Oncologic Emergencies Related to Infection: 
Typhlitis

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**Definition:**

Typhlitis is an inflammation of the colon that results in necrotizing colitis. Although the inflammation may occur anywhere within the colon, it is most common within the cecal region. Because of its decreased blood flow, lymphatic drainage and increased ability to distend, the cecal region is more amenable to infection, swelling and necrosis.

The mucosal involvement (A – 1) may range from inflammation to full-thickness infarction and perforation.

**Risk Factors:**

The patients at the greatest risk of typhlitis are those who are neutropenic and those who have received chemotherapy (A – 2) that is most destructive to the mucosal membranes (examples are cytarabine and methotrexate). These chemotherapeutic agents are often used to treat myelodysplastic syndrome, acute lymphoblastic leukemia and acute non-lymphoblastic leukemia (ANLL).

Predisposing factors in addition to neutropenia are intramural bleeding due to thrombocytopenia and the destruction of the normal architecture of the mucosa by chemotherapy, radiation, or infiltration of leukemic cells. The risk of typhlitis can be increased further by a change in the intestinal flora due to the use of broad-spectrum antibiotics and antifungal agents, the colonization of the intestines by nosocomial pathogens, the invasion by and proliferation of the intramural bacteria and the ischemia, necrosis and perforation of the intestinal wall.

Once the inflammatory process evolves, bacterial pathogens in the bowel may enter the bloodstream. Patients with a history of typhlitis are at a greater risk of the condition than those who have not experienced it. In patients with a history of typhlitis, the condition can recur in the absence of neutropenia.
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Clinical Presentation:

Symptoms (A – 3) of typhlitis most often occur days after the administration of chemotherapy. The patient may present with nausea, vomiting, diarrhea, fever and pain in the right lower quadrant of the abdomen. Clinical examination (A – 4) may reveal abdominal tenderness and distention. Fever may be persistent, and stools may contain bright red blood. Bowel sounds may range from being high-pitched to being absent. Ultrasonography (US), computerized tomography (CT) or both are used to detect inflammation and thickening of the cecal wall.

Medical Management:

The primary intervention is supportive medical care with fluids, bowel rest and broad-spectrum antimicrobial therapy. For complicated courses, surgical resection (A - 5) of the inflamed bowel may be necessary. These complications may include uncontrolled bleeding, perforation or infarction. If the patient is severely neutropenic with progressive inflammation, granulocyte colony-stimulating growth factor may be administered, or white blood cells may be transfused.

Nursing Intervention:

In caring for the child or adolescent with typhlitis, the nurse must closely assess the patient’s abdomen to detect:

- any increased tenderness
- changes in the abdominal girth (especially increasing)
- bowel sounds and function (especially hypoactive bowel sounds and function).

Vital signs should be monitored at frequent, regular intervals. The nurse should ensure that the patient’s pain is appropriately managed and that the prescribed antimicrobial agents are administered. The nurse should also educate and reassure the patient and family.

Patient and Family Education:

The patient and family should be continually informed about the patient’s condition, and they should be taught about typhlitis and the potential for recurrence with future neutropenic episodes. They should be taught to recognize early symptoms (A – 6).

Helpful Web Links:

eMedicine
Typhlitis
http://www.emedicine.com/radio/topic869.htm

CHORUS, Department of Radiology, Medical College of Wisconsin, Milwaukee, Wisconsin
Typhlitis
http://chorus.rad.mcw.edu/doc/01166.html
APPENDIX

A – 1 Typhlitis

This photograph shows typhlitis, an inflammation of the cecum, with a perforation seen at the left asterisk. On the serosal surface is a green-brown exudate. Peritonitis resulted from the perforation and release of feculent material. Typhlitis is uncommon, but can occur in immunocompromised patients, including those with neutropenia.

Significant thickening of the cecal wall in a patient with typhlitis. CT is used to detect thickening of the mucosal wall.

Department of Radiology at the Johns Hopkins Medical Institutions in Baltimore, MD.

www.ctisus.org/gallery/gastro_lg_bowel_path.html
A -2 Chemotherapeutic Agents Significantly Associated with Typhlitis Development

- Granulocyte colony-stimulating factor (G-CSF)
- Topotecan
- Atovaquone
- PEG-L-asparaginase
- Idarubicin
- Cytosine arabinoside
- Trimethoprim-sulfamethoxazole
- Hydrocortisone
- Methotrexate
- Carboplatin

McCarville et al, Cancer, 2005

A – 3 Typical Presenting Symptoms

- Watery or bloody diarrhea
- Fever
- Nausea
- Vomiting
- Abdominal pain (may be localized to the right lower quadrant)
- Possible shock secondary to septicemia or colonic perforation

http://www.emedicine.com/RADIO/topic869.htm

A – 4 Findings from the Physical Examination

- Abdominal distension
- Absence of bowel sounds
- Tympany
- Palpation tenderness (usually most marked in the right lower quadrant)
- Palpable mass (occasionally)
- Diffuse direct and rebound tenderness (suggesting colonic perforation or peritonitis)

http://www.emedicine.com/RADIO/topic869.htm
A – 5 Surgery

Situations in which surgical intervention is indicated –

- Persistent gastrointestinal bleeding despite the correction of clotting abnormalities
- Evidence of free intraperitoneal perforation (peritonitis)
- Uncontrolled sepsis due to a bowel infarction (clinical deterioration requires vasopressor support and hydration)

A – 6 Patient and Family Education

Early symptoms of typhlitis –

- Persistent abdominal pain especially that associated with fever
- Diarrhea, nausea and vomiting
- Abdominal distention and colic
- Abdominal tenderness
Acknowledgments:

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