



# Confirmed Case of Neutropenic Enterocolitis in Armenia

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## Abstract

**Background:** Neutropenic Enterocolitis (NE) also known as typhlitis is a severe condition usually affecting immunocompromised patients. This is a first documented case of NE in Armenia. A 12-years old girl who was diagnosed with Hodgkin Lymphoma IIA in September of 2019 was hospitalized and chemotherapy was initiated with prednisolone, vincristine, doxorubicin and etoposide. On the 9<sup>th</sup> day of chemotherapy she had abdominal pain, cramps, constipation. Laboratory findings were unremarkable. Empiric *Helicobacter Pylori* (HP) eradication was prescribed (regimen with amoxicillin and clarithromycin) by gastroenterologist. Two days later she had fever and CBC showed profound neutropenia (WBC-0.34 neutrophil counts  $0.06 \times 10^3/\mu\text{L}$ ). Meropenem was started for febrile neutropenia. Despite the treatment symptoms were persistent. Based on the symptoms (fever, neutropenia, abdominal pain, and diarrhea) NE was suspected and CT scan of abdomen was performed. It revealed the width of the intestinal mucosa 0.5 cm to 1.0 cm. Consequently, the diagnosis of NE was confirmed and clarithromycin was switched to metronidazole accordingly. *Pseudomonas aeruginosa* was detected in blood culture and *Proteus vulgaris* was detected in stool culture. After 10 days of antibacterial therapy and diet the patient was recovered.

**Conclusion:** Awareness of typhlitis and possible risk factors at local institutions might help to modify the incidence and consequences of typhlitis.

## Introduction

Neutropenic Enterocolitis (NE) also known as typhlitis is a severe condition usually affecting immunocompromised patients [1]. NE defined as the width of the intestinal mucosa  $>0.3 \text{ cm}$  + clinical signs suggesting typhlitis (fever, abdominal pain spontaneous or elicited, diarrhea, nausea, vomiting and/or constipation) [2]. Various organisms have been identified as causing typhlitis: *C. difficile*, *Pseudomonas*, *E. coli*, *Klebsiella*, *S. aureus*; fungal organisms such as Candida; CMV [3]. Typhlitis is classically seen during neutropenia but also can be seen outside the neutropenic periods. The true incidence of NE is unknown worldwide [4]. The frequency of neutropenic enterocolitis appears to be increasing with the widespread use of cytotoxic agents, which cause gastrointestinal mucositis [5]. This is a first documented case of NE in Armenia.

## Case Presentation

A 12-year old girl was diagnosed with Hodgkin Lymphoma IIA in September of 2019 based on the histological and immunohistochemical investigations. She was hospitalized and chemotherapy with the following medications was initiated: prednisolone, vincristine, doxorubicin and etoposide. On the 9<sup>th</sup> day of chemotherapy she was complaining of abdominal pain, cramps, constipation. Laboratory findings were unremarkable. Gastroenterologist consultation was organized and she prescribed empiric eradication of *Helicobacter Pylori* (regimen with amoxicillin and clarithromycin). Two days later she started to complain of fever (up to 39 degrees of Celsius) and CBC showed profound neutropenia (WBC-0.34 neutrophil counts  $0.06 \times 10^3/\mu\text{L}$ ). Meropenem and granulocyte colony-stimulating factor was started for the empiric treatment of febrile neutropenia. Despite the treatment symptoms were persistent. Besides, patient started complaining of diarrhea. Based on the symptoms (fever, neutropenia, abdominal pain, and diarrhea) NE was suspected. The results of ultrasound of abdomen were unremarkable.

Computed Tomography (CT) is the preferred imaging modality since it appears to have a lower false-negative rate of diagnosis (15 percent) than does ultrasound (23 percent) or plain radiographs of the abdomen (48 percent) [6]. We performed CT scan of abdomen which revealed the width of the intestinal mucosa 0.5 cm to 1.0 cm. Consequently, the diagnosis of NE was confirmed [6]. A general approach to patients with neutropenic enterocolitis can be suggested, although care should be individualized. In patients without complications (i.e. peritonitis, perforation, or severe bleeding), nonsurgical management with bowel rest, nasogastric suction, Intravenous (IV) fluids,

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nutritional support, blood product support (packed red blood cells and fresh frozen plasma as needed), and broad-spectrum antibiotics is a reasonable initial approach [6-8].

In this particular case Clarithromycin was switched to metronidazole accordingly. *Pseudomonas aeruginosa* was detected in blood culture and *Proteus vulgaris* was detected in stool culture. After 10 days of antibacterial therapy and diet the patient was recovered.

## Conclusion

As the true incidence of NE is still unclear, awareness of typhlitis and possible risk factors at local institutions might help to modify the incidence and consequences of typhlitis.

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