Panel discussion

NSCLC treatment algorithm

Stage and workup based on stage

- **cT1abc, N0**: PFT, Bronch, Mediastinal Staging, PET
- **cT2a-4, N0-3, M0-1**: PFT, Bronch, Mediastinal Staging, PET, brain MRI and Biomarker/Mutation Testing

Operable disease

T1 N0 M0 → Stage IA

Surgical candidate?

- **Yes** → Lobectomy (preferred) or Segmentectomy/Wedge resection (in select cases)
- **No** → SBRT or conventionally fractionated RT

T1–2, N1–2, M0 / T3–4, N0–1, M0 → Stage IB-IIIA (Resectable)

Multidisciplinary discussion for neoadjuvant candidacy

- **Yes** → **Neoadjuvant chemoimmunotherapy**
  - **Nivolumab + Platinum based chemotherapy x 3 cycles**
  - (*CheckMate 816*: Nivo+Chemo vs Chemo
  - *mEFS: 31.6 vs 20.8 mths (HR:0.63)*
  - → Surgical resection
- **No** → Surgical resection

Surgical resection → **Adjuvant chemotherapy**

Platinum based chemotherapy
(*LACE Metanalysis*: 5 yr OS improvement of 5.4% vs no chemo)

→ **Mutational testing** (EGFR ex19del/ex21 L858R present?)

- **Yes** → **Adjuvant targeted therapy**
  - **Osimertinib x 3 yrs**
  - (*ADAURA*: Osimertinib vs Placebo
  - *2 yr DFS (Stage II-IIIA): 90% vs 44% (HR:0.17)*
- **No** (PDL1>1%) → **Adj immunotherapy (Stage II-IIIA)**
  - **Atezolizumab x 16 cycles**
  - (*IMPower010*: Atezo vs BSC
  - *mDFS: NR v 35.3 mths (HR:0.66)*

T1-2, N2–3, M0 / T3, N1–3, M0 / T4, N0–3, M0 → Stage IIIA (unresectable) or IIIB/C

Definitive ChemoRadiation --> Durvalumab

Concurrent Platinum based chemotherapy and radiation with consolidation Durvalumab
(*PACIFIC*: *Durvalumab vs Placebo*
mPFS: 16.8 vs 5.6 mos (HR:0.52)

Tx Nx M1 → Stage IV

Mutation testing

- EGFR (ex19, ex20ins)
- ALK,
- ROS1
- BRAF V600E
- RET
- MET (ex14)
- NTRK1/2/3
- KRAS G12C

(*) denotes NCCN preferred regimens

Actionable Mutation Detected

EGFR (ex19 del or L858R)

- **Osimertinib (*)**
  FLAURA: *Osimertinib vs Erlotinib/Gefitinib-*
  mPFS: 18.9 vs 10.2 mos (HR: 0.46)
- **Erlotinib**
  EURTAC: *Erlotinib vs Chemo*
  mPFS: 9.7 vs 5.2 mos (HR: 0.37)
- **Afatinib**
  Lux Lung 3: *Afatinib vs Cis/Pemetrexed*
  mPFS: 13.6 vs 6.9 mos (HR: 0.47)
- **Gefitinib**
  IFUM: *Gefitinib single arm*
  mPFS: 9.7 mos
- **Dacomitinib**
  ARCHER 1050: *Dacomitinib vs Gefitinib*
  mOS: 34.1 vs 27 mos (HR 0.75)
- **Erlotinib + Ramucirumab**
  RELAY: *Erlotinib + Ramucirumab vs Erlotinib*
  mPFS: 19.4 vs 12.4 mos (HR: 0.59)
- **Erlotinib + Bevacizumab**
  ARTEMIS-CTONG1509: *Erlo + Bev vs Erlo*
  mPFS: 17.9 vs 11.2 mos (HR: 0.55)

ALK

- **Alectinib (*)**
  ALEX: *Alectinib vs Crizotinib*
  1 yr PFS: 68.4% vs 48.7% (HR:0.47)
- **Brigatinib (*)**
  ALTA-1L: *Brigatinib vs Crizotinib*
  mPFS: 24 vs 11.1 mos (HR: 0.48)
- **Lorlatinib (*)**
  CROWN: *Lorlatinib vs Crizotinib*
  mPFS: NR vs 9.3 mos, (HR 0.28)
  1 yr PFS: 78% vs 39%
- **Ceritinib**
  ASCEND-4: *Ceritinib vs chemo*
  mPFS: 16.6 vs 8.1 mo (HR: 0.55)
- **Crizotinib**
  PROFILE 1007: *Crizotinib vs chemo*
  mPFS: 7.7 vs 3 (HR: 0.49)

BRAF V600E

Dabrafenib + Trametinib (*)
BRF113928: *Dabrafenib + Trametinib single arm*
ORR: 64% (95% CI: 46–79)

ROS1

- **Crizotinib (*)**
  PROFILE 1001: *Crizotinib single arm*
  ORR: 72% (95% CI: 58–84)
- **Entrectinib (*)**
  ALKA&STARTRK: *Entrectinib single arm*
  ORR: 67.1%, mPFS: 19 mos
- **Ceritinib**
  YQNSE: *Ceritinib single arm*
  ORR: 67% (95% CI: 48–81)

NTRK

- **Larotrectenib (*)**
- **Entrectinib (*)**
  ALKA/STARTRK: *Entrectinib single arm*
  ORR: 70% (NSCLC)

2nd line: EGFR (ex20)

