Mixed Signals: A Case Of Hypothyroid-Induced Ogilvie’s

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### Introduction

- Ogilvie’s syndrome, or acute colonic pseudo-obstruction (ACPO), is characterized by acute dilation of the colon, in the absence of a mechanical lesion, which obstructs the flow of intestinal contents.
- We present a case of a 51 year-old woman presenting with symptoms of severe hypothyroidism found to have acute colonic pseudo-obstruction.

### History of Present Illness

- 51 year-old woman presents with months of progressive weakness that acutely worsened 2 days prior to admission, unable to get out of bed.

### Physical Exam

- BMI of 68, obstructive sleep apnea, diastolic heart failure, and hypothyroidism with prior medication non-adherence.
- Obese abdomen, soft, non-tender, with normoactive bowel sounds.

### Laboratory data:

- CBC and CMP: within normal limits.
- TSH >150, FT4 <0.10.
- Infectious studies including lactate, pro-calcitonin, TSH >150, FT4 <0.10.

### CT abdomen and pelvis with and without contrast is obtained and reveals:

- Massive dilation of the cecum measuring up to 17 cm (noted by white arrow).

### Risk Factors for ACPO

<table>
<thead>
<tr>
<th>Category</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical</td>
<td>Cardiac, solid organ transplant, orthopedic/spine</td>
</tr>
<tr>
<td>Cardiac/Respiratory</td>
<td>Shock, MI, CHF, COPD</td>
</tr>
<tr>
<td>Neurological</td>
<td>Dementia, Parkinson’s disease, Alzheimer’s disease, stroke</td>
</tr>
<tr>
<td>Metabolic</td>
<td>Electrolyte imbalance, diabetes, renal failure, hepatic failure</td>
</tr>
<tr>
<td>Medications</td>
<td>Opiates, anticholinergics, antipsychotics, cytotoxins, clonidine</td>
</tr>
<tr>
<td>Infection</td>
<td>VZV, herpes, CMV</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Trauma, burns, severe sepsis, idiopathic</td>
</tr>
</tbody>
</table>

### Case Presentation

The patient becomes more encephalopathic.

Repeat laboratory data reveals:

- WBC and CMP: unchanged.
- Pro-calcitonin elevated to 0.35.
- Repeat blood, urinalysis and urine cultures negative, CXR without acute change, ABG normal.

CT abdomen and pelvis with and without contrast is obtained and reveals:

- Massive dilation of the cecum measuring up to 17 cm, transition to normal-caliber at the hepatic flexure without evidence of obstruction or stricture.

### Several Days Later...

The patient becomes more encephalopathic.

1. Before: CT revealing acute colonic pseudo-obstruction as evidenced by significant cecal dilation up to 17 cm (noted by white arrow).
2. After: CT after decompression with neostigmine revealing resolved dilation.

### Manifestations of Hypothyroidism in the Gastrointestinal Tract

- **Dysregulation of microbiota:**
  - Bacterial overgrowth
  - Manifestations: abdominal distension, flatulence, bloating

- **Esophageal Motility Disorders:**
  - Achalasia, esophageal spasm and esophageal stricture
  - Manifestations: dysphagia, heart burn

- **Delayed Gastric Emptying:**
  - Gastroparesis
  - Manifestations: dyspepsia, nausea

- **Diminished Colonic Motility:**
  - Constipation, ileus, megacolon, pseudo-obstruction and perforation
  - Manifestations: abdominal pain, bloating, nausea/vomiting

### Colonic Pseudo-Obstruction: Before & After Neostigmine Decompression

1. Before: CT revealing acute colonic pseudo-obstruction as evidenced by significant cecal dilation up to 17 cm (noted by white arrow).
2. After: CT after decompression with neostigmine revealing resolved dilation.

### Pathophysiology of Pseudo-Obstruction

- Hypothesized to be caused by autonomic imbalance resulting in a hypotonic bowel.
- ACPO is more common in the critically ill where sympathetic drive is high.
- Neostigmine, an acetylcholinesterase inhibitor and parasympathomimetic, is commonly used to reverse pseudo-obstruction.
- ACPO is likely driven by sympathetic excess.

### Management of ACPO

- Neostigmine can be given via bolus or infusion.
  - Bolus: 2mg over 15m
  - Infusion: 5mg over 12 hours (0.4mg/h)

- Neostigmine should be used with caution and often requires ICU monitoring given risk of precipitating bradycardia and bronchospasm.
- In this case, given the patient’s operative risk factors, chemical decompression with neostigmine was administered and the patient improved.

### Conclusions

- Hypothyroidism is a common condition with several manifestations in the GI tract including esophageal dysmotility, delayed gastric emptying, and diminished colonic motility.
- Pseudo-obstruction typically occurs in the critically ill, though the underlying pathophysiology is poorly understood, hypothyroidism can be the only pre-disposing factor.

### References

