**Patient:** Melissa Ramos (DOB 1976-05-25)  
**Medical Record Number:** 651387  
**Date of Admission:** 2025-03-12  
**Date of Discharge:** 2025-03-21  
**Admitting Physician:** Dr. C. Zhang (Medical Oncology)  
**Consulting Physician:** Dr. B. Patel (Pulmonology), Dr. A. Newman (Cardiology)

**Discharge Diagnosis: Metastatic HER2-Positive Breast Cancer with Trastuzumab Deruxtecan-Induced Interstitial Lung Disease/Pneumonitis**

**1. Detailed Diagnosis:**

Primary Diagnosis: Metastatic Breast Cancer, HER2-Positive  
Date of Diagnosis: 2021-05-10 (early stage); 2023-07-15 (metastatic)

Primary diagnosis (2021):

* Left breast invasive ductal carcinoma, Grade 3
* Tumor characteristics: ER-negative, PR-negative, HER2-positive (IHC 3+)
* Initial stage: T2N1M0 (Stage IIB),

Metastatic Disease (2023):

* Recurrence sites: Multiple liver metastases (largest 3.8 cm), bone metastases (spine, ribs, pelvis)
* Biopsy of liver lesion: Confirmed metastatic breast cancer, ER-negative, PR-negative, HER2-positive

**2. Current Treatment:**

Lung Toxicity Current Presentation:

* Onset of symptoms: Progressive dyspnea, dry cough, and low-grade fever 2 weeks prior to admission
* Imaging: High-resolution CT chest revealing bilateral ground-glass opacities and septal thickening consistent with drug-induced interstitial lung disease (ILD)
* Grading: Grade 3 ILD/pneumonitis (symptomatic, interfering with ADLs, oxygen indicated)
* Pulmonary Function (2025-03-15): FEV1: 58% of predicted, FVC: 62% of predicted, FEV1/FVC ratio: 78%, DLCO: 45% of predicted
* Echocardiogram (2025-03-14): LVEF 55%, normal wall motion, no valvular abnormalities

Management of Trastuzumab Deruxtecan-Induced Pneumonitis:

* Immediately discontinued trastuzumab deruxtecan
* Corticosteroid therapy:
  + Initial: Methylprednisolone 2 mg/kg/day IV (120 mg IV daily) for 3 days
  + Transition: Prednisone 2 mg/kg/day PO (120 mg daily) with planned slow taper over 4-6 weeks
* Supplemental oxygen therapy: 2-3L via nasal cannula to maintain SpO2 >92%
* Empiric antimicrobial coverage initially (discontinued after infectious workup negative):
  + Ceftriaxone 2g IV daily for 5 days
  + Azithromycin 500 mg IV daily for 3 days
* Prophylactic medications during steroid therapy:
  + Trimethoprim-sulfamethoxazole DS three times weekly for PCP prophylaxis
  + Fluconazole 200 mg daily for fungal prophylaxis

Supportive Care:

* Oxygen therapy weaned from 4L to 2L at discharge
* Pulmonary rehabilitation initiated: breathing exercises, incentive spirometry
* Proton pump inhibitor: Pantoprazole 40 mg PO daily
* DVT prophylaxis: Enoxaparin 40 mg SubQ daily during hospitalization

Oncologic Plan Moving Forward:

* Temporary hold on all cancer-directed therapy until complete resolution of pulmonary toxicity
* Plan for transition to alternative HER2-directed therapy (tucatinib, trastuzumab, and capecitabine) once pneumonitis resolves

**3. History of Previous Treatment:**

Localized Disease Treatment (2021-2022):

* Neoadjuvant: TCHP (Taxotere, carboplatin, Herceptin, Perjeta) × 6 cycles
* Surgery: Left breast lumpectomy with sentinel lymph node biopsy (2021-12-10)
* Adjuvant: Completion of trastuzumab/pertuzumab to 1 year
* Radiation: Left breast radiation 50 Gy in 25 fractions + 10 Gy boost (2022-01 to 2022-03)

Metastatic Disease Treatment (2023-2025):

* First-line: Trastuzumab emtansine (T-DM1) from August 2023 until October 2024
* Second-line: Trastuzumab deruxtecan (T-DXd)
  + Started: 2024-11-15
  + Dose: 5.4 mg/kg IV every 3 weeks
  + Cycles completed: 5
  + Best response: Partial response with 30% reduction in liver metastases
  + Last dose: 2025-02-20 (3 weeks before admission)

**4. Comorbidities:**

* Hypothyroidism (diagnosed 2018, well-controlled on levothyroxine)
* Osteopenia (diagnosed 2022, likely related to premature menopause from chemotherapy)
* Chemotherapy-induced peripheral neuropathy (mild residual symptoms)
* Anxiety and depression (diagnosed after cancer recurrence)
* Vitamin D deficiency

**5. Physical Exam at Admission:**

General: 48-year-old female appearing short of breath and in mild respiratory distress.

Vitals: Temperature 38.1°C, Heart Rate 110 bpm, Respiratory Rate 24/min, Blood Pressure 122/88 mmHg, Oxygen Saturation 89% on room air, improved to 94% on 4L O2, Weight 62 kg, Height 165 cm

HEENT: Normocephalic, atraumatic. No oral thrush. No scleral icterus.

Neck: Supple, no lymphadenopathy, no JVD.

Cardiovascular: Tachycardic but regular rhythm, normal S1/S2, no murmurs, rubs, or gallops.

Respiratory: Tachypneic, diffuse bilateral fine crackles at bases, scattered wheezes. No consolidation.

Abdomen: Soft, mild tenderness in right upper quadrant (known liver metastases), no hepatosplenomegaly. No ascites.

Extremities: No clubbing, cyanosis, or edema. No tenderness over spine or pelvis.

Skin: Warm, dry. No rashes. Port-a-cath in place on right chest wall.

Neurological: Alert and oriented ×3. Cranial nerves II-XII intact. Motor strength 5/5 in all extremities. Sensory: diminished light touch and vibration sensation in fingertips and toes (baseline neuropathy). Deep tendon reflexes 2+ throughout.

**6. Epicrisis:**

Ms. Ramos is a 48-year-old female with metastatic HER2-positive breast cancer who presented with a 2-week history of progressive dyspnea, dry cough, and low-grade fever. She was receiving trastuzumab deruxtecan (T-DXd) as second-line therapy for metastatic disease with good response, having completed 5 cycles with the last dose 3 weeks prior to admission.

Upon admission, she was found to be hypoxemic (SpO2 89% on room air) with tachypnea and tachycardia. High-resolution CT chest revealed diffuse bilateral ground-glass opacities and septal thickening, consistent with drug-induced interstitial lung disease/pneumonitis. Her oxygen requirement necessitated supplementation with 4L via nasal cannula to maintain adequate saturation.

A comprehensive workup was performed to exclude alternative etiologies. Bronchoscopy with bronchoalveolar lavage (BAL) showed lymphocytic predominance (45%) without evidence of infection, malignant cells, or eosinophilia. Blood and sputum cultures remained negative. BNP and echocardiogram were normal, ruling out heart failure. CT pulmonary angiogram showed no evidence of pulmonary embolism.

Pulmonology was consulted and confirmed grade 3 trastuzumab deruxtecan-induced ILD/pneumonitis. Trastuzumab deruxtecan was permanently discontinued. Treatment was initiated with high-dose methylprednisolone (2 mg/kg/day IV) for 3 days, followed by transition to oral prednisone. She was initially covered with broad-spectrum antibiotics which were discontinued after infectious etiologies were ruled out.

The patient showed gradual improvement in her respiratory status over the course of hospitalization. Her oxygen requirement decreased from 4L to 2L nasal cannula, and her respiratory rate normalized. Repeat chest X-ray on day 8 showed improvement in the bilateral infiltrates.

Medical oncology determined that the patient cannot be rechallenged with trastuzumab deruxtecan due to the severity of her pulmonary toxicity. The plan is to transition to an alternative HER2-targeted regimen (tucatinib, trastuzumab, and capecitabine) once the pneumonitis has fully resolved and the steroid taper is complete.

The patient was discharged with a slow prednisone taper schedule, appropriate prophylaxis for opportunistic infections, and supplemental oxygen. Close follow-up was arranged with both pulmonology and oncology to monitor resolution of pneumonitis and guide the timing of subsequent cancer therapy.

**7. Medication at Discharge:**

* Prednisone 120 mg PO daily × 1 week, then taper per schedule:
  + 100 mg daily × 1 week
  + 80 mg daily × 1 week
  + 60 mg daily × 1 week
  + Further taper schedule to be determined at follow-up
* Trimethoprim-sulfamethoxazole DS 1 tablet PO three times weekly (Monday, Wednesday, Friday) for PCP prophylaxis while on steroids
* Fluconazole 200 mg PO daily for fungal prophylaxis while on high-dose steroids
* Pantoprazole 40 mg PO daily
* Levothyroxine 112 mcg PO daily (take on empty stomach)
* Calcium carbonate 600 mg/Vitamin D 400 IU PO twice daily
* Denosumab 120 mg SC q4w (last treatment 2025-03-04)
* Escitalopram 10 mg PO daily
* Enoxaparin 40 mg subQ daily (for 4 weeks post-discharge)
* Acetaminophen 650 mg PO every 6 hours PRN pain/fever
* Ondansetron 8 mg PO every 8 hours PRN nausea

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

Pulmonology Follow-up:

* Appointment with Dr. B. Patel in 1 week (2025-03-28)
* Pulmonary function tests scheduled for 2025-03-28
* HRCT chest in 4 weeks to assess resolution of pneumonitis
* Oxygen saturation monitoring: patient provided with home pulse oximeter
* Instructions to contact provider if increased oxygen requirements or worsening symptoms

Medical Oncology Follow-up:

* Appointment with Dr. C. Zhang in 2 weeks (2025-04-04)
* Laboratory studies including CBC, CMP, thyroid function tests, and tumor markers
* Plan to reassess timing for initiation of alternative HER2-targeted therapy
* Imaging of liver metastases in 6 weeks to assess cancer status during treatment break

Cardiology Follow-up:

* Appointment with Dr. A. Newman in 4 weeks (2025-04-18)
* Echocardiogram prior to appointment to assess LVEF
* Clearance for future trastuzumab-based therapy

Home Care Services:

* Home oxygen therapy: 2L via nasal cannula as needed to maintain SpO2 >92%
* Home health nursing for monitoring of respiratory status and medication management including daily glucose monitoring (sliding scale insulin protocol provided) and subcutaneous application
* Physical therapy for pulmonary rehabilitation exercises
* Social work referral for additional support services

Patient Education:

* Detailed steroid taper schedule with medication calendar
* Home glucose monitoring, dietary counseling specific to hyperglycemia
* Signs and symptoms requiring immediate medical attention:
  + Worsening shortness of breath
  + Oxygen saturation <92% on prescribed oxygen
  + Fever >38.0°C
  + Severe chest pain
* Infection prevention strategies while on immunosuppressive therapy
* Proper use of home oxygen equipment
* Pulmonary rehabilitation exercises

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Admission (2025-03-12)** | **Discharge (2025-03-21)** | **Units** | **Reference Range** |
| WBC | 12.8 | 15.6 | ×10^9/L | 4.0-11.0 |
| Neutrophils | 10.2 | 13.8 | ×10^9/L | 1.8-7.5 |
| Lymphocytes | 0.9 | 0.8 | ×10^9/L | 1.0-4.5 |
| Hemoglobin | 11.2 | 11.0 | g/dL | 12.0-15.5 |
| Platelets | 285 | 310 | ×10^9/L | 150-400 |
| Sodium | 136 | 138 | mmol/L | 135-145 |
| Potassium | 3.8 | 4.2 | mmol/L | 3.5-5.0 |
| Chloride | 102 | 104 | mmol/L | 98-107 |
| Bicarbonate | 23 | 25 | mmol/L | 22-29 |
| BUN | 16 | 22 | mg/dL | 7-20 |
| Creatinine | 0.8 | 0.9 | mg/dL | 0.5-1.1 |
| Glucose | 142 | 138 | mg/dL | 70-99 |
| ALT | 45 | 52 | U/L | 7-56 |
| AST | 48 | 40 | U/L | 10-40 |
| Alkaline Phosphatase | 180 | 175 | U/L | 35-105 |
| Total Bilirubin | 0.9 | 0.8 | mg/dL | 0.1-1.2 |
| C-reactive protein | 8.2 | 2.4 | mg/dL | <0.5 |
| LDH | 310 | 280 | U/L | 135-225 |
| Troponin I | <0.04 | - | ng/mL | <0.04 |
| BNP | 85 | - | pg/mL | <100 |

Microbiology:

* Blood cultures (2 sets): No growth after 5 days
* Sputum culture: Normal respiratory flora
* BAL culture: No growth
* Respiratory viral panel (including SARS-CoV-2): Negative
* BAL cell count: 210 cells/μL with lymphocytic predominance (45%)

Electronically Signed By:  
Dr. C. Zhang (Medical Oncology)  
Date/Time: 2025-03-21 16:30

Dr. B. Patel (Pulmonology)  
Date/Time: 2025-03-21 15:15

Dr. A. Newman (Cardiology)  
Date/Time: 2025-03-21 14:00