Report Compiled By: Thoracic Oncology Fellow
Supervising Physician: Dr. Huber
Date: 14 April 2024

📄 Oncologic Summary Letter

Patient ID: SYN189
Name: Yuval Gerrero
DOB: February 1, 1953
Sex: Male

Diagnosis: Stage IV Non-Small Cell Lung Cancer – Adenocarcinoma
Date of Diagnosis: May 13, 2021

Clinical Narrative:

The patient initially presented in April 2021 with persistent right upper quadrant discomfort, a 7 kg weight loss over 3 months, and elevated liver enzymes (ALT 97 U/L, ALP 325 U/L). Cross-sectional imaging revealed a left lower lobe pulmonary mass (3.9 cm) and a solitary 2.4 cm hypodense lesion in segment VIII of the liver. A PET-CT confirmed hypermetabolic activity in both regions (SUV 12.8 and 10.2, respectively), with no other metastatic disease identified.

CT-guided biopsy of the hepatic lesion showed features of metastatic non-small cell carcinoma. Histologically, the tumor displayed moderate gland formation with focal papillary architecture. Immunohistochemistry was positive for **TTF-1**, **Napsin A**, and **CK7**, and negative for CK20 and CDX2, confirming pulmonary origin. PD-L1 IHC (22C3) revealed a TPS of 65%.

Next-generation sequencing (FoundationOne CDx) confirmed a **BRAF V600E mutation** without concurrent KRAS, EGFR, or ALK alterations.

Therapeutic Course:

Based on the molecular profile, he was initiated on combination BRAF/MEK inhibition with **dabrafenib** and **trametinib** in June 2021. He responded favorably, with significant symptom improvement, normalization of liver enzymes by cycle 3, and imaging at 8 weeks showing >50% reduction in both lesions.

During the first year of therapy, surveillance CT scans confirmed sustained response. CEA and CA 19-9, both modestly elevated at baseline (CEA 9.4 ng/mL), normalized by month 3 and remained within range until late 2022.

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Adverse effects included intermittent **Grade 1 pyrexia**, responsive to supportive measures and intermittent dose holds. He also experienced **Grade 2 fatigue** and **photosensitivity**, requiring lifestyle adjustments.

Disease Progression:

In September 2022 routine CT imaging revealed regrowth of the hepatic lesion (now 3.1 cm) and emergence of two new subcentimeter lesions in segments II and IVb. No CNS involvement was detected on MRI.

Repeat biopsy of the progressing liver lesion was consistent with prior adenocarcinoma. Histology was unchanged, and no small cell or squamous transformation was noted. Resistance profiling from ctDNA detected a **BRAF D594G** subclonal variant and **PIK3CA amplification**, consistent with acquired resistance to BRAF/MEK inhibition.

Second-line chemotherapy with **carboplatin and pemetrexed** was initiated in November 2022. He completed four cycles, with only marginal benefit. Progression continued, particularly in the liver, leading to rising bilirubin and hepatic insufficiency. Despite a brief trial of pembrolizumab (initiated January 2023 due to high PD-L1), his functional status rapidly declined (ECOG 2 → 3).

Final Phase & Outcome:

He was referred to palliative care in November 2023. He required intermittent paracentesis, experienced anorexia, and developed progressive hepatic encephalopathy in early 2024. He died in March 2024, surrounded by family at home under hospice care.

Summary:

This patient experienced a robust and sustained initial response to targeted BRAF/MEK inhibition, aligning with data for **BRAF V600E-positive NSCLC**. His course was complicated by classic resistance mechanisms, and subsequent therapies offered only limited additional benefit.
