

Severe Abdominal Pain: Superior Mesenteric Artery Occlusion

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Background

The superior mesenteric artery (SMA) supplies blood to the organs of the midgut, which includes the distal half of duodenum to the proximal two-thirds of the transverse colon. Thus, occlusion of the SMA can lead to extensive bowel necrosis and has a poor prognosis with an extremely high mortality rate, ranging from 44% to 90%.

Embolism Thrombus

Atrial fibrillation	Arterial injury
Atherosclerosis	Infection
Infective endocarditis	Hypercoagulable states

Treatment:

- Surgical: Acute SMA occlusion is treated by embolectomy, thromboendarterectomy, or bypass grafting along with removal of infarcted bowel.
- Interventional radiology: Endovascular treatment

Case presentation

- I. A 47-year-old man presented with complaints of generalized abdominal pain, constipation and general unwellness.
- II. On arrival the patient was alert (GCS 15/15) but noted to have a mottled appearance with central capillary refill of >3 seconds. Vital signs revealed a blood pressure measured at 70/50 (post- resuscitation: 116/59), heart rate of 104, temperature of 36.6 and oxygen saturation of 88% on 3L nasal cannula. ABG was performed revealing an anion gap metabolic acidosis with elevated glucose levels and the presence of ketones he was diagnosed with diabetic ketoacidosis. Referral to the surgical team occurred following a drop in GCS and distension of his abdomen without signs of peritonitis. CT pelvis and abdomen was performed revealing occlusion of the SMA.
 - PMH: T2DM, hypothyroidism, COPD, schizophrenia, heroine/cocaine abuse
 - SHx: Current smoker

Exhibit 1		
pH: 6.98	pCO2: 5.11	pO2: 8.2
K: 5.6	Na: 126	HCO3: 9.0
Lactate: 9.6	Glucose: 464	Ketones: +

Results from ABG

Patient was sent to the operating room for an emergency laparotomy which revealed ischemia of 90% of small bowel, cecum, ascending colon and proximal one-third of transverse colon, resulting in an emergency laparotomy with SMA thrombectomy, resection of the ischemic bowel and partial closure. Later, a relook laparotomy revealed an ischemic band of jejunum, leaving 32 cm of healthy small bowel, resulting in a jejunostomy and mucus fistula being created.



CT Scan exhibiting SMA occlusion (green arrow)



Necrosed bowel



Discussion

- I. **High clinical suspicion for SMA occlusion**
 - Early recognition reduces mortality and complications
- II. **Short bowel syndrome**
 - Nutritional support; lifelong TPN
 - Insulin management
 - Medication management
- III. **High output stoma**
 - Proper management

Conclusion

This case demonstrates the significance of identifying superior mesenteric artery occlusion, management and potential complications of this diagnosis.

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- Queen's Hospital (UK) General Surgery Department

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