**Patient:** Walter Graham (1952-02-14)  
**Medical Record Number:** 782156  
**Date of Admission:** 2025-03-24  
**Date of Discharge:** 2025-04-01  
**Admitting Physician:** Dr. M. Reynolds (Hematology/Oncology)  
**Consulting Physician:** Dr. J. Nakamura (Infectious Disease), Dr. S. Patel (Nephrology)

**Discharge Diagnosis: Myelodysplastic Syndrome with Excess Blasts-2 (MDS-EB2), Severe Pancytopenia, Neutropenic Fever**

**1. Detailed Diagnosis:**

Primary Diagnosis: Myelodysplastic Syndrome with Excess Blasts-2 (MDS-EB2)  
Date of Initial Diagnosis: 2025-03-26

Laboratory Findings: Hemoglobin: 7.2 g/dL (Reference: 13.5-17.5 g/dL), White Blood Cell Count: 1.8 × 10^9/L (Reference: 4.0-11.0 × 10^9/L), Absolute Neutrophil Count: 0.4 × 10^9/L (Reference: 1.8-7.5 × 10^9/L), Platelets: 24 × 10^9/L (Reference: 150-400 × 10^9/L)

Peripheral Blood Smear: Marked anisocytosis and poikilocytosis, occasional teardrops and elliptocytes, presence of hypogranular neutrophils with pseudo-Pelger-Huët anomaly. Occasional circulating myeloblasts (3%), severe thrombocytopenia with large platelets

Bone Marrow Biopsy (2025-03-25): Hypercellular marrow (80%) for age. Trilineage dysplasia (>10% in each lineage), erythroid dysplasia: nuclear budding, multinucleation, megaloblastoid changes. Myeloid dysplasia: hypogranularity, hyposegmentation. Megakaryocytic dysplasia: micromegakaryocytes, hypolobated nuclei, 12% myeloblasts by manual differential. Increased reticulin fibrosis (grade 1/3). Ringed sideroblasts: 3% of erythroid precursors

Flow cytometry: Abnormal myeloid maturation, 11% myeloblasts with expression of CD34, CD117, HLA-DR, partial CD13 and CD33

Cytogenetic Analysis:

* 46,XY,del(7q),+8[18]/46,XY[2]
* Deletion of the long arm of chromosome 7, and trisomy 8

Molecular Studies:

* Next-generation sequencing panel:
  + TP53 mutation (VAF 42%)
  + ASXL1 mutation (VAF 36%)
  + RUNX1 mutation (VAF 28%)
  + TET2 mutation (VAF 45%)
  + No mutations detected in SF3B1, JAK2, MPL, or CALR

Risk Stratification:

* International Prognostic Scoring System (IPSS): High risk (score 3.0)
  + Bone marrow blasts: 12% (1.5 points)
  + Cytogenetics: Poor risk (1 point)
  + Cytopenias: 3 lineages (0.5 point)
* Revised International Prognostic Scoring System (IPSS-R): Very high risk (score 9.0)
  + Cytogenetics: Poor (3 points)
  + Bone marrow blasts: 12% (3 points)
  + Hemoglobin: 7.2 g/dL (1.5 points)
  + Platelets: 24 × 10^9/L (1 point)
  + Absolute neutrophil count: 0.4 × 10^9/L (0.5 points)
* IPSS-M: 2.80 (Very High)

**2. Current Treatment:**

Initial Management:

* Packed red blood cell transfusion: 2 units on admission, 2 units on 2025-03-28
* Platelet transfusion: 1 unit on admission, 1 unit on 2025-03-27, 1 unit on 2025-03-30
* Empiric broad-spectrum antibiotics for neutropenic fever:
  + Piperacillin-tazobactam 4.5 g IV q8h
  + Vancomycin 1 g IV q12h (dose-adjusted for renal function)

Treatment Plan for MDS:

* Decision to proceed with hypomethylating agent therapy
* Azacitidine 75 mg/m²/day subcutaneously for 7 days, every 28 days
* First cycle initiated on 2025-03-28
* Concurrent referral to transplant center for allogeneic hematopoietic stem cell transplantation evaluation

Supportive Care:

* Antimicrobial prophylaxis:
  + Levofloxacin 250 mg PO daily (when ANC <0.5 × 10^9/L)
  + Posaconazole 300 mg PO daily (antifungal prophylaxis)
  + Acyclovir 400 mg PO BID (antiviral prophylaxis)
  + Allopurinol 100 mg PO daily (TLS prophylaxis)

**3. History of Previous Treatment:**

No prior treatment for MDS, as this is a new diagnosis.