- **Amivantamab**
  CHRYSALIS: *Amivantamab single arm*
  cBR: 74% (95%CI, 63-83); mPFS: 8.3 mo
- **Mobocertinib**
  AP32788-15-101: *Mobocertinib single arm*
  DCR: 78% (95%CI, 69-85), mPFS: 7.3 mos

MET (exon 14)

- **Capmatinib (*)**
  GEOMETRY mono-1: *Capmatinib single arm*
  mPFS: 12.4 mos
- **Tepotinib (*)**
  VISION: *Tepotinib single arm*
  mPFS: 8.5–11 mos

RET

- **Selpercatinib (*)**
  LIBRETTO-001: *Selpercatinib single arm*
  ORR: 64%, mDOR: 17.5 mos
- **Pralsetinib (*)**
  ARROW(RET): *Pralsetinib single arm*
  ORR: 61% (95% CI: 50–71)

2nd line: KRAS G12 C

Sotorasib
CodeBreaK100: *Sotorasib single arm*
ORR: 37.1% (95%CI, 29-46); mPFS: 6.8 mos

No Actionable Mutation Detected (Stratify based on PDL1 staining %)

PDL1 > 50%

IMMUNOTHERAPY MONOTHERAPY

- **Pembrolizumab (*)**
  KEYNOTE-024: *Pembro vs Plat-based chemo*
  mPFS: 10.3 vs 6 mos (HR:0.50)
- **Atezolizumab (*)**
  IMPower110: *Atezo vs Plat-based chemo*
  mOS: 20.1 vs 13.1 mos (HR:0.59)
- **Cemiplimab (*)**
  EMPOWER-Lung1: *Cemi vs Plat-based chemo*
  mPFS: 8.2 vs 5.7 mos
  mOS: NR vs 14.2 mos (HR:0.57)

IMMUNOTHERAPY + CHEMOTHERAPY

SQUAMOUS:

- ***Pembrolizumab + Chemotherapy (*)***
  (Carboplatin + Paclitaxel/Nab-Paclitaxel)
  KEYNOTE-407: *Pembro + Chemo vs Chemo*
  mPFS: 6.4 vs 4.8 mos (HR:0.56)
  mOS: 15.9 vs 11.3 mos (HR:0.64)

NON-SQUAMOUS:

- ***Pembrolizumab + Chemotherapy (*)***
  (Carboplatin + Pemetrexed)
  KEYNOTE-189: *Pembro + Chemo vs Chemo*
  mPFS: 8.8 vs 4.9 mos (HR:0.52)
  12 mos OS%: 69% vs 49% (HR:0.49)
- ***Atezolizumab + Chemotherapy***
  (Carboplatin + Paclitaxel + Bevacizumab)
  IMPower150: *Atezo + Chemo vs Chemo*
  mPFS: 8.3 vs 6.8 mos (HR:0.62)

DUAL IMMUNOTHERAPY

Nivolumab + Ipilimumab
CheckMate-227: *Nivo/Ipi vs Chemo*
mOS: 17.1 vs 14.9 mos

DUAL IMMUNOTHERAPY + CHEMOTHERAPY

Nivolumab + Ipilimumab + Chemo (2 Cycles)
CheckMate-9LA: *Nivo/Ipi+Chemo vs Chemo*
mOS: 14.1 vs 10.7 mos

PDL1 1-49%

IMMUNOTHERAPY + CHEMOTHERAPY

SQUAMOUS:

- ***Pembrolizumab + Chemotherapy (*)***
  (Carboplatin + Paclitaxel/Nab-Paclitaxel)
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CheckMate-227: *Nivo/Ipi vs Chemo*
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DUAL IMMUNOTHERAPY + CHEMOTHERAPY

Nivolumab + Ipilimumab + Chemo (2 Cycles)
CheckMate-9LA: *Nivo/Ipi+Chemo vs Chemo*
mOS: 14.1 vs 10.7 mos

IMMUNOTHERAPY MONOTHERAPY

Pembrolizumab
KEYNOTE-042: *Pembro vs Plat-based Chemo*
mOS: 16.7 vs 12.1 mos (HR:0.81)

PDL1 < 1%

IMMUNOTHERAPY + CHEMOTHERAPY

SQUAMOUS:

