**DISCHARGE SUMMARY**

**Patient**: Sophia Carter  
**MRN**: 579236  
**DOB**: 1990-05-06 (34 years)  
**Admission**: 2025-03-17 | **Discharge**: 2025-03-24  
**Physicians**: Dr. R. Nelson (Hematology), Dr. J. Kim (Nephrology), Dr. T. Edwards (Gastroenterology)

**DISCHARGE DIAGNOSIS**

Paroxysmal Nocturnal Hemoglobinuria with Breakthrough Hemolysis, Acute Kidney Injury (resolved)

**DETAILED DIAGNOSIS**

* **Primary**: Paroxysmal Nocturnal Hemoglobinuria (PNH)
* **Diagnosed**: 2022-05-18
* **Current Status**: Active disease with breakthrough hemolysis on eculizumab
* **Flow Cytometry at Diagnosis**:
  + RBC PNH clone: 55% (Type III PNH cells)
  + Granulocyte PNH clone: 68% (FLAER negative)
  + Monocyte PNH clone: 72% (FLAER negative)
* **Molecular Genetics**:
  + PIGA gene mutation: c.756C>G (p.Tyr252\*)
  + NGS panel: No mutations in myeloid malignancy-associated genes
  + Cytogenetics: Normal female karyotype (46,XX)
* **Bone Marrow Findings** (2022-05-15):
  + Hypocellular marrow (40%) for age
  + Erythroid hyperplasia with left shift
  + Dyserythropoiesis
  + No evidence of MDS or AML
* **Thrombotic Events**:
  + 2022-08-12: Mesenteric vein thrombosis (prior to eculizumab)
* **Current PNH Clone Size** (2025-03-18):
  + RBC PNH clone: 42% (Type III)
  + Granulocyte PNH clone: 70% (FLAER negative)
  + Monocyte PNH clone: 74% (FLAER negative)

**CURRENT TREATMENT**

* Parvovirus B19 mediated breakthrough hemolysis
* IVIGs (25g daily for 5 days)
* Piperacillin-tazobactam for 5 days
* Eculizumab 900 mg given on 2025-03-17 (one week earlier than scheduled)
* Hydration with IV fluids
* Red blood cell transfusion (2 units)

**PREVIOUS TREATMENT HISTORY**

**Initial Management** (2022-05 to 2022-09):

* RBC transfusions (approximately 12 units total)
* Prednisone trial (60 mg daily × 1 week, then taper) with minimal response
* Anticoagulation: Initially enoxaparin, transitioned to apixaban

**Eculizumab Therapy** (2022-09 to present):

* Induction: 600 mg IV weekly × 4 weeks
* Maintenance: 900 mg IV every 2 weeks
* Meningococcal vaccination completed (MenACWY, MenB series)
* Annual meningococcal booster vaccinations maintained

**Response to Eculizumab**:

* Initial: Excellent resolution of hemolysis, improved blood counts
* Maintenance: Stable Hgb 9.8-10.5 g/dL, LDH 350-450 U/L, no transfusion requirement

**Previous Breakthrough Episodes**:

* 2023-11-15: Resolved with additional eculizumab dose (900 mg)
* Associated with viral respiratory infection

**COMORBIDITIES**

* Iron deficiency (secondary to chronic intravascular hemolysis)
* Anxiety disorder
* Hypothyroidism (controlled on levothyroxine)
* Gastroesophageal reflux disease (GERD)
* Vitamin D deficiency
* Mesenteric vein thrombosis (2022-08-12, prior to eculizumab)

**HOSPITAL COURSE**

34-year-old female with PNH presented with fatigue, cola-colored urine, abdominal pain, and low-grade fever (38.1°C). Labs confirmed breakthrough intravascular hemolysis with Hgb 6.8 g/dL, elevated LDH (1,850 U/L), undetectable haptoglobin, and hemoglobinuria.

