- **NAME:** Eleanor Davis **PATIENT ID:** SYN086 **DOB:** July 30, 1961
- **ADMISSION DATE:** April 8, 2025 **DISCHARGE DATE:** April 14, 2025

PRIMARY DIAGNOSIS: Stage IV non-small cell lung adenocarcinoma (wild-type), metastatic to bone and adrenal glands, status post progression on pembrolizumab monotherapy and docetaxel/ramucirumab

SECONDARY DIAGNOSES:

1. Immune-mediated pneumonitis (resolved)
2. Malignant pleural effusion (right, new)
3. Chronic obstructive pulmonary disease (GOLD 2)
4. Diabetes mellitus type 2
5. Hypertension
6. Hypothyroidism
7. Osteoporosis
8. Depression

REASON FOR ADMISSION: Progressive dyspnea and hypoxemia due to right-sided pleural effusion in the setting of disease progression

---

ONCOLOGIC HISTORY:

Ms. Davis is a 63-year-old female initially diagnosed with stage IV NSCLC in January 2022 after presenting with persistent cough, right shoulder pain, and weight loss. Initial imaging revealed a 3.8 cm right upper lobe mass with right hilar and mediastinal lymphadenopathy, right adrenal metastasis (2.1 cm), and multiple bone metastases involving the thoracic spine (T6, T8), lumbar spine (L2), and right scapula.

Molecular Testing at Diagnosis:

- EGFR, ALK, ROS1, BRAF, MET, RET, NTRK, KRAS: All wild-type
- PD-L1 (22C3 assay): TPS 90%, CPS 95%, IC 20%
- TMB: 12 mutations/Mb (intermediate)
- NGS: TP53 R273H mutation, STK11 wild-type

Treatment History:

1. **First-line therapy:** Pembrolizumab 200mg IV q3 weeks
    - Started: January 27, 2022
    - Duration: 18 months
    - Best response: Partial response (58% reduction in primary tumor)

NOTE: patient has died on April 20, 2025

    - Notable toxicity: Grade 2 pneumonitis (October 2022) requiring temporary interruption and steroid therapy
    - End date: July 2023
    - Reason for discontinuation: Progressive disease in primary tumor and new liver metastases
2. **Second-line therapy:** Docetaxel 75mg/m² + Ramucirumab 10mg/kg IV q3 weeks
    - Started: August 2023
    - Duration: 8 months
    - Best response: Stable disease
    - Notable toxicity: Grade 2 peripheral neuropathy, Grade 3 febrile neutropenia
    - End date: April 2024
    - Reason for discontinuation: Progressive disease
3. **Third-line therapy:** Gemcitabine 1000mg/m² + Vinorelbine 25mg/m² on days 1 and 8 q3 weeks
    - Started: May 2024
    - Duration: 11 months
    - Best response: Partial response
    - Notable toxicity: Grade 2 fatigue, Grade 2 anemia, Grade 1 thrombocytopenia
    - Current status: Ongoing but with recent disease progression

Prior Radiation History:

- SBRT to T6 vertebral metastasis (20 Gy in 5 fractions, March 2022)
- Palliative radiation to right scapula (30 Gy in 10 fractions, February 2022)

HOSPITAL COURSE:

Ms. Davis presented with progressive dyspnea, hypoxemia, and right-sided chest pain. CT chest revealed a large right pleural effusion and progression of the primary right upper lobe mass (now 4.5 cm, previously 3.2 cm). Multiple new liver metastases were also identified. Thoracentesis was performed with removal of 1,500 mL of serosanguineous fluid, resulting in significant symptomatic improvement. Pleural fluid cytology confirmed malignant cells consistent with adenocarcinoma of lung origin.

Given the patient's significant pleural effusion and likelihood of recurrence, a PleurX catheter was placed for long-term management. The patient and family were educated on catheter care and drainage procedures.

