69-year-old man presents with abdominal pain, diarrhea, and hematochezia

Akash R. Patel, MS-3
Lake Erie College of Osteopathic Medicine

Neiladri Khan, DO, PGY-5
Allegheny Health Network

Matthew Hartman, MD
Allegheny Health Network
Patient Presentation

- **HPI:** 69-year-old man with past medical history of myocardial infarction status post drug eluting stent placement presents to the ER with bilateral upper abdominal pain, diarrhea, and hematochezia for one day.
- **PMHx:** MI s/p drug eluting stent placement, HTN, HLD, and sleep apnea
- **PSHx:** Colonoscopy w/ polyp removal
- **Family Hx:** Unspecified cancer (father)
- **Social Hx:** Non-contributory
Pertinent Labs

• Complete blood count:
  • Hemoglobin: 18.3
  • Hematocrit: 53.4
  • INR: 1.1
  • PTT: 13.5

• Complete metabolic panel:
  • AST/ALT: 25/20
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

This imaging modality was ordered by the ER physician

**Variant I:** Lower gastrointestinal tract bleeding. Active bleeding clinically observed as hematochezia or melena in a hemodynamically stable patient. Next step.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA abdomen and pelvis without and with IV contrast</td>
<td>Usually Appropriate</td>
</tr>
<tr>
<td>Diagnostic/therapeutic colonoscopy</td>
<td>Usually Appropriate</td>
</tr>
<tr>
<td>RBC scan abdomen and pelvis</td>
<td>Usually Appropriate</td>
</tr>
<tr>
<td>Transcatheter arteriography/embolization</td>
<td>May Be Appropriate</td>
</tr>
<tr>
<td>MRA abdomen and pelvis without and with IV contrast</td>
<td>Usually Not Appropriate</td>
</tr>
<tr>
<td>Surgery</td>
<td>Usually Not Appropriate</td>
</tr>
</tbody>
</table>
Findings (unlabeled)
Findings: (labeled)

- Enhancing spiculated mass with stippled/dystrophic calcifications measuring 2.3 x 3.4 cm centered in the right lower quadrant mesentery (red) with a stellate pattern of fibrotic mesenteric thickening resulting in tethering of RLQ small bowel loops (yellow).

- Associated partial small bowel obstruction with mucosal hyperenhancement (blue).

- No bowel hypoenhancement, pneumatosis, or free air to suggest bowel ischemia.
Findings: (labeled)

Mesenteric mass (blue). Multifocal irregular hypoenhancing metastatic liver lesions (yellow).

Indeterminate hyperenhancing 1.0 cm mesenteric lymph node (red).
Patient Clinical Course

• Patient underwent exploratory laparotomy with lysis of adhesions, small bowel resection, and removal of the mesenteric mass to relieve the partial obstruction.

• Multiple palpable lesions were noted in the right liver lobe. Wedge biopsy was performed and samples were sent for pathological examination.
Biopsy Results Pathology Report

• Well-differentiated tumor cells extending through the muscularis propria and subserosal adipose tissue with extensive perineural and lymphovascular invasion consistent with a grade 1 neuroendocrine tumor (NET).

• Seven of twenty lymph nodes positive for metastatic NET.

• Liver biopsy results consistent with metastatic, well-differentiated NET.

• Primary tumor and liver sample both stained positive for Chromogranin A (CgA) and Synaptophysin.
Final Dx:

Metastatic grade 1 neuroendocrine tumor
Case Discussion

• Clinical Presentation
  • Abdominal pain and diarrhea are common presenting symptoms of NETs
  • Mechanical effect from the primary tumor or mesenteric lymph node involvement can cause recurrent bowel obstructions
  • Symptoms of “Carcinoid Syndrome” suggest serotonin-secreting liver metastasis
    • Diarrhea, flushing, palpitations, and bronchospasm

• Pathogenesis
  • NETs likely arise from the enterochromaffin cells found in the crypts of Lieberkühn

• Imaging
  • Three phase CTA Abd-Pelvis revealed a calcified, hyperenhancing RLQ mass tethered to distal small bowel loops resulting in partial obstruction
  • Multifocal metastatic lesions in the right liver lobe
Case Discussion

• Biochemical Markers
  • NET diagnosis is confirmed by positive immunohistochemical stain for one or more neuroendocrine markers (Ex. Chromogranin A or Synaptophysin)
    • This patient’s samples stained positive for both markers
  • Serum CgA and Urine 5-HIAA are markers for carcinoid disease and are used to monitor treatment response
    • CgA is more specific because 5-HIAA requires serotonin secretion by the tumor (carcinoid syndrome)
    • This patient’s serum CgA: 656.0 → 233.9 ng/mL after tumor resection and 4 months on somatostatin agonist
    • This patient’s urine 5-HIAA: 81.7 → 22.5 mg/24hr after tumor resection and 4 months on somatostatin agonist
Case Discussion

• Treatment
  • Distal small bowel tumors: Resection of primary tumor and mesenteric lymph nodes
  • Somatostatin Analogs: Octreotide and Lanreotide
    • First line therapy to control symptoms and growth of well-differentiated NETs
    • This patient underwent therapy with Lanreotide every 28 days
  • Liver metastases: Surgical resection of hepatic tumor, hepatic arterial embolization, or percutaneous thermal ablation
References:


