DISCHARGE SUMMARY

PATIENT IDENTIFICATION

Admission 04/06/2025 - 04/14/2025
Attending Physician: Dr. Emma Richardson, Medical Oncology
Consulting Services: Interventional Radiology, Thoracic Surgery

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DIAGNOSIS AT DISCHARGE

Metastatic KRAS G12D-positive non-small cell lung cancer with progression on second-line therapy

1. Status post CT-guided biopsy of new liver lesion for molecular profiling
2. Managed pleural effusion via PleurX catheter placement

DETAILED ONCOLOGICAL HISTORY

Initial Diagnosis (December 2022)

Patient initially presented with persistent cough and right-sided chest pain. Chest CT revealed a 3.8 cm right upper lobe mass with right pleural effusion and a 2.5 cm right adrenal mass. Thoracentesis performed on 12/28/2022 yielded malignant cells.

Histopathology (Initial Diagnosis)

CT-guided Biopsy of Right Upper Lobe Mass (12/31/2022):

- **Gross Description:** Three cores of tan-gray lung tissue, each measuring 0.8-1.2 cm in length
- **Microscopic Description:**
  - Infiltrating adenocarcinoma with predominant acinar pattern (60%)
  - Solid component (30%)
  - Micropapillary features (10%)
  - Moderate nuclear pleomorphism with prominent nucleoli
  - Abundant eosinophilic cytoplasm
  - Occasional intracytoplasmic vacuoles
  - Mitotic rate: 8 per 10 HPF
  - Surrounding desmoplastic stroma with moderate lymphocytic infiltration
  - No lepidic growth pattern identified
  - Surrounding lung parenchyma with anthracotic pigment
- **Immunohistochemical Profile:**
  - TTF-1: Strongly positive (90% of tumor cells)

    - Napsin A: Positive (diffuse, moderate intensity)
    - CK7: Positive
    - CK20: Negative
    - p40: Negative
    - CDX2: Negative
    - GATA3: Negative
    - Synaptophysin: Focal weak positivity (5% of cells)
    - Chromogranin: Negative
    - Ki-67: 40% proliferation index
- **Molecular Testing:**
    - Next-Generation Sequencing Panel:
        - KRAS G12D mutation (allelic frequency 35%)
        - TP53 R273H mutation (allelic frequency 42%)
        - STK11 frameshift deletion (p.P281fs*6)
        - No other actionable alterations (EGFR, ALK, ROS1, BRAF, MET, RET, NTRK all wild-type)
    - PD-L1 (22C3): TPS <1%, CPS 5, IC 3%
    - TMB: Intermediate (8 mutations/Mb)
    - MSI Status: Stable

Pleural Fluid Cytology (12/28/2022):

- Malignant cells present consistent with adenocarcinoma
- Immunocytochemistry positive for TTF-1 and CK7

Staging

Clinical stage IVA (cT2bN1M1a) with right adrenal metastasis and malignant pleural effusion.

Treatment Course

1. **First-Line Therapy:**
    - Carboplatin AUC 5 + Pemetrexed 500 mg/m² + Pembrolizumab 200 mg IV q3 weeks
    - Initiated 01/23/2023
    - Completed 4 cycles with partial response
    - Continued pembrolizumab + pemetrexed maintenance
    - Disease progression documented after 11 months (12/2023)
2. **Second-Line Therapy:**
    - Docetaxel 75 mg/m² + Ramucirumab 10 mg/kg IV q3 weeks
    - Initiated 01/08/2024
    - Initial stable disease for 6 months
    - Disease progression documented on 03/25/2025 scan
3. **Procedures:**
    - Therapeutic thoracentesis (12/2022, 01/2023)
    - Talc pleurodesis (02/2023) - initially successful
    - Repeat thoracentesis for recurrent effusion (03/2025)

CURRENT ADMISSION DETAILS

Reason for Admission

Patient was admitted for management of progressive dyspnea due to recurrent pleural effusion and to undergo CT-guided biopsy of newly identified liver lesion for comprehensive resistance mechanism profiling.

