Gut Instincts:
A not-so-uncommon cause of bloody diarrhoea

Wambaire Murage, SHO
Biodata

- R.W.W
- 54-year old female,
- Teacher, farmer, resides in Kinangop
Chief complaint

• Diarrhoea for one week
History of presenting illness

• Patient known to have HTN, OSA, PUD

• Patient presented to referring facility with diarrhoea: watery, and loose stools
  • several episodes per day
  • associated abdominal pain, generalised
  • associated post-prandial, non-bilious, non-bloodstained emesis
• Started on triple therapy (omeprazole/clarithromycin/amoxicillin) and metronidazole

• Patient had had an OGD done 2/52 prior and the mucosal biopsy tested positive for *H.pylori*

• OGD ordered due to a preceding 6-month history of postprandial epigastric pain and vomiting. Gross findings normal.

• Abdominal pain progressively worsened; was exacerbated by eating

• Developed bloody stools the day prior to referral, two episodes.

• ø fever, ø abdominal swelling
• DRE done, normal.

• CBC: wbc 15.3; Hct: 56.1%; Plt: 251

• Renal and liver function tests reported normal

• CT scan abdomen (without contrast): splenomegaly ?cause

• Referral diagnosis: ischemic colitis

• Reason for referral: urgent repeat CT scan abdomen with contrast, surgical review
Past medical history

- History of OSA, with secondary polycythemia, hypertension
  - Scheduled for UPPP, but noticed to be in CCF prior to the procedure
  - CPAP was to be considered, but patient not started on it.

- Not known to have DM or other chronic illness
- Serostatus: reported negative
• Ø surgical procedures
• Ø blood transfusions
• Ø known food or drug allergies
• No prior history of similar symptoms
Drug History

- Patient was on spironolactone, furosemide, clopidogrel
  - dosages unknown
- No other chronic medication.
Family and social history

- Married; has 3 children
- Teacher; also farms (subsistence)
- Does not take alcohol or smoke cigarettes
- No family history of chronic or similar illness
Examination

- Patient was in fair general condition, not in distress
- ø pallor, ø jaundice, ø cyanosis, ø dehydration
- Vitals: BP 119/78 mmHg
• **Abdomen:**
  
  • Ø guarding, Ø rigidity
  
  • generalised tenderness

• **CVS:**
  
  • regular good volume pulse
  
  • JVP not elevated, apex beat at 5th ICS, MCL
  
  • S₁ and S₂ heard, no murmurs
• **Respiratory:**
  - bilateral vesicular breath sounds

• **CNS:**
  - conscious, alert
  - no neurological deficits noted
Labs

- CBC: Wbc 16300/µL; Hb 17.6g/dL; Plt 486000/µL
- UECr: Ur 4mmol/L; Cr 104µmmol/L; Na⁺ 124.7mmol/L; K⁺ 5.27mmol/L
- LFTs: all within normal parameters
- Echo (done 2 years previously): HHD, LVEF 64%
- Thyroid scan: normal; no tracheal stenosis or cervical lymphadenopathy
- BMAC: features of polycythemia secondary to underlying condition
Diagnosis & Management

Plan

• Differentials:

  1. Infective dysentry: shigellosis, salmonellosis, campylobacter infection

  2. Ischaemic colitis

  3. Inflammatory bowel disease
• Plan:

1. Antibiotics:
   1. Ceftriaxone 1g q12h
   2. Metronidazole 500mg q8h
   2. Plasil 10mg q8h

3. OGD
Progress

• 1st day post-admission:
  
  • Abdominal pain increasing in severity, especially around periumbilical region
  
  • Had not passed stool or flatus since referral; no vomiting
  
  • o/e generalised abdominal tenderness, with guarding around periumbilical region and an ill-defined mass around same region. Bowel sounds present
  
  • Plan: urgent abdominal radiograph, NPO, tramadol, IVFs
• Erect abdominal radiograph: distended bowel with >3 air/fluid levels, no free air

• Surgical consult sought

• Patient continued on fluids, NPO maintained
2nd day post-admission

- Patient accidentally ingested porridge, associated with ensuing severe abdominal pain.

- ø vomiting, ø stool, ø flatus

- o/e: sick-looking, in pain, with more generalised abdominal tenderness; especially marked around the periumbilical region.

  - DRE: perianal skin tags, no fissures, no rectal masses, no stool in the rectum.

- NGT placed, drained 1500mL of dark fluid (colour not otherwise specified)
• Gastroenterologist review:
  • Ischemic colitis unlikely diagnosis
  • CT scan abdomen films reviewed: normal
  • NPO continued, analgesia increased (IM diclofenac+IV PPI),
  • Repeat urgent same-day CT scan requested
  • Likely diagnosis: small bowel volvulus; mesenteric ischemia
Day 3 post-admission

- Patient still not passed stool or flatus.
- NGT relieved abdominal pain. Draining bilious fluid.
- Surgical review:
  - o/e: grossly distended abdomen, generalised tenderness, ill-defined periumblicial mass, ø rebound tenderness, minimal stool in rectum on DRE with no blood.
  - Impression: partial I.O due to ?intraluminal mass
• Surgical review cont’d:
  • Plan: Electrolyte levels to r/o paralytic ileus
  • Saline enemas q8h for 2 days
  • Abdominal CT scan with contrast to define the periumbilical mass
  • anti-emetic added to treatment; other management continued.
Day 4 post-admission

- Patient passed copious amounts of stool after administration of saline enema, not blood-stained.
- Abdominal pain lessened but did not completely abate
- Oral sips started
- Abdominal CT scan done, and reviewed by surgeons
• Surgical review:

• Abdominal tenderness especially around the periumbilical region still present

• Repeat CT scan: ?abdominal wall hernia; ?epigastric hernia ?intussusception

• (to discuss with radiologist)

• Exploratory laparotomy considered
Day 5

- Patient was sick-looking, with worsening generalised abdominal distension.
- Patient taken in for emergency exploratory laparatomy
Which of the instincts was correct?

