

## PHOTO QUIZ

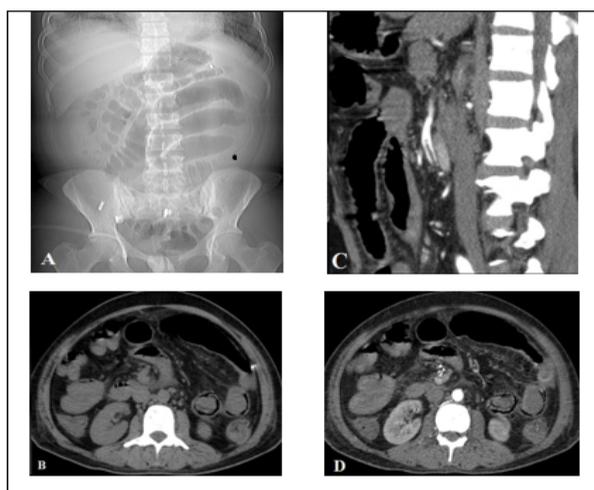
## A 48-year-old Man with Epigastric Pain and Melena

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**Figure 1:** Abdominal plain x ray (A), axial plain abdominal CT scan (B), sagittal multiplanar reconstruction CT scan (C), and axial CT angiography (D).

## 1. Case presentation

A 48-year-old male patient was presented to the emergency department with complaint of epigastric pain and melena that had started 3 days ago. The pain had started suddenly and progressed and after a while, he had passed melena stool. He also mentioned some episodes of vomiting that was not bloody. The pain score was about 8/10 (based on verbal quantitative scale) and slightly radiated to his back. He lost his appetite and the pain aggravated by meal. He did not use any drug regularly and had no positive medical history of any specific disease or prior hospital admission. The patient was slightly pale and sweaty. His pulse rate was 80/minute and blood pressure was elevated to 180/100

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mmHg. Routine blood tests such as liver enzyme and serum amylase levels were normal. Complete blood cell count showed mild anemia (Haemoglobin =10 g/dl) and leucocytosis (16600/mm<sup>3</sup>). On physical examination, there were not any positive findings except mild epigastric tenderness without rebound or guarding. Electrocardiography revealed normal sinus rhythm without any pathologic findings. The patient was admitted to surgical ward and plain abdominal computed tomography (CT) scan and abdominal CT angiogram was done. The findings of CT are shown in figures 1A-D.

**What is your diagnosis? .**

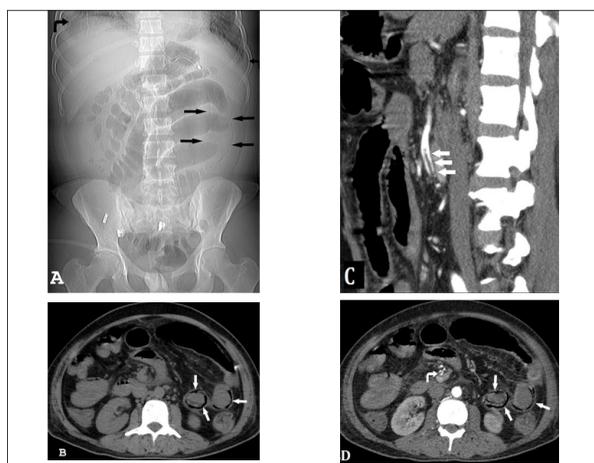
## 2. Diagnosis

CT angiography revealed a dissection in the superior mesenteric artery (SMA) starting approximately 7 cm from its origin from aortic orifice. It was distal to the origin of pancreaticoduodenal, middle and right colic branches of SMA. The flap measured approximately 3.0 cm in length and one of the jejunal branches of SMA was seen to originate from the false lumen. The segments of jejunal loops supplied by this branch showed evidence of pneumatosis suggestive of transmural infarction (Figures 2).

## 3. Case fate

The patient underwent emergent surgery with resection of the ischemic gut and repair of the dissection. The recovery was uneventful and he was discharged after 3 weeks.





**Figure 2:** Abdominal plain x ray (A), axial plain abdominal CT scan (B), sagittal multiplanar reconstruction CT scan (C), and axial CT angiography (D). Location of dissection and intramural air (pneumatosis intestinalis) have been shown with arrows.

## 4. Discussion

Dissection of visceral artery (IDVA) is an uncommon event and SMA is the commonest site followed by celiac artery (CA) (1, 2). Most cases of IDVA are conservatively managed due to absence of gut ischemia (2, 3). Cases of isolated SMA dissection resulting in mesenteric ischemia are exceedingly rare and can be potentially fatal. Uncontrolled hypertension, arteriosclerosis, cystic medial necrosis, fibromuscular dysplasia, marfan syndrome, ehler-danlos syndrome, trauma and pregnancy have been implicated as possible risk factors in this disease (2, 4). The dissection occurs 3-4 cm distal to its origin from aorta presumably due to large shear stress at this site (5, 6). Most of the patients present with acute epigastric pain, nausea, vomiting or melena (4). A vascular murmur may sometimes be heard (5). However, a significant number of patients may remain asymptomatic and the condition may be detected incidentally on cross-sectional imaging (7). Contrast enhanced CT (preferably CT angiography) shows the intimal flap or mural thrombus within the true/false lumen. In case of bowel ischemia, associated findings of ischemia such as lack of bowel wall enhancement, intramural air, mesenteric or portovenous air may additionally be present, as seen in our case. Ischemia is reported to occur due to occlusion of false lumen and it is estimated that invasive treatment is required in 8.6-34.8% cases of SMA dissection due to bowel ischemia and aneurysm enlargement (5). Emergency laparotomy with operative repair of dissection is indicated in such cases (5, 8). Many surgical procedures have been described for SMA dissection including intemectomy, right gastroepiploic artery bypass, graft interposition, arteriotomy with thrombectomy, reimplantation of SMA on aorta, fixation of media-intima, and aneurysmorrhaphy (9). The

surgical approach has good short term results but its long term outcomes are not yet known (8). Endovascular treatment options include thrombolysis, thrombus suction, balloon dilation, stent graft placement and stenting. It is indicated in asymptomatic cases with evidence of progress of dissection or aneurysmal dilatation on surveillance imaging or as first line treatment option in symptomatic and inoperable cases (7, 8). Limitations of this approach include risk of re-occlusion, obstruction of side branches in the stented portion, rupture or stent migration (8). Conservative approach has been advocated in asymptomatic cases in which CT doesn't show signs of ischemia and aneurysmal enlargement (8). The therapy includes drug administration for anticoagulation, antiplatelets, blood pressure and pain control. The use of anti-coagulation is suggested when there is clot confinement or constriction of true lumen. These subset of patients require close follow up as treatment failure may occur (8, 9). It is clear that each management option has its own advantages and disadvantages and the optimal treatment varies from patient to patient depending on the symptoms, gut viability, associated co-morbidities, and age. As our patient had clear cut features of gut ischemia on CT angiography, he underwent a potentially lifesaving emergent surgery with resection of the gangrenous small gut loops and repair of dissection. This case highlights the pivotal importance of CT in diagnosis of SMA dissection and detection of bowel ischemia. An early and accurate diagnosis is crucial in this subset of cases for selection of optimal treatment protocol as timely surgical intervention in patients with bowel gangrene may be lifesaving.

## 5. Appendix

### 5.1. Acknowledgements

None declared.

### 5.2. Conflict of interest

None declared.

### 5.3. Funding and support

None declared.

### 5.4. Authors' contributions

The authors meet the four criteria for authorship based on the ICMJE recommendations of Medical Journal Editors.

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