



Chief Report

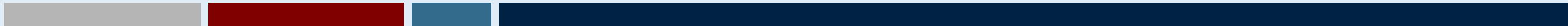
Oliver Clark
Pennsylvania Hospital | UPHS

October 14, 2024



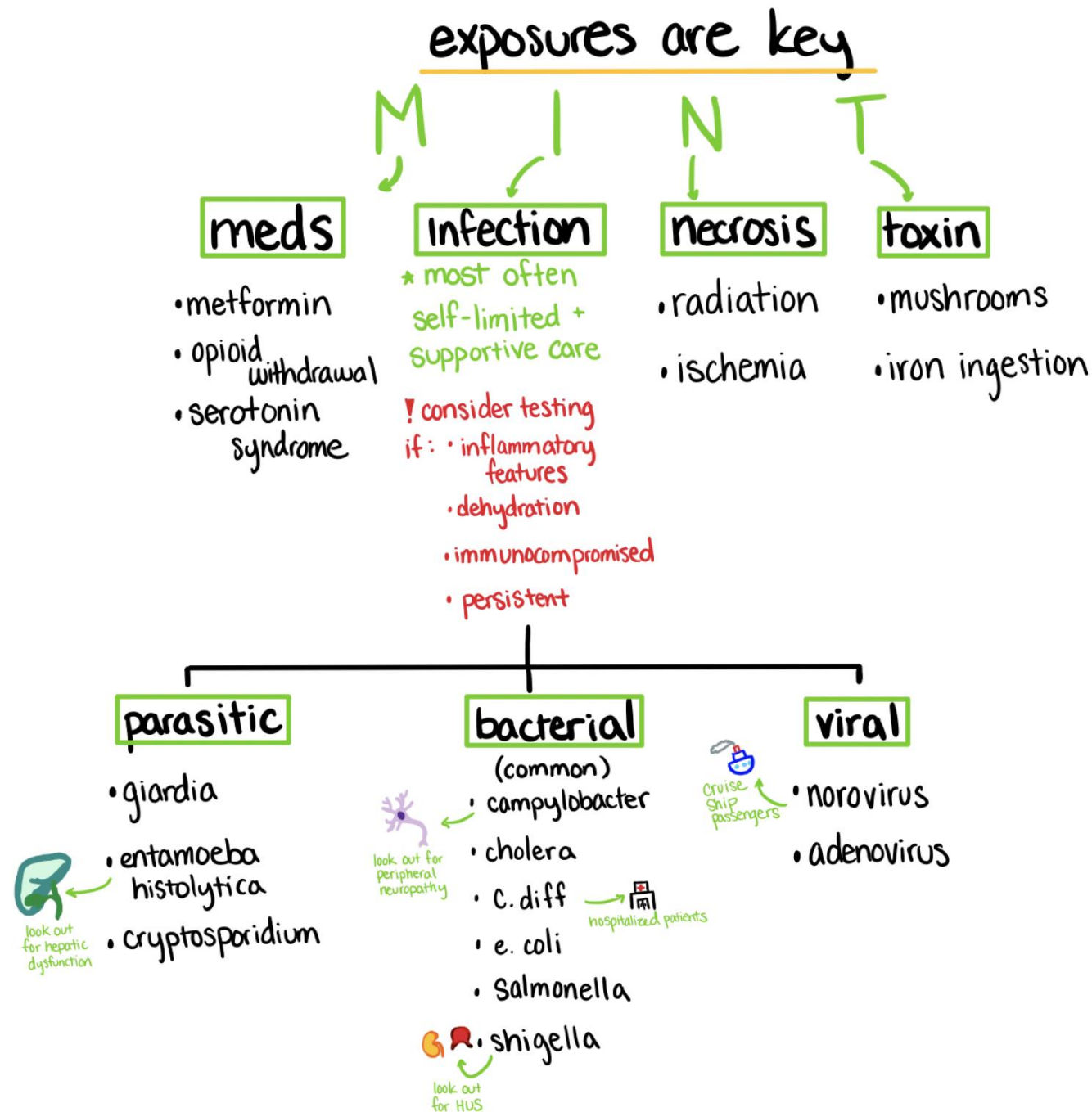
55 y o male: CC

- ▶ Acute-onset diarrhea



55 y o male: CC

- ▶ Acute-onset diarrhea



55 y o male: Initial History

Bloody diarrhea Abdominal pain Fever	Medical history: Metastatic left knee osteosarcoma BPH
HPI: Symptoms came on over the last day Abdominal pain worse in RLQ Underwent first cycle of chemotherapy (cisplatin and doxorubicin) 10 days ago	Surgical history: Appendectomy (12 yrs ago)
Medications: Oxycodone IR 5mg prn Ondansetron SL every 8 hours prn	Social history: Non smoker Non drinker No drug use