- Ischemic colitis?
- Infective dysentry (negative laparatomy)?
- Small bowel volvulus?
- Mesenteric ischemia?
- Epigastric hernia?
- Intussusception?
Intra-op findings

- Ventral non-obstructing omental hernia
- Ischemic and gangrenous small bowel (ileum and jejunum)
- Omentum released (not oedematous or gangrenous)
- Resection of ~60cm of gangrenous small bowel with primary anastomosis
- Final diagnosis: *small bowel gangrene 2° mesenteric ischemia*
MESENTERIC ISCHEMIA
• Refers to reduction in splanchnic blood flow
• May be acute or chronic mesenteric ischemia
• AMI: life-threatening vascular emergency, with sudden reduction in intestinal blood flow and ultimately bowel infarction
• CMI: presents with symptoms of intestinal angina
AMI

• Acute reduction in splanchnic blood flow, threatening bowel viability, may lead to bowel necrosis

• High mortality rate; 60 - 70%

• Challenge in management remains early diagnosis before fatal bowel infarction occurs

  • Clinical presentation very non-specific

  • High index of suspicion with abrupt onset of severe abdominal pain and minimal clinical findings
<table>
<thead>
<tr>
<th>Cause</th>
<th>Incidence, %</th>
<th>Presentation</th>
<th>Risk Factors</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial embolism</td>
<td>40-50</td>
<td>Acute catastrophe</td>
<td>Arrhythmia, myocardial infarction, rheumatic valve disease, endocarditis, cardiomyopathies, ventricular aneurysms, history of embolic events, recent angiography</td>
<td>Embolectomy, papaverine, excise infarction</td>
</tr>
<tr>
<td>Arterial thrombosis</td>
<td>25</td>
<td>Insidious onset with progression to constant pain</td>
<td>Atherosclerosis, prolonged hypotension, estrogen, hypercoagulability</td>
<td>Papaverine, thrombectomy, excise infarction, revascularization</td>
</tr>
<tr>
<td>Nonocclusive</td>
<td>20</td>
<td>Acute or subacute</td>
<td>Hypovolemia, hypotension, low cardiac output status, α-adrenergic agonists, digoxin, β-receptor blocking agents</td>
<td>Treat cause first, papaverine, excise dead bowel</td>
</tr>
<tr>
<td>Venous thrombosis</td>
<td>10</td>
<td>Subacute</td>
<td>Right-sided heart failure, previous deep vein thrombosis, hepatosplenomegaly, primary clotting disorder, malignancy, hepatitis, pancreatitis, recent abdominal surgery or infection, estrogen, polycythemia, sickle cell disease</td>
<td>Thrombectomy, excise dead bowel, heparinize, long-term complication</td>
</tr>
</tbody>
</table>

AMI:
CMI

• Occurs when there is stenotic or occlusive disease in the proximal segments of the mesenteric arterial supply to the bowel
  
  • Usually as a result of atherosclerosis

• Typical presentation: *intestinal angina*
  
  • recurrent abdominal postprandial pain, subsides in 1-2 hours
  
  • aversion to food
  
  • weight loss
• Typical patient:
  • older woman
  • multiple risk factors for atherosclerosis (hypertension, DM, tobacco use, hypercholesterolemia) or prior history of abdominal surgery

• Classic history:
  • abdominal pain 30 -45 min after eating ± nausea, vomiting, diarrhoea, malabsorption
  • fear of eating, with resultant weight loss
Etiology of CMI

- Atherosclerosis (most common)
- Extrinsic vascular compression by the median arcuate ligament
- Tumor
- Inflammatory processes
- Vasculitis
- Dissection
- Fibromuscular dysplasia
- Radiation
- Vasoconstricting medications
- Prior abdominal surgery.
Imaging in mesenteric ischemia
Abdominal CT scan

Thickened bowel walls

Target appearance
Prominent mural enhancement of affected bowel segment indicating ischemia

Distended bowel loops with “paper thin” walls
Air in the portal venous branches, mesenteric veins and gas in the abdominal wall
Mesenteric angiography

3D CTA showing extremely severe SMA stenosis, and occlusion of celiac trunk
Treatment of CMI

• Medical treatment: reserved for patients who are not healthy enough to be treated, either surgically or endovascularly. Not curative.
  - long-term anticoagulation, such as warfarin.
  - some patients may find short-term relief with nitrate therapy

• Open surgical repair includes
  - transaortic endarterectomy,
  - direct reimplantation on the aorta, and
  - antegrade or retrograde bypass grafting.

• Endovascular repair involves either angioplasty and/or stent placement
Stenting of stenosed SMA
SMA embolus
What is the take home message?

- A greater awareness of ischemic bowel disease and critical evaluation of our clinical experiences may allow for earlier diagnoses, prompt therapy, and improved survival.

References

- Hohenwalter, EJ. Chronic Mesenteric Ischemia: Diagnosis and Treatment. *Seminars In Interventional Radiology*. 2009; 26:4


- W. Andrew Oldenburg, MD; L. Louis Lau, MD; Thomas J. Rodenberg, MD; Hope J. Edmonds, MD; Charles D. Burger, MD. Acute Mesenteric Ischemia: A Clinical Review. *Arch Intern Med* 2004;164


- Ra, SE, *et al.* CT and MR Imaging Findings of Bowel Ischemia from Various Primary Causes. *Radiographics*. 2000;20:1