**Patient:** Eleanor Parker (DOB 1956-05-15)  
**Medical Record Number:** 629384  
**Date of Admission:** 2025-03-16  
**Date of Discharge:** 2025-03-27  
**Admitting Physician:** Dr. A. Nguyen (Medical Oncology)  
**Consulting Physicians:** Dr. S. Goldstein (Hepatology), Dr. R. Martinez (Gastroenterology)

**Discharge Diagnosis: Pembrolizumab-induced Autoimmune Hepatitis in Patient with Stage IV NSCLC**

**1. Detailed Oncological Diagnosis:**

Primary Diagnosis: Non-Small Cell Lung Cancer (NSCLC), Adenocarcinoma, Stage IVB  
Date of Initial Diagnosis: October 2024

Histology:

* CT-guided biopsy of right upper lobe lung mass (October 2024) revealed poorly differentiated adenocarcinoma.
* Immunohistochemistry: Positive for TTF-1, CK7, Napsin A. Negative for CK20, p40, and synaptophysin.
* Molecular testing: EGFR: Wild-type, ALK: No rearrangement, ROS1: No rearrangement, BRAF: Wild-type, KRAS: G12C mutation positive, MET: No exon 14 skipping mutation, RET: No rearrangement
* PD-L1 expression: 80% Tumor Proportion Score (TPS)

Staging:

* TNM (8th edition): cT3N2M1c (Stage IVB)
* Imaging Studies:
  + Chest CT (October 2024): 5.2 cm spiculated mass in right upper lobe with ipsilateral hilar and mediastinal lymphadenopathy.
  + PET/CT (October 2024): FDG-avid primary mass (SUVmax 15.2), mediastinal/hilar lymphadenopathy, multiple bone metastases, and bilateral adrenal involvement.
  + Brain MRI (October 2024): No evidence of brain metastases.

**2. History of Oncological Treatment:**

Immunotherapy:

* Pembrolizumab 200 mg IV every 3 weeks initiated December 2024
* 3 cycles completed (December 2024, January 2025, February 2025)

Palliative Radiotherapy:

* External beam radiation therapy to painful T10-L1 vertebral metastases (January 2025)
* Total dose: 30 Gy in 10 fractions

Supportive Therapy:

* Zoledronic acid 4 mg IV every 4 weeks (initiated December 2024 for bone metastases).
  + Previous cycle administered February 2, 2025
  + Current cycle (due early March) held due to acute presentation of hepatitis and initiation of high-dose steroids. Plan to resume with next oncology visit if clinically stable and no contraindications.

**3. Imaging**

* CT Chest/Abdomen/Pelvis (February 2025, after 3 cycles of pembrolizumab): Partial response with 30% reduction in size of primary lesion and lymphadenopathy; stable bone and adrenal metastases.

**4. Comorbidities:**

* Chronic obstructive pulmonary disease (GOLD stage 2, diagnosed 2018)
* Rheumatoid arthritis (diagnosed 2010, in remission on hydroxychloroquine)
* Osteoporosis (diagnosed 2019, on denosumab q6m until 2024)
* Hypothyroidism (well-controlled on levothyroxine)
* Pulmonary embolism September 2024 (on Apixaban)
* Former smoker (60 pack-year history, quit 2018)
* Anxiety disorder
* Allergies: Penicillin (urticaria), Sulfa drugs (rash)

**5. Physical Exam at Admission:**

General: 68-year-old female appearing comfortable, mildly fatigued but in no acute distress.

Vitals: BP 126/74 mmHg, HR 78 bpm, RR 16/min, Temp 36.7°C, SpO2 94% on room air.

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

Neck: Supple. No cervical or supraclavicular lymphadenopathy.

Cardiovascular: Regular rate and rhythm. Normal S1, S2. No murmurs, rubs, or gallops.

Respiratory: Decreased breath sounds in right upper lung field. No wheezes or crackles.

Abdomen: Soft, non-tender, non-distended. No hepatosplenomegaly. Normal bowel sounds.

Extremities: No edema, clubbing, or cyanosis. No joint swelling or deformity.