- ***Pembrolizumab + Chemotherapy (*)***
  (Carboplatin + Paclitaxel/Nab-Paclitaxel)
  KEYNOTE-407: *Pembro + Chemo vs Chemo*
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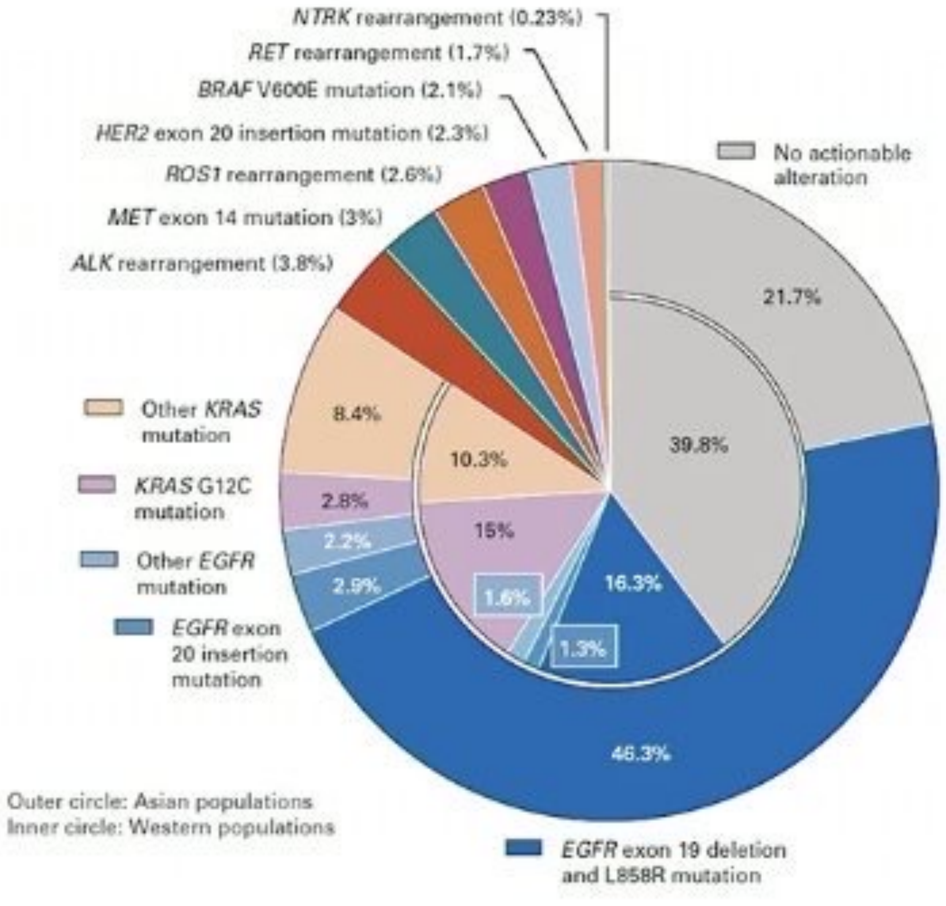
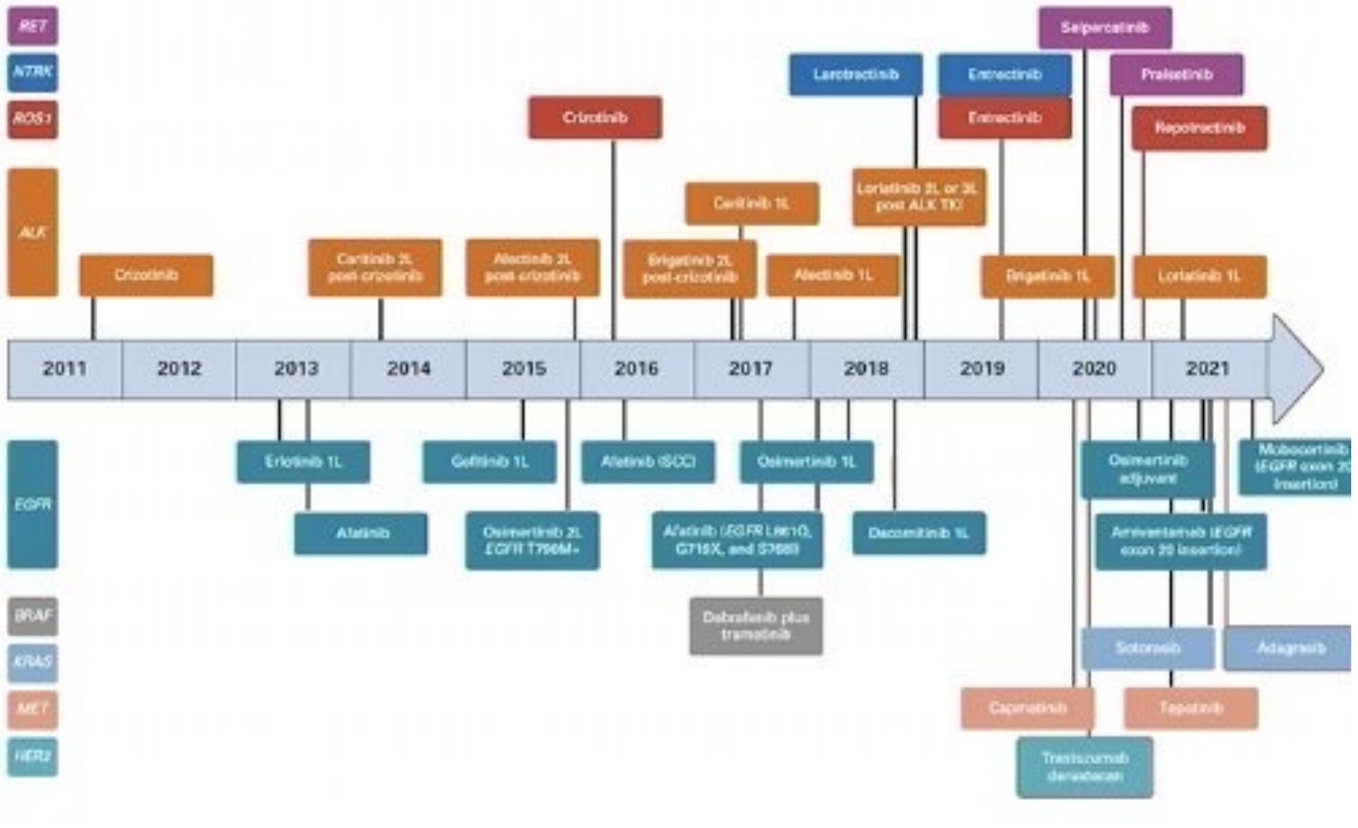
Created By: Aakash Desai (@ADesaiMD) and Matthew Ho (@MatthewHoMD)