The patient was evaluated 3 months ago by his primary care physician for fatigue, and was found to have mild anemia (Hgb 11.2 g/dL) and thrombocytopenia (PLT 120 × 10^9/L), which was attributed to potential vitamin deficiency. He was started on a multivitamin, but anemia progressively worsened.

**4. Secondary Illnesses (Comorbidities):**

* Chronic kidney disease stage 3a (baseline eGFR 50 mL/min/1.73m², creatinine 1.4 mg/dL)
* Hypertension, well-controlled on medication
* Type 2 diabetes mellitus (HbA1c 7.1%)
* Coronary artery disease, status post stenting of LAD (2020)
* Hyperlipidemia
* Benign prostatic hyperplasia
* Osteoarthritis of bilateral knees

**5. Physical Exam at Admission:**

General: 73-year-old male appearing fatigued and pale, but in no acute distress.

Vitals: Temperature 38.4°C, Heart Rate 98 bpm, Respiratory Rate 20/min, Blood Pressure 142/78 mmHg, Oxygen Saturation 96% on room air, Weight 78 kg, Height 175 cm, BMI 25.5 kg/m².

HEENT: Normocephalic, atraumatic. Conjunctivae pale. Sclera anicteric. Mucous membranes moist with no oral lesions.

Neck: Supple, no lymphadenopathy, no thyromegaly.

Cardiovascular: Regular rate and rhythm, normal S1/S2, no murmurs, rubs, or gallops.

Respiratory: Clear to auscultation bilaterally, no wheezes, rhonchi, or crackles.

Abdomen: Soft, non-tender, non-distended. Normal bowel sounds. Liver and spleen not palpable.

Extremities: No edema. Mild tenderness to palpation of bilateral knees without erythema or effusion.

Skin: Pale, no petechiae, ecchymoses, or rashes.

Neurological: Alert and oriented x3. Cranial nerves II-XII intact. Motor strength 5/5 in all extremities. Sensory intact. Deep tendon reflexes 2+ throughout. Normal gait.

Lymphatic: No cervical, axillary, or inguinal lymphadenopathy.

**6. Epicrisis:**

Mr. Graham presented with fatigue, fever, and severe pancytopenia. Initial management focused on stabilization with blood product support and empiric antibiotics for neutropenic fever. Blood cultures from admission were negative, and chest X-ray showed no infiltrates; however, urinalysis was consistent with urinary tract infection, and urine culture grew Escherichia coli sensitive to piperacillin-tazobactam and levofloxacin.

A comprehensive diagnostic workup was performed, including bone marrow biopsy, which revealed MDS with excess blasts (12%), complex cytogenetics, and multiple high-risk molecular mutations, stratifying him as high-risk by IPSS and very high-risk by IPSS-R criteria.

Given his high-risk disease, treatment with azacitidine was initiated promptly during hospitalization. He received his first dose on 2025-03-28 and tolerated the treatment well with minimal side effects (mild injection site erythema and mild nausea controlled with antiemetics).

His hospital course was complicated by acute kidney injury (peak creatinine 1.9 mg/dL) likely due to a combination of pre-renal causes (decreased oral intake) and medication effects. Nephrology was consulted, and with appropriate hydration and medication adjustments, his renal function improved toward baseline (discharge creatinine 1.6 mg/dL).

The patient received extensive education regarding his diagnosis, treatment plan, and home care instructions. Discussions regarding allogeneic hematopoietic stem cell transplantation were initiated, and a referral to a transplant center was placed for evaluation. The patient will complete the remainder of his first cycle of azacitidine as an outpatient.

