



Acute Leukemia Presenting with Febrile Neutropenia, Candidemia, Neutropenic Enterocolitis, and Probable Turner Syndrome: A Clinical Dilemma

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INTRODUCTION

Neutropenic enterocolitis (NE) is a life-threatening condition typically occurring in immunocompromised individuals, particularly following chemotherapy. Its development in chemotherapy-naïve patients with leukemia is rare. Furthermore, candida-associated NE is exceptionally uncommon, and the coexistence of Turner syndrome in such cases is scarcely described.

CASE PRESENTATION

Symptoms: Gingival bleeding, easy fatigability, dizziness (1 month)

Labs:

- Hb: 40 g/L
- WBC: $2.05 \times 10^9/L$
- ANC: 440 cells/ μL
- Platelets: $30 \times 10^9/L$

Physical Findings: Short stature, broad chest, widely spaced nipples, underdeveloped breasts →

Suggestive of Turner Syndrome

GyneHx: Primary amenorrhea

FEBRILE NEUTROPENIA (ANC 258)

•**Treatment:**

- Cefepime
- G-CSF

•**Bone Marrow:** Acute Lymphoblastic Leukemia (ALL)

•**Course:** Persistent fever, pneumonia, respiratory distress

•**Labs:** ↑ Procalcitonin (2.481 $\mu g/L$), ↑ Pro-BNP (>30,000)

ESCALATION OF MANAGEMENT

•**Antibiotic Escalation:**

- Meropenem → persistent fever
- Added Vancomycin → persistent fever

•Added **Fluconazole** → afebrile, ANC ↑ to 820 cells/ μL

•**Duration:** 7 days on meropenem, vancomycin, fluconazole → afebrile ×5 days

NEW ONSET ABDOMINAL SYMPTOMS

•**Symptoms:** Abdominal pain, diarrhea, recurrent fever

•**Findings:** Hypoactive bowel sounds, distension, tenderness

•**Labs:** Persistent neutropenia (ANC 358)

•**Impression:** Neutropenic Enterocolitis vs *C. difficile* colitis

•**Management:**

- Ceftazidime + Metronidazole + Linezolid
- Continued Fluconazole

OUTCOME AND FOLLOW-UP

•**Day 14 of Fluconazole:** Blood culture sterile

•**Afebrile ×7 days**

•**ANC:** 658 cells/ μL

•**Chemotherapy:** Advised but declined

•**Discharge:** Stable, on Ciprofloxacin prophylaxis

DISCUSSION

•**Neutropenic enterocolitis (NE)** can occur in untreated leukemia due to **marrow failure, mucosal injury**, and **immune compromise**.

•**High tumor burden** and possible **leukemic bowel infiltration** may trigger NE even **before chemotherapy**.

•***Candida parapsilosis*** translocation reflects **gut barrier disruption** and risk of **invasive fungal infection**.

•**Management:** **bowel rest, supportive care, broad-spectrum antibiotics**, with **antifungals** for persistent fever or prolonged neutropenia.

•**Turner Syndrome** may contribute to **genetic instability** and **immune dysregulation**, accelerating leukemia and infectious complications.

CONCLUSION

•This case illustrates the interplay of febrile neutropenia, neutropenic enterocolitis, candidemia, and probable Turner Syndrome in acute leukemia.

•*Candida parapsilosis* underscores the need for early antifungal consideration in persistent febrile neutropenia.

•NE occurring in a chemotherapy-naïve patient is rare, and its link with Turner Syndrome is not well described.

•Further research is needed to optimize diagnosis and management in such atypical cases.

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