The molecular landscape of NSCLC

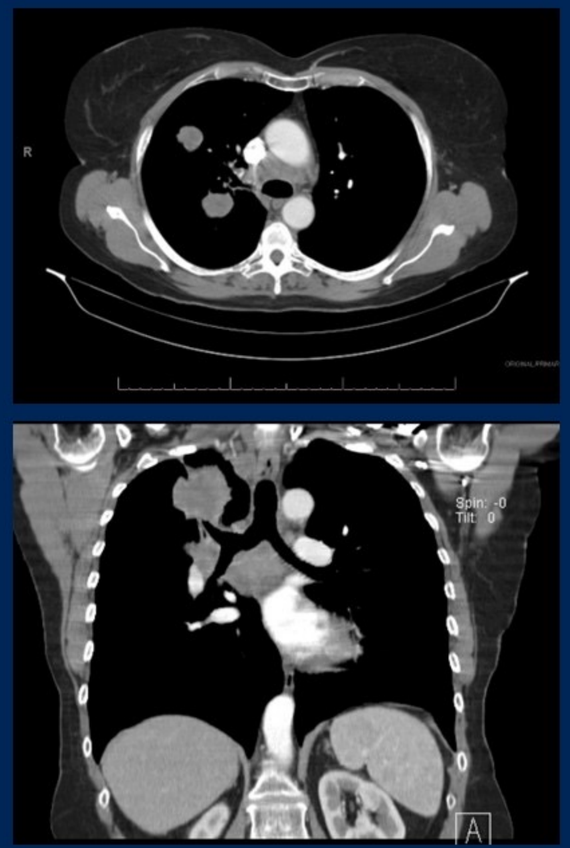


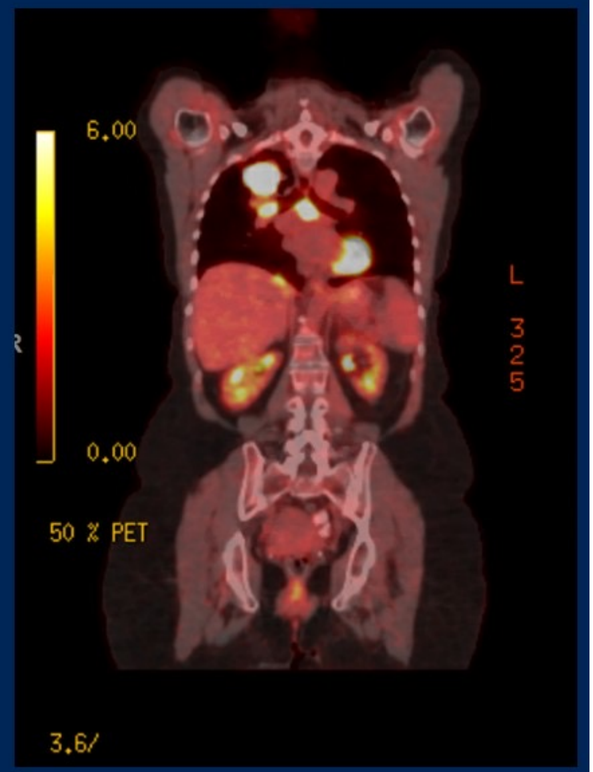


Tan JCO

Case #1

- 64 yo female
- CC: persistent cough
- PMH/PSH: HLD, no prior history of smoking
- **Imaging:**
  - Chest CT: right apical mass, hilar/mediastinal LAD, supraclavicular LAD, and bilateral lung metastases
  - PET/CT and brain MRI negative for extrathoracic metastatic disease
- **Path:** moderately-differentiated adenocarcinoma
  - Biomarker testing: Local PD-L1 (22C3) negative; Mayo Clinic: EGFR exon 21 L858R
- **Treatment:** first-line osimertinib started April 2018 with early PR





Tumor Type	Carcinoma, Mucoepidermoid	**Date and Time of Report**	16th July 2022 22:38 PM	**Affiliation**	Vellore, Vellore
Clinical Diagnosis	Bronchial lesion bx Ca intracellular mucin deposit possible Mucoepidermoid Ca or lung adeno Ca				

*The test was performed on 19516/22 (A2) block and tumor content was sufficient (>10%) for analysis.

Test Result Summary

Potential treatment impacts			Prognostic and Diagnostic findings		Clinical trials
11 Effective	**0** Ineffective	**0** Safety	**0** Prognostic	**0** Diagnostic	**11** Trials

AMP Classification ^	Evidence Level ^	Treatment	Treatment Benefit	Drug Approval ^$	Clinical Trials
Genomic variants					
***EGFR* p.Leu747_Pro753delinsSer (DEL)** Variant Allele Frequency - 1%					