55 y o male: Physical Exam

Vitals T 38.7C (101.7F) BP 110/60 HR 106 RR 20 SpO2 95%	Abdominal: Oral mucositis present Soft Tender to palpation in RLQ No rigidity Heme-positive, maroon color stool in ED
Cardiac: Regular rate and rhythm No murmurs No distension in JVP	MSK No lower extremity edema
Pulmonary: Clear bilaterally	Neuro AAOx4

55 y o male: Labs

- ▶ Hb 8.9
- ▶ Plts 70
- ▶ WCC 0.8
- ▶ ANC 0.190
- ▶ Blood cultures drawn
- ▶ Stool cultures drawn
- ▶ C diff testing drawn

55 y o male: CT scan



55 y o male: CT scan

- ▶ Wall thickening, intramural edema, and pneumatosis of the ascending colon and cecum
- ▶ There is no fluid collection or free air in the abdomen

What is the most likely diagnosis?

Join [menti.com](https://www.menti.com)

Code 5363 4509

- ▶ Typhlitis
- ▶ Enterohemorrhagic E. coli
- ▶ Whipple disease
- ▶ Doxorubicin-related enterocolitis
- ▶ Ogilvie syndrome



What is the next step in management?

Join [menti.com](https://www.menti.com)

Code 5363 4509

- ▶ Antibiotics and bowel rest
- ▶ Colonoscopy with biopsy
- ▶ Intravenous neostigmine
- ▶ Mesenteric angiography
- ▶ Therapeutic plasma exchange



Neutropenic Fever

Neutropenic Enterocolitis (Typhlitis)



Neutropenic Fever

- ▶ Fever
 - o Single oral temp 38.3C (101F)
 - o 38.0C (100.4F) sustained over a 1 hour period
- ▶ Neutropenia
 - o ANC <1500
 - o Severe: ANC<500
- ▶ Neutropenic fever syndromes
 - o Microbiologically documented infection
 - o Clinically documented infection
 - o Unexplained fever

Neutropenic Fever: Etiology

- ▶ Therapies
 - Cytotoxic chemotherapies
 - NOT: Immunotherapy, targeted therapy, radiation therapy
- ▶ An infectious source is identified in approximately 20-30% of febrile neutropenia episodes
- ▶ 80% of identified infections are believed to arise from endogenous flora

Neutropenic Fever: Etiology

- ▶ Bacterial (most common)
 - Gram positive (staph epi, staph aureus)
 - Pseudomonas
- ▶ Fungal
 - More rare
 - Identified as causes of persistent fever beyond the first week of neutropenia
 - Candida and aspergillus are most common (GI tract colonization and airborne spores)
- ▶ Viral
 - Common in high risk patients are effectively prevented with antiviral prophylaxis
 - Most common HSV1, HSV2, VZV, EBV, CMV,

Neutropenic Fever: Risk of complications

- ▶ MASCC risk score
- ▶ CISNE risk score
- ▶ Other acute uncontrolled medical problems
- ▶ Alemtuzumab or CAR-T cell use within the past 2 months
- ▶ Uncontrolled or progressive cancer
- ▶ Evidence of hepatic insufficiency or renal insufficiency

Neutropenic Enterocolitis (Typhlitis)

- ▶ Life-threatening necrotizing infection is likely caused by microorganism invasion into the bowel wall in the setting of intestinal mucosal injury (eg. Cytotoxic drugs) and an impaired host defense
- ▶ Polymicrobial infection is often present, and the cecum is usually involved
- ▶ Patients typically experience symptoms 10-14 days after chemotherapy, such as fever, RLQ pain or diffuse abdominal pain, vomiting, and watery or bloody diarrhea
- ▶ Uncomplicated peritonitis (e.g. no peritonitis, perforation, or severe gastrointestinal bleeding) are treated with broad spectrum antibiotics (eg cefepime + metronidazole), bowel rest, and supportive care
- ▶ Surgery may be necessary for complicated cases

