Case Report

Neutropenic Enterocolitis in the Setting of Low Dose Cisplatin: A Case Report

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Abstract

A 73-year-old man developed neutropenic enterocolitis during concurrent chemotherapy and radiation therapy with cisplatin-sensitizer 40 mg/m² weekly. This case is unique because although neutropenic enterocolitis is a known complication of chemotherapy it has not been reported in the setting of low dose cisplatin therapy. Despite increasing attempts to use low dose chemotherapy regimens the risk of developing neutropenic enterocolitis is still present.

Keywords: Neutropenic enterocolitis, low dose, cisplatin, typhlitis, ileocecal syndrome

Introduction

Neutropenic enterocolitis is a known complication of chemotherapy and immunosuppression [1]. Particularly in regimens that are likely to cause mucosal damage [2]. Other terms used to describe this disease are “typhlitis” and “ileocecal syndrome.” These are less accurate because other portions of the large and small bowel can be involved, but the terminal ileum and cecum are most commonly affected [1,3]. It was initially noted as a consequence of treatment for hematologic malignances but has been seen increasingly as result of therapy for solid tumors [1,4].

Some of the chemotherapeutic drugs implicated include taxanes, gemcitabine, cytosine arabinoside, vincristine, doxorubicin, 5-fluorouracil, cyclophosphamide and platinum derivatives [1,5]. Taxane drugs, alone or in combination, have been shown to increase risk of developing neutropenic enterocolitis [6]. Continuous infusion of chemotherapy may also predispose patients to developing this complication [7]. Review of the literature reveals cases of neutropenic enterocolitis in the setting of high dose regimens of cisplatin (100 mg/m²) [8-10]. However, there have not been any reported cases of this in low dose (≤ 50 mg/m²) therapy. This is a particular concern given the increasing attempts to utilize low dose regimens to mitigate adverse effects [11].

Case Report

A 73-year-old white male was presented with an enlarged lymph node of his left neck that was initially thought to be secondary to acute otitis media. After the enlarged lymph node failed to respond to two courses of
antibiotics a CT-guided biopsy was performed. Pathology was consistent with metastatic squamous cell carcinoma, p16 positive. PET/CT revealed hypermetabolic lymphadenopathy at the left level 2 cervical internal jugular position.

During the initial consultation with oncology, patient reported increased fatigue. He denied weight loss and stated he had a good appetite. He denied dysphagia or odynophagia. He reported a history of chronic sinusitis with a mild, intermittent cough. He had never smoked. ECOG performance status 1.

Biopsies of the left tongue base and left tonsil were taken. Both revealed benign tissue. He was then diagnosed with squamous carcinoma of the head and neck with unknown primary. His staging was Tx, N2, Mo.

The patient was offered radical treatment with concurrent chemotherapy and radiation therapy. He began concurrent radiation therapy and chemotherapy with cisplatin-sensitizer 40 mg/m² weekly as he did not want to have any skin rashes. After beginning treatment, he developed mucositis with odynophagia and had reduced fluid intake. This necessitated routine IV hydration three times per week.

Six days after finishing the fourth week of seven weeks of cisplatin the patient developed chills and weakness, and shortness of breath that worsened, which prompted him to be seen in the emergency department. He also complained of abdominal pain, nausea, and a few days history of bloody diarrhea. He was afebrile on exam. White blood cell count was 4.2, it had been 4.4 six days prior and had been greater than 5 during the previous rounds of chemotherapy. Chest x-ray showed a left basilar infiltrate. Lactic acid was 3.1. He was then started on empiric treatment with antibiotics and admitted for pneumonia. Chemotherapy was held but radiotherapy was continued.

The next day he developed a fever of 100.7°F and his white blood cell count decreased to 3.4. On exam he was found to have guarding and rebound tenderness of the abdomen. CT of the abdomen and pelvis showed diffuse wall thickening of the colon proximally and trace free fluid without drainable abscess or free air. Findings were consistent with colitis. C. difficile toxins A+B, EIA, and GDH antigen were negative. He was started on cefepime and metronidazole. The surgical team had been consulted and was involved with him. His tube feeds were discontinued, and he was put on bowel rest. His fevers eventually subsided. given his recent treatment with chemo therapy and findings as above it was determined that he had neutropenic enterocolitis, or typhlitis.

His subsequent exam and CT findings showed improvement of his colitis and he was restarted on tube foods and oral diet. IV hydration was continued. He was transitioned to PO ciprofloxacin and metronidazole, after which he was discharged.

**Discussion**

The exact etiology of neutropenic enterocolitis is unknown. Possible contributing factors include profound neutropenia (Absolute neutrophil count <500 cells/µL) leading to impaired host defense against microorganisms, and direct mucosal injury from cytotoxic drugs [3,12]. The cecum is most commonly affected because of its poor vascularity, lymphatic drainage, and exposure to colonic bacteria [3,13]. The infection is often polymicrobial [3].

Physical exam findings vary but these patients often present with high-grade fevers, vomiting, and diarrhea. Vague, cramp-like abdominal pain can occur, but the pain may be greatest at the right upper quadrant. Due to the neutropenic state associated with this disease, patients may have difficulty accurately localizing their pain [14]. There is a risk for intestinal perforation, which can be manifested by shock and peritoneal signs [3].

As part of the workup for neutropenic enterocolitis CT is the main imaging modality. Oral and IV contrast should be given barring severe gastrointestinal symptoms and renal insufficiency. Findings on CT scan, in descending frequency, include bowel wall thickening, mesenteric stranding, bowel dilatation, mucosal enhancement, and pneumatosis. CT of the abdomen and pelvis should be chosen over ultrasound and plain radiographs because it has a
lower false-negative rate [3]. However, a patient who is clinically unstable would likely be better served by a bedside abdominal ultrasound [1].

Additional testing should include blood and stool cultures, and C. difficile toxin assays. Barium enema and colonoscopy are not recommended due to the risk of bowel perforation [2,15].

In general, patients who lack complications such as perforation or severe bleeding can be treated supportively with bowel rest, nasogastric suction, IV fluid and nutrition support, and broad-spectrum antibiotics. Indications for surgical intervention include perforation and uncontrollable bleeding [3].

**Conclusion**

To our knowledge, this is the first reported case of neutropenic enterocolitis developing in a patient being treated with a low dose cisplatin regimen. This case is significant because although low dose regimens have been shown to be better tolerated by patients there is still a risk that complications such as neutropenic enterocolitis can occur. Awareness of this complication by both clinicians and patients should continue to increase. Especially given that neutropenic patients are often unable to localize pain and may present with predominantly systemic symptoms.

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**References**

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