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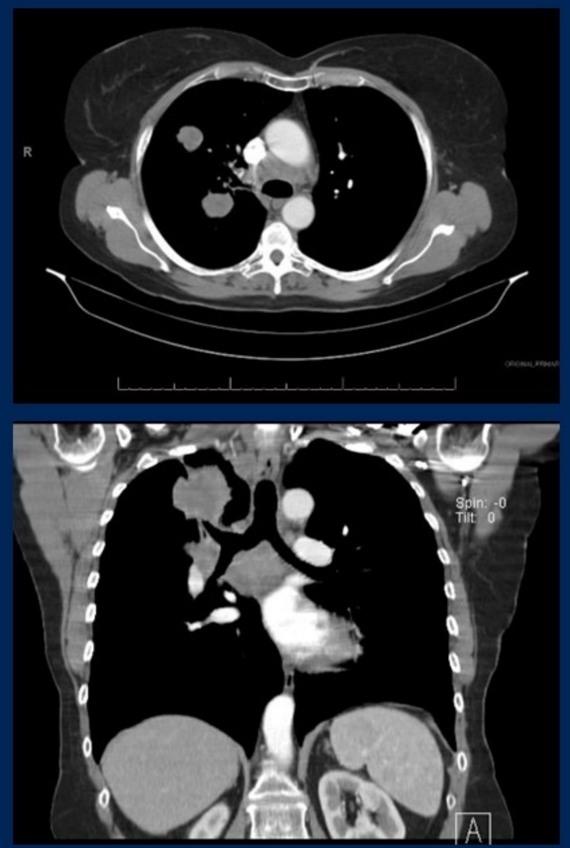