**7. Medication at Discharge:**

* Azacitidine 75 mg/m²/day subcutaneously for 2 more days (days 6-7 of cycle 1)
* Levofloxacin 250 mg PO daily (while ANC <0.5 × 10^9/L)
* Posaconazole 300 mg PO daily
* Allopurinol 100 mg PO daily
* Pantoprazol 40 mg PO daily
* Acyclovir 400 mg PO BID
* Ondansetron 8 mg PO TID PRN nausea
* Lisinopril 10 mg PO daily
* Metformin 500 mg PO BID
* Rosuvastatin 20 mg PO daily
* Aspirin 81 mg PO daily (pause when platelets < 50 G/l)
* Tamsulosin 0.4 mg PO daily
* Acetaminophen 650 mg PO Q6H PRN pain or fever (max 3 g/day)

**8. Further Procedure / Follow-up:**

Hematology/Oncology Follow-up:

* Appointment with Dr. M. Reynolds next two days (2025-04-02 and -03) for administration of azacitidine day 6-7
* Follow-up appointment one week after completion of azacitidine (2025-04-10)
* Second cycle of azacitidine scheduled to begin approximately 2025-04-25 (pending count recovery)

Laboratory Monitoring:

* CBC with differential, CMP twice weekly until count recovery
* Weekly assessment of ferritin, LDH
* Bone marrow biopsy to be repeated after 4 cycles of azacitidine to assess response

Transplant Evaluation:

* Appointment at University Medical Center Transplant Program on 2025-04-15
* HLA typing completed during hospitalization, results pending
* Siblings to be contacted for potential donor evaluation (patient has 2 siblings)

Blood Product Support:

* Transfusion parameters:
  + Transfuse packed red blood cells for hemoglobin <7 g/dL or symptomatic anemia
  + Transfuse platelets for platelet count <10 × 10^9/L or <20 × 10^9/L with bleeding

Infectious Disease Follow-up:

* Appointment with Dr. J. Nakamura in 1 week (2025-04-08)
* Monitoring for opportunistic infections during neutropenia

Patient Education:

* Instructions provided regarding:
  + Recognition of fever and infection (notify immediately if temperature >38.0°C)
  + Bleeding precautions (avoiding trauma, using soft toothbrush, etc.)
  + Avoidance of crowds and sick contacts
  + Importance of adherence to antimicrobial prophylaxis
  + Nutritional guidance for neutropenic diet

**9. Lab Values (Excerpt):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Admission (2025-03-24)** | **Discharge (2025-04-01)** | **Units** | **Reference Range** |
| WBC | 1.8 | 1.7 | ×10^9/L | 4.0-11.0 |
| ANC | 0.4 | 0.4 | ×10^9/L | 1.8-7.5 |
| Hemoglobin | 7.2 | 8.6 | g/dL | 13.5-17.5 |
| Hematocrit | 21.6 | 25.8 | % | 40.0-52.0 |
| MCV | 104 | 103 | fL | 80-100 |
| Platelets | 24 | 56 | ×10^9/L | 150-400 |
| Reticulocytes | 0.8 | 1.2 | % | 0.5-2.5 |
| BUN | 28 | 22 | mg/dL | 7-20 |
| Creatinine | 1.7 | 1.6 | mg/dL | 0.7-1.2 |
| eGFR | 39 | 42 | mL/min/1.73m² | >60 |
| Sodium | 136 | 138 | mmol/L | 135-145 |
| Potassium | 3.8 | 4.1 | mmol/L | 3.5-5.0 |
| Chloride | 102 | 105 | mmol/L | 98-107 |
| Bicarbonate | 24 | 25 | mmol/L | 22-29 |
| Glucose | 152 | 128 | mg/dL | 70-99 |
| Calcium | 8.8 | 9.0 | mg/dL | 8.6-10.2 |
| Albumin | 3.6 | 3.5 | g/dL | 3.5-5.0 |
| Total Bilirubin | 1.1 | 0.9 | mg/dL | 0.1-1.2 |
| Alkaline Phosphatase | 88 | 82 | U/L | 45-115 |
| AST | 32 | 28 | U/L | 10-40 |
| ALT | 36 | 30 | U/L | 10-55 |
| LDH | 380 | 345 | U/L | 135-225 |
| Ferritin | 768 | 792 | ng/mL | 30-400 |
| C-reactive protein | 3.8 | 1.6 | mg/dL | <0.5 |

Electronically Signed By:  
Dr. M. Reynolds (Hematology/Oncology)  
Date/Time: 2025-04-01 14:30

Dr. J. Nakamura (Infectious Disease)  
Date/Time: 2025-04-01 13:15

Dr. S. Patel (Nephrology)  
Date/Time: 2025-04-01 12:45