Skin: No rashes, jaundice, or other lesions.

Neurological: Alert and oriented x3. Cranial nerves II-XII intact. Motor strength 5/5 throughout. Sensation intact.

ECOG Performance Status: 1

**6. Hospital Course Summary:**

Ms. Parker was admitted for evaluation and management of asymptomatic grade 3 hepatotoxicity detected on routine laboratory assessment prior to her scheduled 4th cycle of pembrolizumab for metastatic NSCLC. Given the temporal relationship to immunotherapy and the absence of other clear etiologies, immune-related hepatitis was strongly suspected.

A comprehensive diagnostic evaluation was performed to exclude other causes of liver injury. Viral hepatitis panel (HAV, HBV, HCV) was negative. Autoimmune serologies showed mildly positive ANA (1:160) and ASMA (1:40), supporting an immune-mediated process. Abdominal ultrasound showed normal liver echotexture without evidence of biliary dilation or obstruction. MRCP confirmed the absence of biliary disease. CT abdomen with contrast revealed stable adrenal metastases but no evidence of liver metastases or other hepatic pathology.

Liver biopsy was performed on hospital day 2, which demonstrated interface hepatitis with predominantly lymphocytic infiltrate and scattered plasma cells, compatible with autoimmune hepatitis and consistent with an immune-related adverse event (irAE) due to pembrolizumab.

Treatment with high-dose intravenous methylprednisolone (2 mg/kg/day) was initiated on admission. The patient tolerated steroid therapy well, with gradual improvement in liver enzymes. By hospital day 10, transaminases had decreased by approximately 60% from peak values, allowing transition to oral prednisone (60 mg daily).

Hepatology recommended a slow prednisone taper over 6-8 weeks with close monitoring of liver enzymes. PCP prophylaxis with trimethoprim-sulfamethoxazole was initiated due to prolonged corticosteroid use, but was changed to atovaquone due to a history of sulfa allergy.

By discharge, the patient remained clinically stable without symptoms of liver dysfunction, with continuing improvement in liver function tests.

**7. Medication at Discharge:**

New Medications:

* Prednisone 60 mg PO daily for 2 weeks, then taper by 10 mg every week
* Atovaquone 1500 mg PO daily (PCP prophylaxis while on prednisone >20mg/day).
* Calcium carbonate 600 mg + Vitamin D 400 IU PO BID (Bone health support while on steroids).
* Pantoprazole 40 mg PO daily (GI prophylaxis while on steroids).
* Insulin sliding scale PRN for steroid-induced hyperglycemia:
  + Regimen: Lispro Insulin: 0 units if BG <150, 2 units if 151-200, 4 units if 201-250, 6 units if 251-300, 8 units if 301-350, 10 units if >350 + call provider. Patient provided with specific written scale.
  + Monitoring: Check blood glucose (BG) before meals and at bedtime (QID).
  + Target: Aim for BG 100-180 mg/dL pre-meals.
  + Education: Patient and family educated on BG monitoring, insulin administration technique, signs/symptoms/treatment of hypoglycemia (<70 mg/dL) and hyperglycemia, and when to contact the clinic. Patient demonstrated understanding and correct technique (teach-back confirmed). Glucometer and supplies provided/prescription sent.

Continued Home Medications:

* Apixaban 5 mg PO BID (for PE)
* Levothyroxine 88 mcg PO daily (take on empty stomach).
* Hydroxychloroquine 200 mg PO daily (for rheumatoid arthritis).
* Tiotropium bromide inhaler 1 inhalation daily (for COPD).
* Albuterol inhaler 2 puffs Q4H PRN for shortness of breath.
* Fluticasone/vilanterol inhaler 1 inhalation daily (for COPD).
* Escitalopram 10 mg PO daily (for anxiety).

Discontinued Medications:

* Temporarily: Zoledronic acid (current cycle held, see Section 2. Plan to resume with oncology).