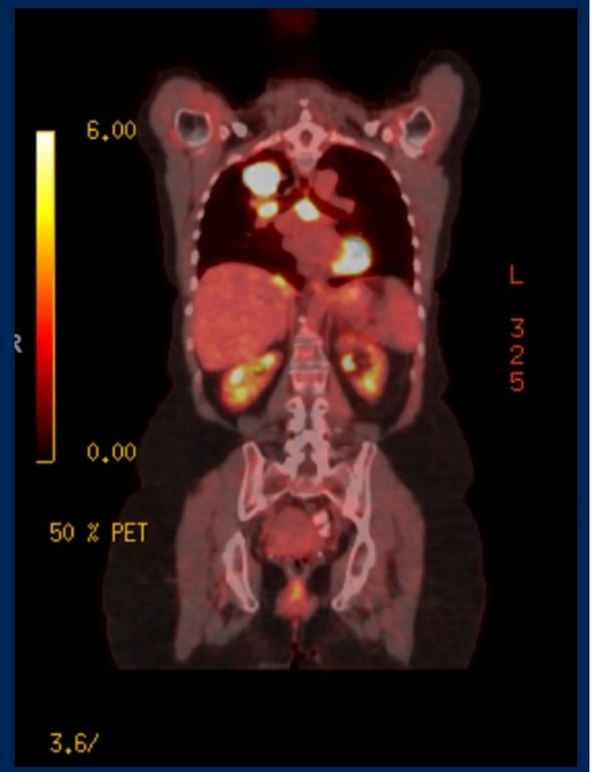
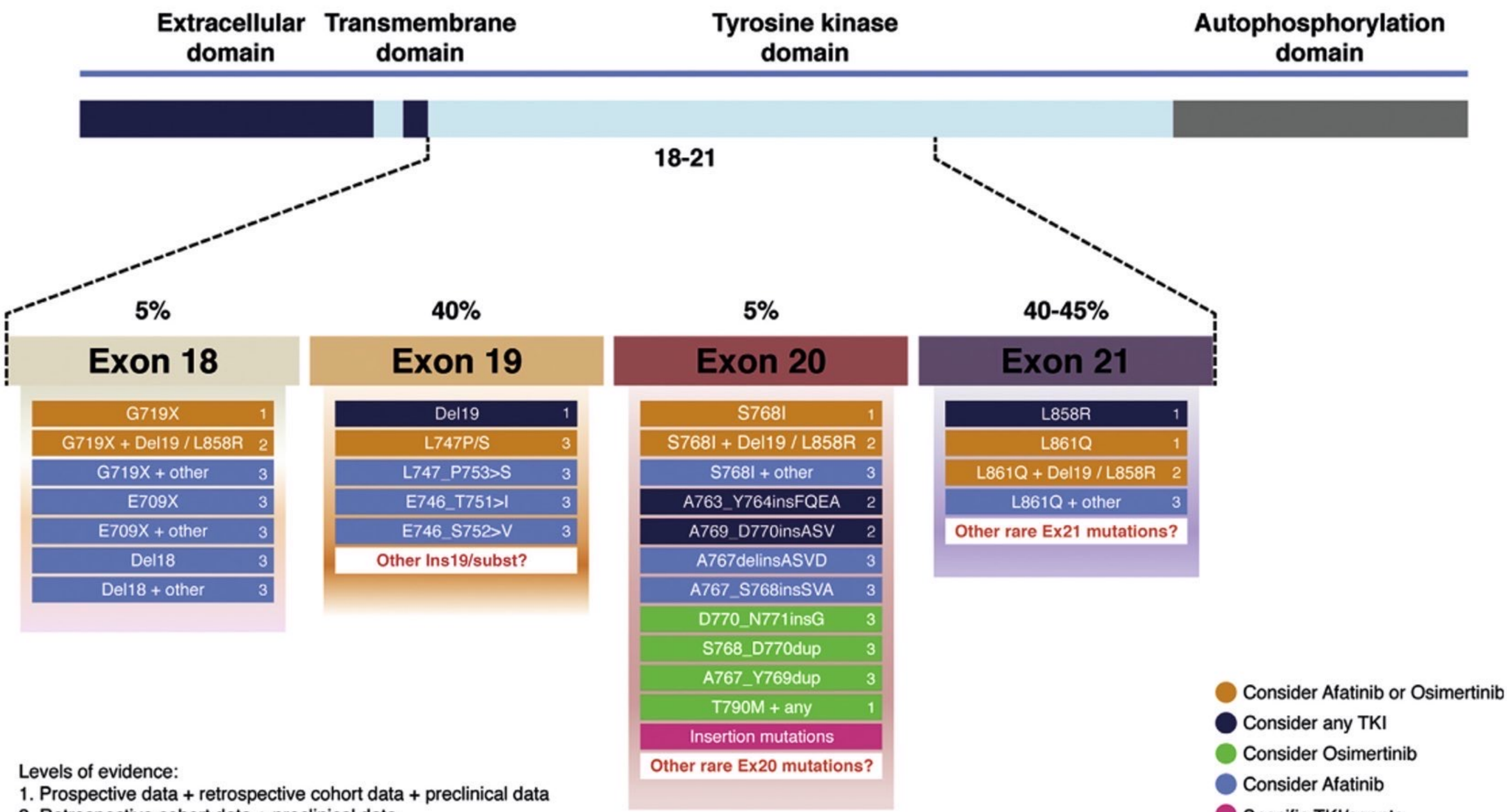
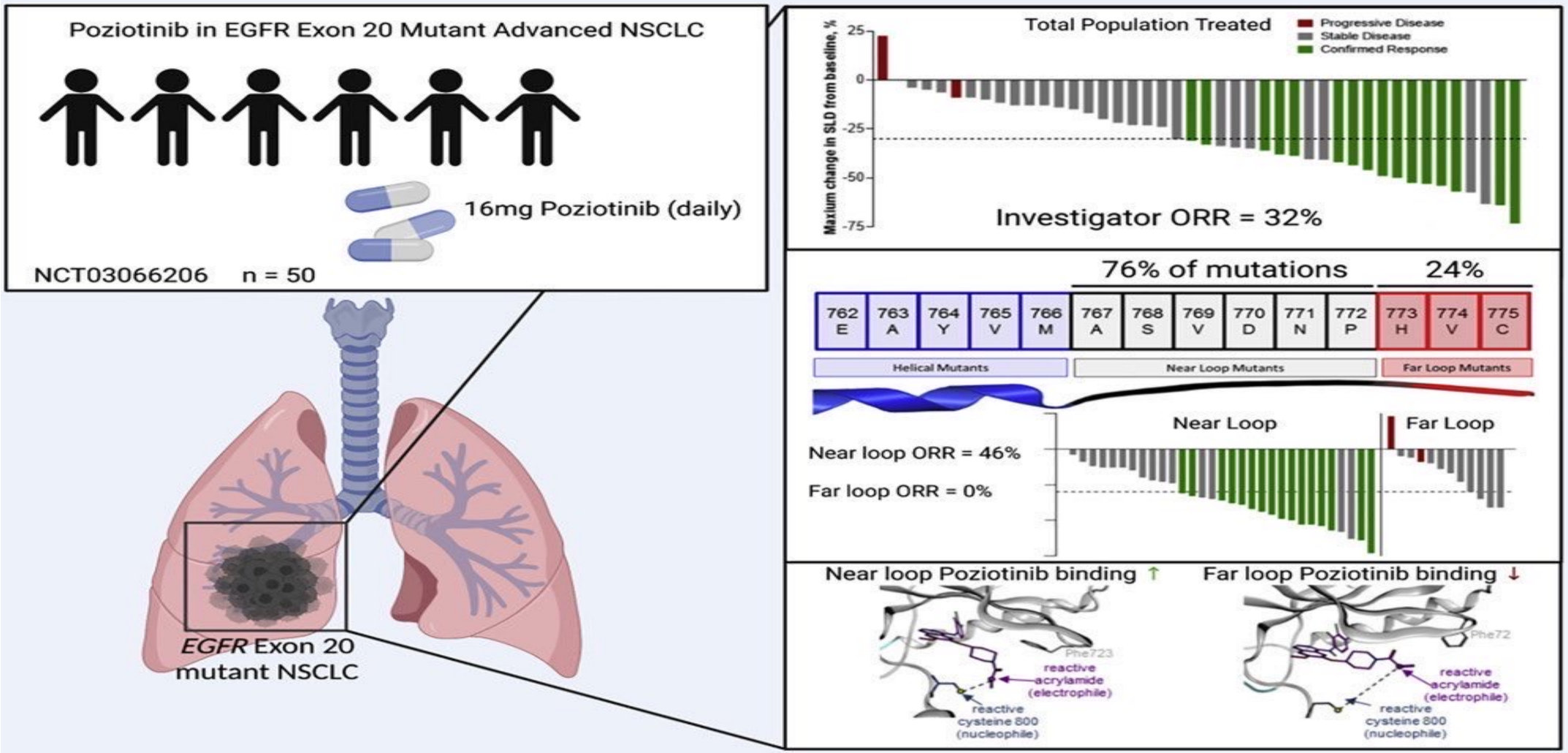