Repeat molecular testing of the pleural fluid was performed to assess for acquired mutations:

- EGFR T790M: Negative
- MET amplification: Negative
- BRAF: Wild-type
- RET: No fusions detected
- ALK: No rearrangements
- NTRK: No fusions detected

NOTE: patient has died on April 20, 2025

- PDL1 (repeat): TPS 70% (decreased from 90% at diagnosis)

Given progression on three lines of therapy, the patient was evaluated for clinical trial eligibility. She was deemed a candidate for a phase I/II trial of an investigational PRMT5 inhibitor (Protocol ID: MCI-2025-101). Trial screening procedures were initiated during hospitalization.

The multidisciplinary tumor board reviewed the case and recommended:

1. Discontinuation of current gemcitabine/vinorelbine due to disease progression
2. Clinical trial participation if all eligibility criteria are met
3. If trial participation is not possible, consideration of lurbinectedin as fourth-line therapy

By discharge, the patient's respiratory status had significantly improved with oxygen saturation 95% on 2L nasal cannula (baseline). The PleurX catheter was functioning well with 350 mL of fluid removed on the day prior to discharge.

DIAGNOSTIC STUDIES:

Laboratory Data on Admission (04/08/2025):

- WBC: 9.8 × 10^9/L
- Hemoglobin: 10.2 g/dL
- Platelets: 235 × 10^9/L
- Sodium: 138 mEq/L
- Potassium: 4.2 mEq/L
- Chloride: 101 mEq/L
- CO_2: 25 mEq/L
- BUN: 18 mg/dL
- Creatinine: 0.9 mg/dL
- Glucose: 156 mg/dL
- Calcium: 9.4 mg/dL
- Albumin: 3.5 g/dL
- Total protein: 6.8 g/dL
- AST: 32 U/L
- ALT: 28 U/L
- Alkaline phosphatase: 186 U/L (elevated)
- Total bilirubin: 0.7 mg/dL
- LDH: 315 U/L (elevated)

Imaging Studies:

CT Chest/Abdomen/Pelvis with contrast (04/09/2025):

- Right upper lobe mass increased to 4.5 cm (previously 3.2 cm in January 2025)

NOTE: patient has died on April 20, 2025

- Large right pleural effusion with passive atelectasis
- Right hilar and mediastinal lymphadenopathy, increased from prior studies
- Right adrenal metastasis increased to 3.8 cm (previously 2.9 cm)
- Multiple new hepatic lesions, largest measuring 2.2 cm in segment VI
- Stable sclerotic bone metastases in thoracic and lumbar spine
- New lytic lesion in right iliac bone

Brain MRI with and without contrast (04/10/2025): No evidence of intracranial metastatic disease.

Nuclear Medicine Bone Scan (04/11/2025): Increased uptake in known metastatic sites (T6, T8, L2, right scapula). New area of uptake in right iliac bone corresponding to lytic lesion seen on CT.

Pleural Fluid Analysis (04/09/2025):

- Appearance: Serosanguineous
- Red Blood Cells: 8,500/µL
- White Blood Cells: 950/µL (predominantly lymphocytic)
- Glucose: 60 mg/dL
- Protein: 4.2 g/dL
- LDH: 285 U/L
- pH: 7.30
- Cytology: Positive for malignant cells, consistent with adenocarcinoma of lung primary
- Cell block immunohistochemistry: TTF-1 positive, Napsin A positive

Pulmonary Function Tests (04/10/2025):

- FEV_1: 65% predicted
- FVC: 75% predicted
- FEV_1/FVC ratio: 0.68
- DLCO: 58% predicted
- Consistent with moderate obstructive pattern

DISCHARGE MEDICATIONS:

1. Levothyroxine 100 mcg PO daily
2. Lisinopril 20 mg PO daily
3. Metformin 1000 mg PO BID
4. Fluticasone/salmeterol 250/50 mcg inhaled BID
5. Tiotropium 18 mcg inhaled daily
6. Albuterol inhaler 2 puffs q4-6h PRN for wheezing/dyspnea
7. Oxycodone 5 mg PO q6h PRN for moderate pain
8. Morphine sulfate immediate release 10 mg PO q4h PRN for severe pain
9. Sertraline 50 mg PO daily
10. Alendronate 70 mg PO weekly