Workup revealed positive PCR for parvovirus B19 and AKI (creatinine 1.6 mg/dL) attributed to hemoglobinuria causing tubular damage. Blood cultures were negative. No evidence of recent medication changes or compliance issues with eculizumab.

Treatment included hydration, RBC transfusion, and additional eculizumab dose. IVIG therapy (0.4 g/kg/day for 5 days) was administered for parvovirus B19 infection. Anticoagulation with apixaban was continued.

With treatment, hemolysis parameters improved (discharge LDH 420 U/L), Hgb stabilized at 9.2 g/dL, and hemoglobinuria resolved. Renal function returned to baseline (discharge creatinine 0.9 mg/dL). Parvovirus B19 PCR showed significant reduction in viral load.

Eculizumab regimen modified to 1200 mg IV every 2 weeks. Ravulizumab considered as alternative if breakthrough hemolysis recurs on intensified regimen.

**DISCHARGE MEDICATIONS**

* Eculizumab 1200 mg IV every 2 weeks (increased from 900 mg) (Next: 2025-03-31)
* Penicillin VK 500 mg PO BID (Meningococcal prophylaxis)
* Apixaban 5 mg PO BID
* Levothyroxine 75 mcg PO daily
* Ferrous sulfate 325 mg PO daily
* Folic acid 1 mg PO daily
* Vitamin D3 2000 IU PO daily
* Pantoprazole 40 mg PO daily
* Acetaminophen 650 mg PO Q6H PRN pain/fever

**FOLLOW-UP PLAN**

**Hematology**:

* Dr. R. Nelson in 1 week (2025-03-31) for next eculizumab infusion
* Labs: CBC, reticulocytes, LDH, haptoglobin, CMP prior to infusion
* PNH clone size measurement in 3 months
* Weekly CBC, LDH for 4 weeks, then biweekly if stable
* Monthly urinalysis for hemoglobinuria

**Ravulizumab Consideration**:

* Will consider if breakthrough hemolysis recurs despite increased eculizumab
* Insurance pre-authorization in process

**Nephrology**:

* Dr. J. Kim in 2 weeks (2025-04-07)
* Weekly creatinine and urinalysis for 4 weeks

**Infectious Disease Management**:

* Follow-up parvovirus B19 PCR in 2 weeks
* Consider additional IVIG if viral load persists
* Meningococcal vaccination status:
  + Last MenACWY booster: 2024-09-10 (next due: 2025-09-10)
  + MenB booster completed 2024-10 (next due: 2026-10)
* Continue Penicillin VK prophylaxis throughout complement inhibitor therapy

**Patient Education**:

* Signs/symptoms of breakthrough hemolysis
* Anticoagulation compliance
* Recognition of thrombotic events
* Avoiding triggers (infections, strenuous exercise during illness)
* Maintaining meningococcal vaccinations
* When to seek immediate medical attention

**KEY LAB VALUES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Admission** | **Discharge** | **Reference** |
| Hemoglobin | 6.8 | 9.2 | 12.0-15.5 g/dL |
| Reticulocytes | 12.3 | 8.5 | 0.5-2.5% |
| LDH | 1,850 | 420 | 135-225 U/L |
| Haptoglobin | <10 | 12 | 30-200 mg/dL |
| Total Bilirubin | 3.6 | 1.8 | 0.1-1.2 mg/dL |
| Creatinine | 1.6 | 0.9 | 0.5-1.1 mg/dL |
| eGFR | 45 | 86 | >90 mL/min/1.73m² |
| Serum Free Hgb | 428 | 58 | <20 mg/dL |
| Parvovirus B19 PCR | Positive (high) | Positive (very low) | Negative |
| Urinalysis | + Hemoglobinuria | No hemoglobinuria | Negative |

**Electronically Signed**:  
Dr. R. Nelson (Hematology)  
Dr. J. Kim (Nephrology)  
Date: 2025-03-24