Background

- *Bacillus cereus* is a Gram positive rod that classically causes food poisoning via a plasmid-encoded toxin
- *B. cereus* intoxication is most commonly associated with fried rice that has sat under warming lamps for extended periods of time
- There is increasing recognition of *B. cereus* as a cause of frank disease in neutropenic hematologic malignancy patients
- Manifestations of *B. cereus* reported in this population include pneumonia, gastritis, hepatic abscesses, and meningoencephalitis [1-5]
- We report a case of neutropenic enterocolitis, also known as typhlitis, occurring in a neutropenic 74-year-old female with a recent diagnosis of acute myeloid leukemia (AML)

Case Presentation

- A 74-year-old female was referred to Moffitt Cancer Center (MCC) following a diagnosis of myelodysplastic syndrome (MDS)
- Repeat bone marrow biopsy showed 26% blasts and a formal diagnosis of AML was made
- “7 + 3” induction chemotherapy with cytarabine and daunorubicin plus sorafenib was initiated
- Antimicrobial prophylaxis with ciprofloxacin, acyclovir, and micafungin was initiated
- Watery diarrhea developed on neutropenia day 10. *Clostridium difficile* stool polymerase chain reaction (PCR) was negative
- Escalating doses of loperamide were given with no improvement
- On neutropenia day 13, a computed tomography (CT) scan was performed that showed cecal wall thickening with right paracolic gutter fluid collection
- Stool cultures the next day revealed absence of usual enteric flora with abundance of *B. cereus*
- Clindamycin 450 mg thrice daily was initiated
- Diarrhea and abdominal pain resolved over several days
- She was discharged after 30 total hospital days in stable condition with an absolute neutrophil count of 3.28 k/μL

Discussion

- Typhlitis, also known as neutropenic enterocolitis or ileocecal syndrome, is the most common cause of fever and abdominal tenderness in the neutropenic patient [6]
- *Clostridium septicum* was historically regarded as the most common etiologic agent of typhlitis
- It is now known that the microbial etiology of typhlitis is diverse, with 84% and 16% of cases being caused by various bacteria and fungi, respectively [7]
- Our patient was found to have *B. cereus* typhlitis as confirmed clinically with abdominal CT correlation and stool culture
- Therapy with clindAMYcin led to a rapid clinical response
- We performed a literature using PubMed and found a number of reports describing the manifestations of *B. cereus* in the hematologic malignancy patient
- Table 1 summarizes the literature review findings

<table>
<thead>
<tr>
<th>REF NO</th>
<th>AGE</th>
<th>SEX</th>
<th>MALIGNANCY</th>
<th>INFECTION</th>
<th>CULTURE</th>
<th>DEFINITIVE THERAPY</th>
<th>SURVIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>60M</td>
<td>ALL</td>
<td>Pneumonia</td>
<td>IV Cathter Tip</td>
<td>CL, IM, VCN</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>26M</td>
<td>AML</td>
<td>Meningoencephalitis</td>
<td>Blood, autopsy specimens</td>
<td>CFTD</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>37F</td>
<td>AML</td>
<td>Necrotizing Gastritis</td>
<td>Blood, gastric biopsy</td>
<td>IM, VCN</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>22M</td>
<td>AML</td>
<td>Colitis, sepsis,</td>
<td>Blood cultures, liver abscess</td>
<td>VCN, AMP</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>64M</td>
<td>AML</td>
<td>Sepsis, necrotizing</td>
<td>Blood cultures, autopsy specimens</td>
<td>CFTXM, AMP</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Table 1

M = Male; F = Female; ALL = Acute Lymphoblastic Leukemia; AML = Acute Myelogenous Leukemia; IV = Intravenous; CL = Clindamycin; IM = Imipenem; VCN = Vancomycin; CFTD = Ceftazidime; AMP = Ampicillin; CFTXM = Cefotaxime

References