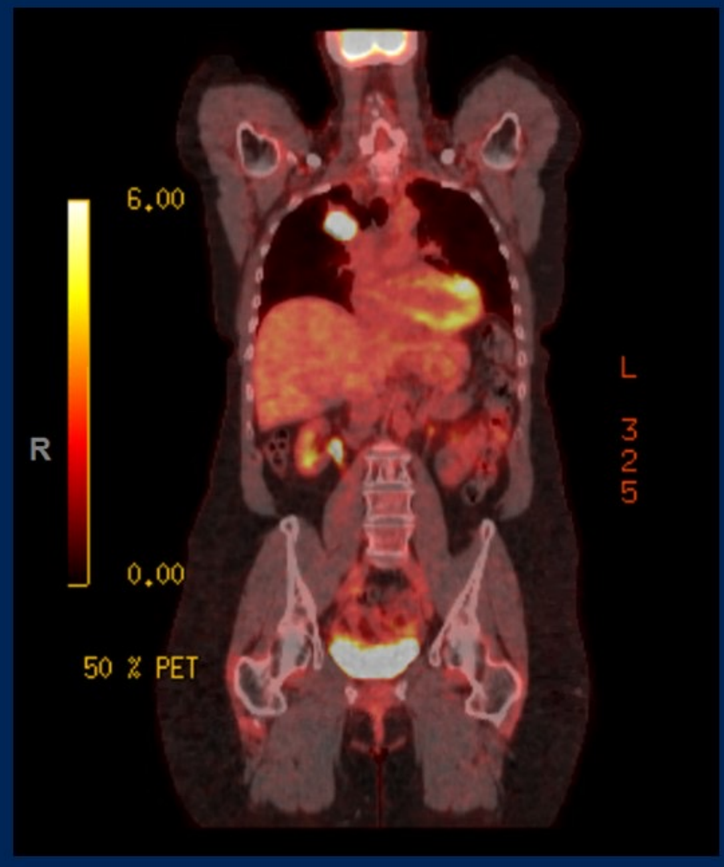


Levels of evidence:
1. Prospective data + retrospective cohort data + preclinical data
2. Retrospective cohort data + preclinical data
3. Individual case studies + preclinical data


Poziotinib in EGFR Exon 20 Mutant Advanced NSCLC
16mg Poziotinib (daily)
NCT03066206 n = 50
EGFR Exon 20 mutant NSCLC
Total Population Treated
Progressive Disease
Stable Disease
Confirmed Response
Maxium change in SLD from baseline, %
25
0
-25
-50
-75
Investigator ORR = 32%
76% of mutations
24%
762 E
763 A
764 Y
765 V
766 M
767 A
768 S
769 V
770 D
771 N
772 P
773 H
774 V
775 C
Helical Mutants
Near Loop Mutants
Far Loop Mutants
Near Loop
Far Loop
Near loop ORR = 46%
Far loop ORR = 0%
Near loop Poziotinib binding ↑
Far loop Poziotinib binding ↓
Phe723
reactive acrylamide (electrophile)
reactive cysteine 800 (nucleophile)
Phe72
reactive acrylamide (electrophile)
reactive cysteine 800 (nucleophile)
Created with BioRender.com

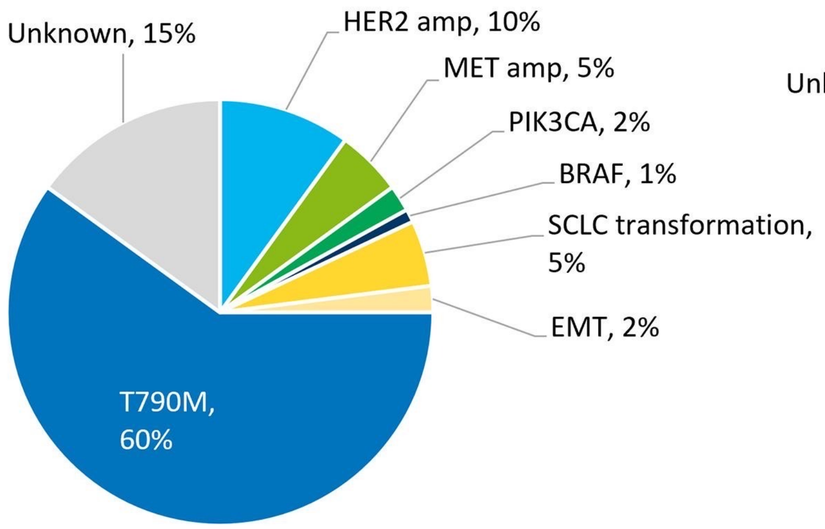
Case 1 Cont'd

- November 2019: solitary progression of right upper lobe mass (17 months after initiation of Osimertinib)
  - PET/CT: FDG avid RUL mass with resolution of LAD and bilateral pulmonary metastases. No extrathoracic disease.

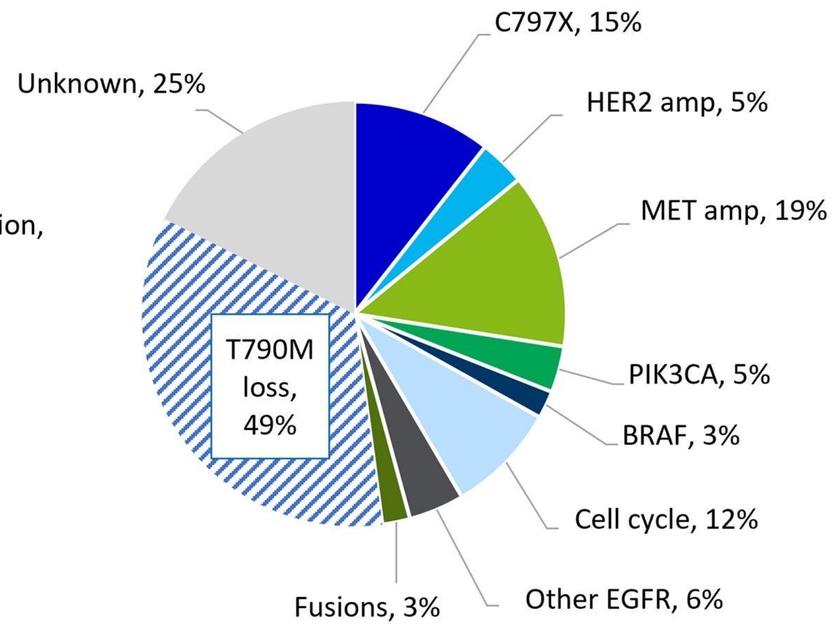


Likely Scale: How Likely Are You To Recommend Biopsy For This Patient?