NOTE: patient has died on April 20, 2025

11. Vitamin D3 2000 IU PO daily
12. Calcium 600 mg + Vitamin D 400 IU PO BID
13. Zoledronic acid 4 mg IV every 3 months (next dose due 05/15/2025)

Note: Gemcitabine/vinorelbine discontinued due to disease progression

---

DISCHARGE DISPOSITION: Home with home health services for PleurX catheter management and home oxygen therapy

---

DISCHARGE INSTRUCTIONS:

1. PleurX catheter drainage every 2 days or as needed for dyspnea (maximum 1000 mL per drainage)
2. Oxygen therapy at 2L/min via nasal cannula as needed for oxygen saturation <92%
3. Follow up with appointments as listed below
4. Pulmonary rehabilitation program referral initiated
5. Call oncology office or return to emergency department for:
    - Fever >100.4°F
    - Worsening shortness of breath not relieved by oxygen
    - Chest pain
    - Inability to drain PleurX catheter
    - Signs of infection around catheter site

FOLLOW-UP PLAN:

1. Medical Oncology: Dr. Rachel Goldman - April 21, 2025 (1 week)
2. Clinical Trial Screening Visit: April 23, 2025
3. Interventional Pulmonology: Dr. James Wilson - April 28, 2025 (2 weeks)
4. Palliative Care: Dr. Sarah Thompson - April 30, 2025
5. Home Health Nursing: Initial visit scheduled for April 15, 2025

ONCOLOGIC ASSESSMENT:

Ms. Davis has wild-type metastatic NSCLC with high PD-L1 expression (TPS 90% at diagnosis, 70% on repeat testing). She had an initial response to pembrolizumab monotherapy lasting 18 months, which exceeds the median PFS reported in clinical trials (approximately 7-10 months). Second-line docetaxel/ramucirumab provided disease stability for 8 months, again comparable to expected outcomes. Third-line gemcitabine/vinorelbine initially provided disease control but has now failed after 11 months of therapy.

NOTE: patient has died on April 20, 2025

The patient has now developed progressive disease with enlarging primary tumor, new hepatic metastases, and malignant pleural effusion. This pattern of sequential responses to multiple lines of therapy followed by progression is typical of metastatic NSCLC.

Current performance status is ECOG 2, decreased from ECOG 1 prior to current admission. The patient's comorbidities (COPD, diabetes, hypertension) are well-controlled but may impact future treatment options.

Given the patient's previous immune-mediated pneumonitis with pembrolizumab, rechallenge with immune checkpoint inhibitors is not recommended. The maintenance of relatively high PD-L1 expression (70%) despite prior immunotherapy exposure is notable but not clinically actionable at this time due to prior toxicity.

The patient has exhausted standard treatment options but maintains a reasonable performance status that would allow for clinical trial participation. Enrollment in the PRMT5 inhibitor trial represents the most promising next therapeutic option, with lurbinectedin as an alternative if trial participation is not feasible.

Overall prognosis is guarded given progression on three lines of therapy, but the patient's prior durable responses suggest tumor biology that may still be responsive to novel therapeutic approaches.

PATIENT AND FAMILY UNDERSTANDING: The patient and family have been informed about disease progression and the limited standard treatment options remaining. They understand that clinical trial participation offers potential benefit but with uncertain outcomes. Goals of care discussions have been initiated, and the patient has expressed a desire to continue anticancer therapy while maintaining quality of life. She has completed an advance directive naming her daughter as healthcare proxy.

Electronically signed by:
Rachel Goldman, MD, PhD
Medical Oncology
Metropolitan Cancer Institute
April 14, 2025, 16:30

NOTE: patient has died on April 20, 2025