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

Oncology Follow-up:

* Follow up with Dr. A. Nguyen in 2 weeks (April 09, 2025) for next cycle of Pembrolizumab 200 mg

Hepatology Follow-up:

* Follow up with Dr. S. Goldstein in 2 weeks (April 10, 2025)
* Liver function testing twice weekly for first 2 weeks, then weekly until normalized
* Monitor for rebound hepatitis during steroid taper

Laboratory Monitoring:

* CBC, CMP (including LFTs), and fasting glucose weekly while on high-dose steroids (prednisone >20mg/day).
* Home Blood Glucose Monitoring: QID (before meals and bedtime) while on insulin sliding scale, adjust frequency per oncology/PCP as steroids taper and glucose normalizes.
* LFTs twice weekly for first 2 weeks post-discharge, then weekly until normalized per hepatology.
* TSH in 4 weeks to monitor for immune-related thyroiditis.

Imaging:

* Repeat CT Chest/Abdomen/Pelvis scheduled for April 15, 2025 to assess disease status

Patient Education Provided:

* Detailed explanation of immune-related adverse event (hepatitis) and treatment plan.
* Steroid Education:
  + Importance of strict adherence to provided taper schedule.
  + CRITICAL: Do NOT stop prednisone abruptly; risk of adrenal insufficiency.
  + Common side effects (e.g., hyperglycemia, insomnia, mood changes, increased appetite, fluid retention, increased infection risk) and management strategies.
  + When to call provider regarding side effects.
* Insulin Sliding Scale Management: *(Details moved to Section 7, but reinforce education here)* Confirmed understanding of BG monitoring, insulin administration, hypo/hyperglycemia management.
* Signs and symptoms of worsening hepatitis (jaundice, worsening fatigue, abdominal pain, confusion) requiring immediate attention.
* Potential other immune-related toxicities to monitor for (e.g., colitis, pneumonitis, endocrinopathies).
* Contact information for oncology nurse navigator and on-call physician.
* Importance of avoiding hepatotoxic medications/substances (NSAIDs, alcohol, certain supplements).
* Need for PCP prophylaxis (Atovaquone) while on high-dose steroids.
* Need for GI prophylaxis (Pantoprazole) while on high-dose steroids.
* Need for Calcium/Vitamin D supplementation.

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Baseline (12/2024)** | **Pre-admission (3/15/2025)** | **Peak (3/18/2025)** | **Discharge (3/27/2025)** | **Units** | **Reference Range** |
| ALT | 25 | 865 | 968 | 342 | U/L | 7-56 |
| AST | 22 | 723 | 824 | 255 | U/L | 8-48 |
| Alkaline Phosphatase | 85 | 246 | 278 | 182 | U/L | 45-115 |
| Total Bilirubin | 0.6 | 1.6 | 2.2 | 1.3 | mg/dL | 0.2-1.2 |
| Direct Bilirubin | 0.2 | 0.8 | 1.0 | 0.5 | mg/dL | 0.0-0.3 |
| Albumin | 3.8 | 3.6 | 3.4 | 3.5 | g/dL | 3.5-5.0 |
| INR | 1.0 | 1.2 | 1.3 | 1.1 | - | 0.9-1.1 |
| WBC | 6.8 | 7.2 | 11.5 (on steroids) | 12.8 | × 10^9/L | 4.0-11.0 |
| Hemoglobin | 11.2 | 10.8 | 10.6 | 10.9 | g/dL | 12.0-16.0 (F) |
| Platelets | 245 | 262 | 258 | 280 | × 10^9/L | 150-400 |
| Creatinine | 0.8 | 0.9 | 0.9 | 0.8 | mg/dL | 0.5-1.1 |
| Glucose | 106 | 115 | 210 (on steroids) | 185 | mg/dL | 70-100 |
| ANA | - | - | 1:160 | - | titer | <1:40 |
| ASMA | - | - | 1:40 | - | titer | <1:40 |
| IgG | - | - | 1250 | - | mg/dL | 700-1600 |

**Electronically Signed By:**  
Dr. A. Nguyen (Medical Oncology)  
Date/Time: 2025-03-27 15:30

Dr. S. Goldstein (Hepatology)  
Date/Time: 2025-03-27 13:45

Dr. R. Martinez (Gastroenterology)  
Date/Time: 2025-03-26 16:15