Neutropenic Fever: Treatment

- ▶ Antibiotics within 60 minutes of presentation
- ▶ Empiric antibiotics
 - Cefepime and vancomycin
 - Piperacillin-tazobactam and vancomycin
 - Levofloxacin and tobramycin and vancomycin

55 y o male: Case update

- ▶ The patient has improved RLQ and is afebrile for 48 hours while on cefepime and vancomycin
- ▶ Normal vital signs with no remaining RLQ TTP
- ▶ Blood cultures, stool culture, and c diff testing are negative
- ▶ CBC:
 - WCC 0.4
 - Hb 10.2
 - Plts 143
 - ANC 400



What is the next recommended step in management?

Join [menti.com](https://www.menti.com)

Code 5363 4509

- ▶ Change to imipenem-cilastin
- ▶ Discontinue antibiotics
- ▶ No change in management
- ▶ Start voriconazole

55 y o male: Case update

- ▶ 48 hours later
- ▶ The patient has slightly worse RLQ pain (now 2/10). No cough, dysuria, or rashes
- ▶ Temperature is 38.4C (101.1F). BP 120/70. HR 96. RR 18. SpO2 96% on room air
- ▶ CBC:
 - WCC 2
 - Hb 10.4
 - Plts 165
 - ANC 1800
- ▶ CT scan of the abdomen/pelvis shows continued uncomplicated enterocolitis with slight increase in degree of fat stranding and edema
- ▶ UA shows no pyuria
- ▶ Aspergillus and Beta-D glucan assays are negative
- ▶ Blood cultures are drawn

What is the next recommended step in management?

Join [menti.com](https://www.menti.com)

Code 5363 4509

- ▶ Add IV clindamycin
- ▶ Add liposomal amphotericin B
- ▶ Monitor without treatment changes
- ▶ Order a CT scan of the chest
- ▶ Order transthoracic echocardiography

What is the recommended management following hospital discharge?

Join [menti.com](https://www.menti.com)

Code 5363 4509

- ▶ Reduce cisplatin and doxorubicin doses
- ▶ Start G-CSF weekly
- ▶ Start G-CSF on day 2 of chemotherapy
- ▶ Start levofloxacin at time of chemotherapy

Neutropenic Fever: Treatment

- ▶ Antibiotics within 60 minutes of presentation
- ▶ Empiric antibacterial agents
 - Cefepime and vancomycin
 - Piperacillin-tazobactam and vancomycin
 - Levofloxacin and tobramycin and vancomycin
- ▶ Antifungals
 - Add for chest imaging suggesting invasive aspergillosis
 - Voriconazole
 - Caspofungin

Myeloid Reconstitution Syndrome

- ▶ Fever + progression of inflammatory focus in temporal relationship to myeloid recovery
- ▶ Similar to IRIS
- ▶ Likely caused by dysregulated inflammatory response that occurs as immunosuppressive state shifts to a proinflammatory state
- ▶ No treatment change is typically necessary

Neutropenic Fever: Prophylaxis

- ▶ Primary prophylaxis
 - GCSF recommended when risk of neutropenic fever >20%
 - Fluoroquinolones for high-risk patients (Allo HCT and acute leukemia)
 - Valacyclovir for high-risk patients (Allo HCT and acute leukemia)
- ▶ Secondary prophylaxis
 - GCSF recommended
- ▶ Neutropenia
 - GCSF not recommended

Learning points:

- Typhlitis = Neutropenic Enterocolitis
- Neutropenic fever temp is defined by 1x $>101^{\circ}\text{F}$ or 100.4 for $>1\text{hr}$
- Neutropenia is $\text{ANC} <1500$
- Managed with broad spectrum, anti-pseudomonal antibiotics
- Improvement in ANC may manifest as Myeloid Reconstitution Syndrome
- Secondary prophylaxis with G-CSF



Thank You!