Hospital Course

1. **Pleural Effusion Management:**
    - Diagnostic thoracentesis performed on admission confirmed malignant cells
    - PleurX catheter placed by Interventional Radiology on 04/07/2025
    - Initial drainage of 1,250 mL of serosanguineous fluid with symptomatic improvement
    - Patient and family educated on home management of PleurX catheter
2. **Liver Biopsy:**
    - CT-guided biopsy of segment VII liver lesion performed on 04/08/2025
    - Procedure well-tolerated without complications
    - Preliminary pathology confirmed metastatic adenocarcinoma consistent with lung primary
    - Tissue submitted for comprehensive molecular profiling including RNA sequencing and immune profiling
3. **Comprehensive Restaging:**
    - CT chest/abdomen/pelvis with contrast (04/10/2025) showed:
        - Increase in size of primary RUL mass (4.2 cm from 3.6 cm)
        - Interval development of liver metastases (largest 2.1 cm in segment VII)
        - Stable right adrenal metastasis
        - Moderate right pleural effusion
        - No other new sites of disease
4. **Multidisciplinary Tumor Board Discussion (04/13/2025):**
    - Reviewed complete clinical history and pathology
    - Noted co-mutations in KRAS, TP53, and STK11 ("KPS" phenotype) associated with primary resistance to immunotherapy
    - Discussed therapeutic options including:
        - Docetaxel monotherapy (lowered efficacy expectations given ramucirumab failure)
        - Gemcitabine-based chemotherapy
        - Clinical trial options: KRAS G12D-directed degrader (Phase I trial at our institution)
        - Expanded molecular and immune profiling may identify additional therapeutic targets

Histopathology (Current Admission)

CT-guided Biopsy of Liver Lesion (04/08/2025):

- **Gross Description:** Four cores of tan-brown liver tissue, each measuring 0.6-1.0 cm in length
- **Microscopic Description:**
  - Metastatic adenocarcinoma involving liver parenchyma
  - Predominantly solid growth pattern (80%)
  - Reduced acinar component (20%) compared to primary tumor
  - Increased nuclear pleomorphism compared to primary tumor
  - Higher mitotic rate (15 per 10 HPF)
  - Focal tumor necrosis (approximately 10% of tumor volume)
  - Surrounding hepatic parenchyma uninvolved
- **Immunohistochemical Profile:**
  - TTF-1: Remains positive (75% of tumor cells)
  - Napsin A: Weakly positive (reduced from primary)
  - CK7: Positive
  - Ki-67: 60% proliferation index (increased from 40% in primary)
  - Additional markers being processed
- **Preliminary Molecular Testing:**
  - KRAS G12D mutation confirmed (allelic frequency 42%)
  - TP53 R273H mutation confirmed
  - STK11 frameshift deletion confirmed
  - Additional comprehensive molecular profiling pending (results expected in 10-14 days)

Pleural Fluid Cytology (04/06/2025):

- Malignant cells present consistent with known adenocarcinoma
- Higher nuclear grade compared to previous cytology specimens
- Increased N:C ratio and nuclear irregularity

DISCHARGE PLAN

Medications:

1. Current home medications to continue
2. Dexamethasone 4 mg PO daily for 5 days, then 2 mg daily for 5 days, then discontinue
3. Hydrocodone/acetaminophen 5/325 mg PO q6h PRN pain
4. Ondansetron 8 mg PO q8h PRN nausea

Follow-up Appointments:

1. Medical Oncology (Dr. Richardson): 04/22/2025 at 10:00 AM
   - Review final molecular profiling results
   - Discuss third-line therapy options
   - Consider clinical trial referral

2. Interventional Radiology: 04/21/2025 at 2:00 PM
    - PleurX catheter check
3. Palliative Care: 04/23/2025 at 11:00 AM
    - Symptom management optimization
    - Goals of care discussion

Home Care Instructions:

1. PleurX catheter drainage:
    - Drain 500-1000 mL every other day or PRN symptoms
    - Record drainage amounts for review at follow-up
    - Call office for increased pain, redness around catheter site, or fever >38.0°C
2. Monitoring:
    - Daily weight
    - Track temperatures twice daily
    - Record pain levels and medication use

Additional Plans:

1. Complete molecular profiling results anticipated by 04/24/2025
2. Phase I clinical trial screening visit pending molecular results
3. Optimization of symptom management plan at oncology follow-up

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CONDITION AT DISCHARGE

Patient is hemodynamically stable with improved respiratory status following PleurX catheter placement. Ambulating with minimal assistance. Pain controlled on current regimen. ECOG Performance Status 2 (baseline 1 prior to recent progression).

Electronically signed by:
Emma Richardson, MD
Medical Oncology
04/14/2025 16:30