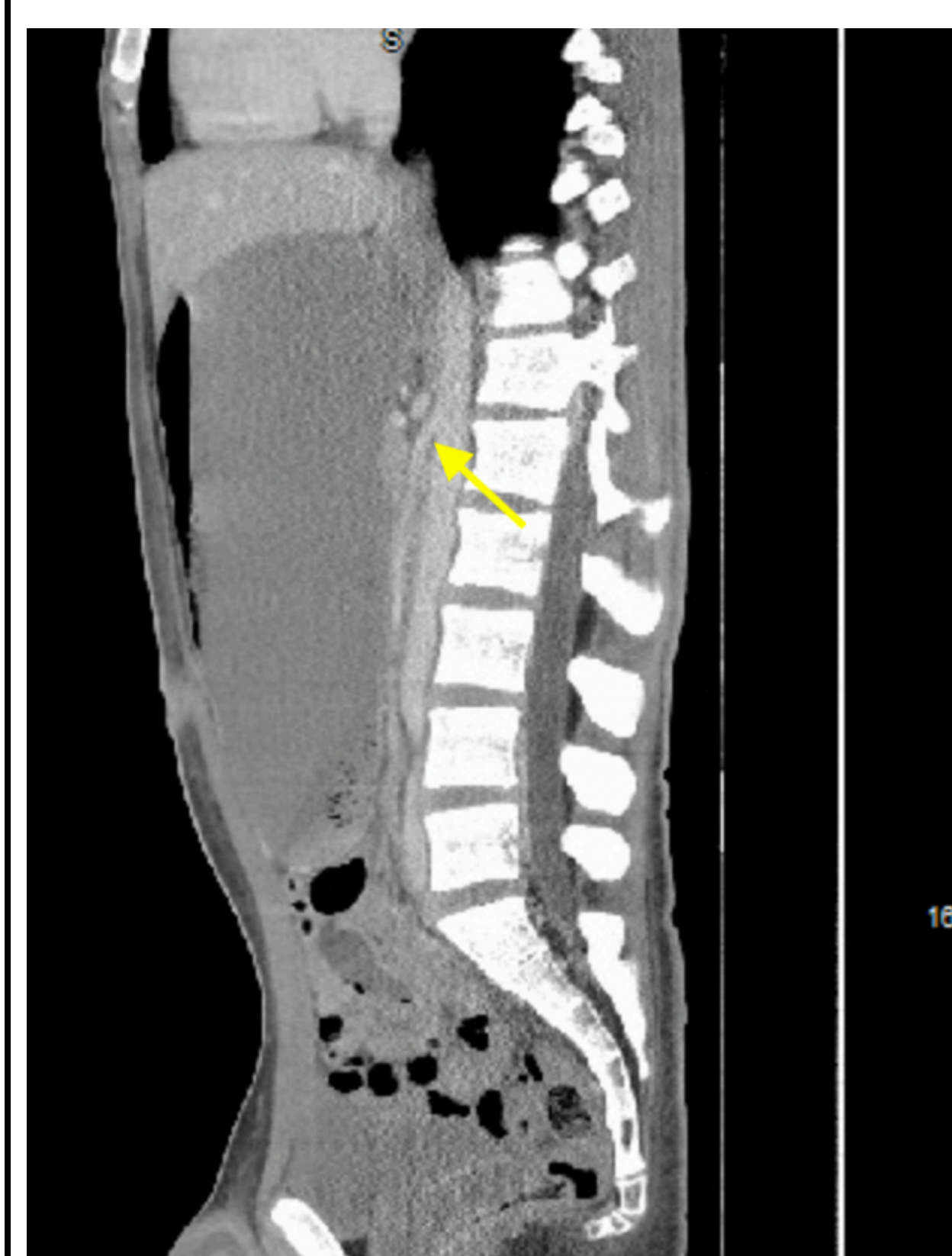


Figure.2

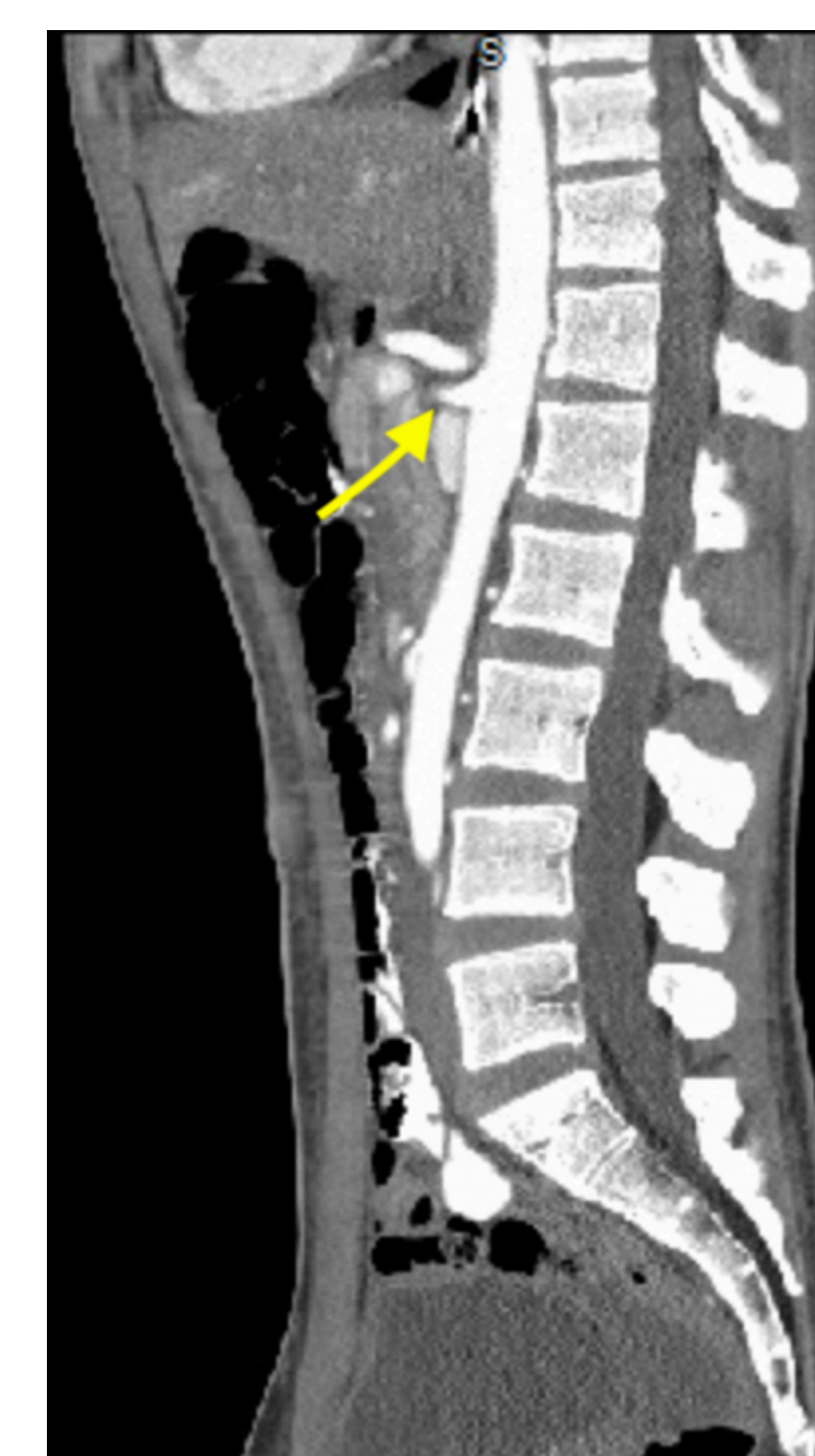


Figure.3

Figure 1 and Figure 2 shows a contrast CT of the abdomen and the CT angiography at admission respectively. The yellow arrows shows compression of the third part of the duodenum between the origin of the superior mesenteric artery and the aorta. Figure 3 shows a CT angiography of the abdomen performed on day 3 which shows the resolution of the acute angle and resolution of the gastric outlet obstruction.

## Case Report

Gastric decompression was done using a nasogastric tube, draining 1500 mL of bilious fluid. IV hydration and electrolyte supplementation were given. Gastroduodenoscopy was completed, ruling out obstruction. By the third day of hospitalization, the patient's abdominal pain and vomiting resolved. CT angiography of the abdomen confirmed normalization of the aortomesenteric angle. The nasogastric tube was removed and oral feeding was started. He was discharged on day six of hospitalization.

## Discussion

SMA syndrome presentation can be acute, chronic, or intermittent. The SMA is surrounded by a mesenteric fat pad that lies between the SMA and the aorta. In our case, the loss of the aortomesenteric fat pad secondary to acute weight loss placed the patient at risk for intermittent positional compression of his duodenum. This case highlights the importance of considering SMA syndrome in the context of aggressive dieting and eating disorders.

## References

Yakan S, Caliskan C, Kaplan H, Denecli AG, Coker A. Superior mesenteric artery syndrome: a rare cause of intestinal obstruction. Diagnosis and surgical management. *Indian J Surg.* 2013;75:106–110.