

EP06.10 : Clinical Applications of Tissue-Free Molecular Residual Disease (MRD) in Lung Cancer Case Series in Asia and Middle East Patients (AMEA)



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INTRODUCTION

- Imaging-based surveillance may miss molecular relapse in its earliest phase
- ctDNA-based MRD testing offers a non-invasive approach to detect residual disease and may complement imaging in recurrent risk-stratification.
- MRD tests are already available for routine use, but real-world usage pattern in Asia is infrequently described.

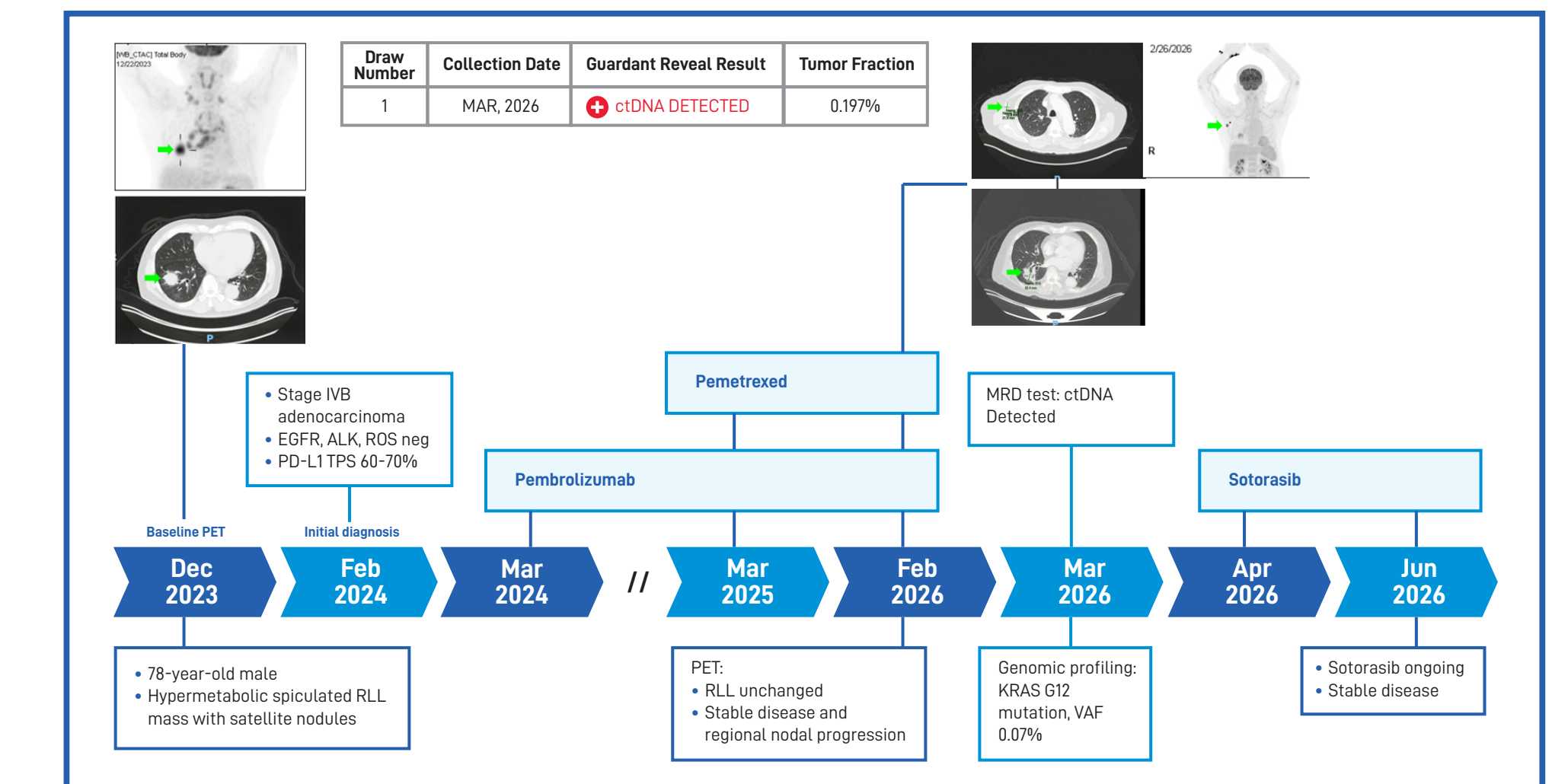
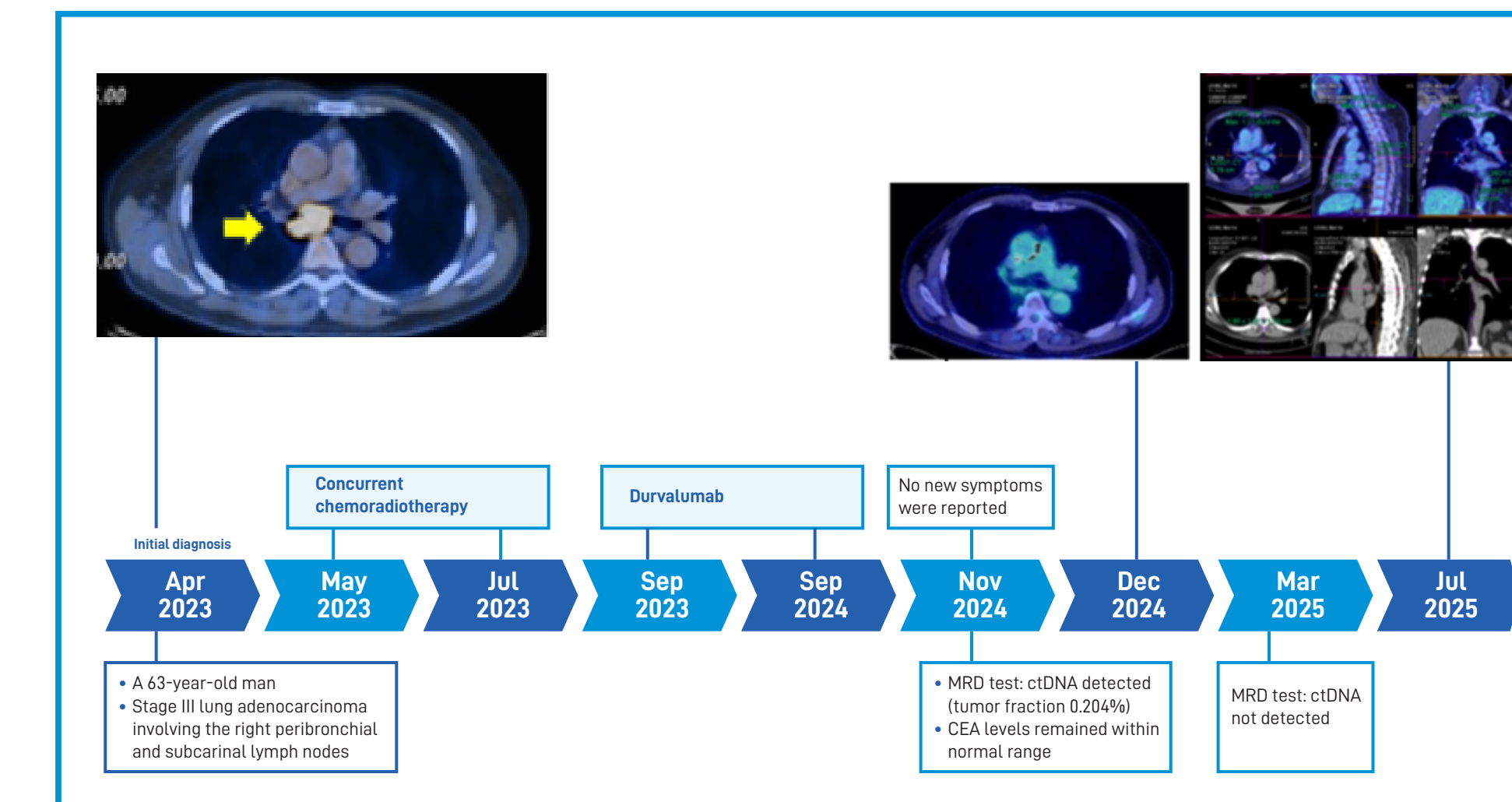
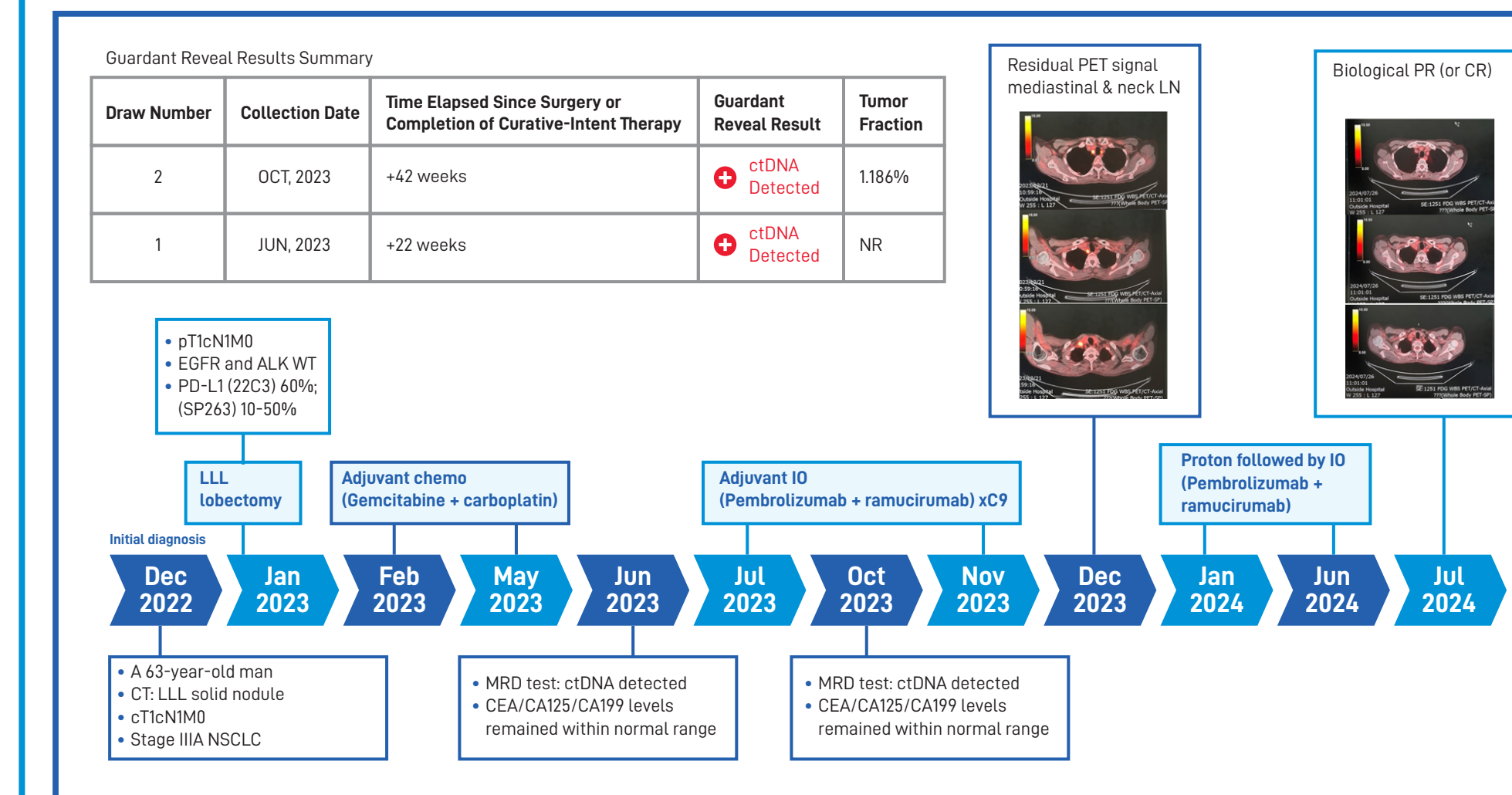
METHODS

- MRD analysis was performed using tissue-free Guardant Reveal epigenomic assay that interrogates more than 20,000 differentially methylated regions (DMRs), including those most strongly associated with lung cancer
- Among patients with Guardant Reveal MRD testing as a part of routine clinical care between July 2023 and July 2026, 6 representative cases included in this case report based on feasibility of data collection to illustrate utility of tissue free MRD testing in NSCLC patients in AMEA
- Each sample was classified as ctDNA detected (positive) or not detected (negative) based on a predefined statistical likelihood threshold that the patterns of methylation tumor fraction (mTF) are tumor-derived.
- Clinical details provided by providers after securing informed consent from patients.

DISCUSSION & CONCLUSION

- Case 1:** Serial MRD testing during surveillance phase was incorporated into treatment modifications (continuation of immunotherapy and addition of radiotherapy) resulting in partial response.
- Case 2:** MRD positivity despite completion of SOC adjuvant therapy suggests residual disease risk, though MRD-guided treatment escalation remains investigational and requires validation in ongoing trials.
- Case 3:** Serial ctDNA monitoring alongside standard surveillance correlated with imaging findings, with conversion from positive to negative MRD paralleling lymph node regression and consistent with an ongoing immune-mediated response to immunotherapy.
- Case 4:** An equivocal scan without concurrent MRD testing represented a missed opportunity, as earlier MRD assessment may have provided additional lead time before widespread metastatic disease became apparent.
- Case 5:** A positive MRD result despite stable imaging prompted reflex genomic profiling that identified an actionable KRAS G12C alteration, illustrating a complementary role for MRD testing and comprehensive genomic profiling in guiding treatment change
- Case 6:** Patient initially declined therapeutic intervention, positive MRD test at 2 months post-surgery prompted initiation of adjuvant chemoimmunotherapy, illustrating how MRD results may inform treatment decisions in patients who had not planned to receive adjuvant therapy.
- Tissue-free MRD testing in APAC and the Middle East is being used primarily for post-treatment surveillance. Prospective studies are needed to establish standardized timepoints, test frequency, and evidence-based actions following MRD test results.

RESULTS



	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Demographics	Asian Male, 63	Asian Male, 45	Asian Male, 63	Asian Male, 63	Filipino Male, 78	Caucasian, 63
Stage, initial workup	• Stage IIIA NSCLC • cT1cN1M0 • EGFR and ALK WT	• Stage IIIA lung adenocarcinoma • cT2bN2M0 • EGFR L858R	• Stage III NSCLC adenocarcinoma involving right peribronchial and subcarinal lymph nodes	• Stage II (T2N0) lymphoepithelioma-like NSCLC	• Stage IVB lung adenocarcinoma • EGFR/ALK/ROS1 WT • PD-L1 TPS 60-70%	• Stage IIA NSCLC
Initial treatment	Gemcitabine + carboplatin	PBAC followed by osimertinib for 3 years (ADAURA)	Inoperable – Concurrent chemo-radiotherapy followed by durvalumab	Adjuvant gemcitabine + carboplatin (4 cycles) by gemcitabine + carboplatin	Pembrolizumab (32 cycles) + pemetrexed (16 cycles)	No therapeutic intervention planned – patient decision
1st MRD test	• 22 weeks post-surgery • MRD positive	• 36 months post-surgery • MRD positive	• 19 months post-diagnosis • MRD positive	• 21 months post-surgery, scans showed equivocal results with uncertain EBV viral load, prompting an MRD test • 26 months post-surgery • MRD positive	• MRD positive (mTF reaction 0.197%)	• 2 months post-surgery • MRD positive
Treatment post 1st MRD test	Pembrolizumab + ramucirumab	Radiotherapy to mediastinal lymph nodes, osimertinib continued	As follow-up scan indicated NED, no additional treatment was administered	No additional treatment was administered	Due to potential molecular progression, physician ordered ctDNA based NGS and identified KRAS G12C mutation: initiated sotorasib	Cisplatin followed by (PD-L1 >50%) - Atezolizumab
Subsequent MRD test(s)	• 42 weeks post-surgery • Persistent MRD positive	NA	23 months post-diagnosis: MRD negative	NA	NA	Scheduled for post-adjuvant therapy
Treatment post subsequent MRD test(s)	Proton therapy followed by pembrolizumab + ramucirumab	NA	Spontaneous ctDNA clearance from MRD positive to negative status indicated immune clearance. Therefore, no additional therapy.	NA	NA	NA
Outcome/Most recent status	17 months post-surgery: PET scan demonstrated partial response	• 42 months post-surgery: chest CT revealed oligometastasis, resulting in radiotherapy to the mediastinal lymph nodes, osimertinib continued • 45 months post-surgery: chest CT showed radiographic	27 months: PET-CT showed radiographic response matching the most recent MRD negative status	27 months post-surgery: PET-CT demonstrated widespread metastatic disease leading to tislelizumab and paclitaxel + carboplatin	Remains on sotorasib, tolerating treatment well, stable disease	Follow-up scan and 2nd MRD test have been scheduled after completion of the planned adjuvant therapy to assess the response and guide subsequent management