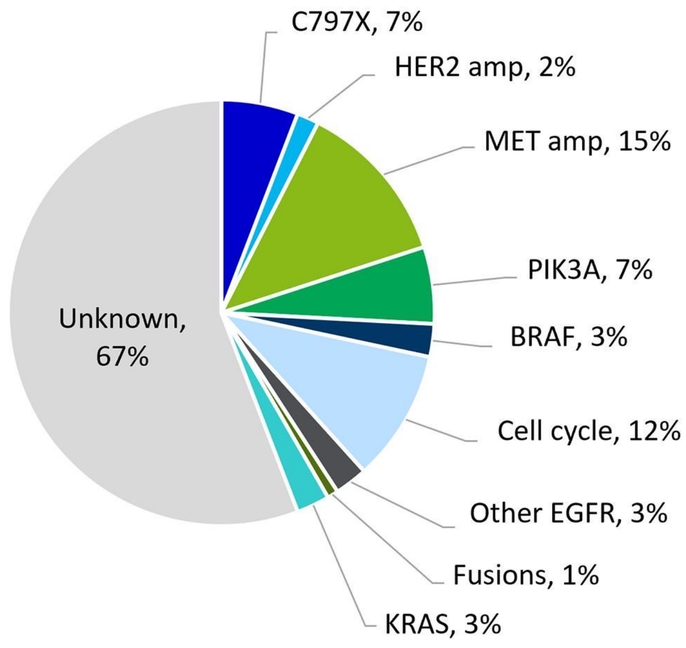
First-line erlotinib, gefitinib, afatinib



Second-line osimertinib



First-line osimertinib

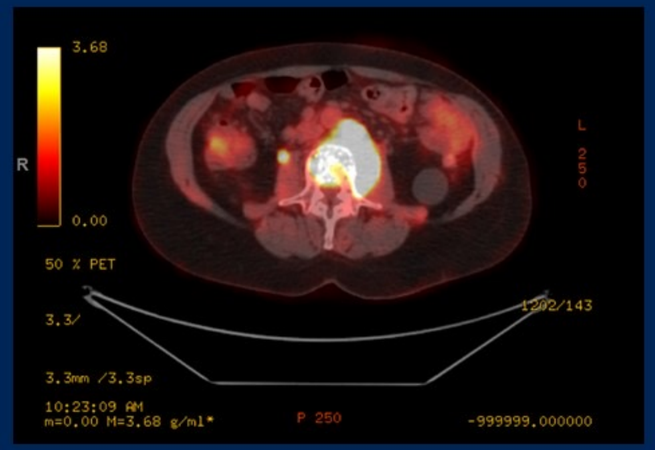


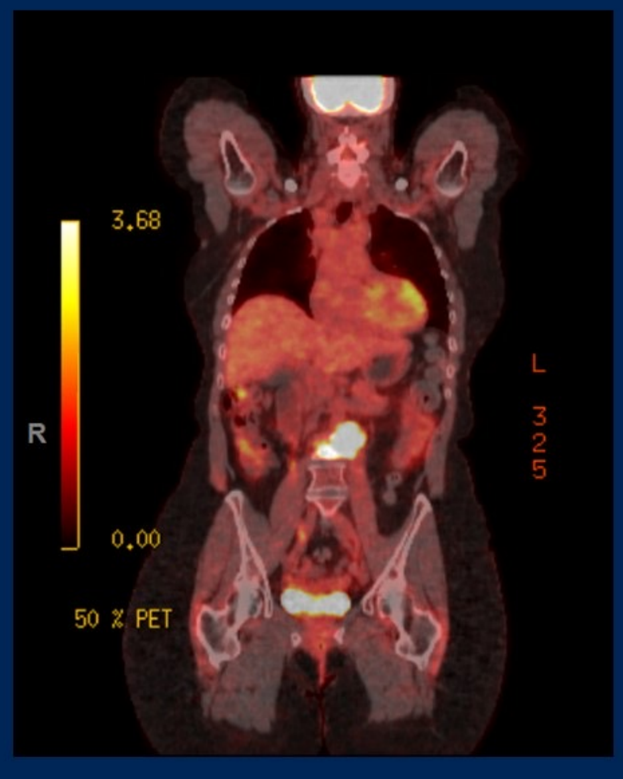
Multiple Choice Question: What would you do next?

A. Switch to platinum doublet +/- immunotherapy
B. Switch to monotherapy immunotherapy
C. Radiate progressing site and continue on Osimertinib
D. Radiate progressing site and switch to a different systemic therapy

Case 1 continued

- November 2019
  - SBRT (6000 cGy in 8 Fx) to RUL mass
  - Continuation of Osimertinib
- January 2021 : solitary progression to paraspinal soft tissue mass
  - PET/CT: excellent PR to SBRT with new 6.2 cm paraspinal ST mass
  - MRI brain: negative





Case continued

- Biopsy: adenocarcinoma with admixed small cell histologic component
- Biomarker testing:
  - PD-L1 negative
  - EGFR exon 21 L858R

Multiple Choice Question: Which Treatment Are You Likely To Recommend For This Patient

A. Platinum-Etoposide
B. Platinum-Etoposide plus osimertinib
C. Platinum-Etoposide plus RT
D. Platinum-Etoposide + immune checkpoint inhibitor

Case 1 continued

- March 2021 – June 2021: Treatment
  - carboplatin and etoposide x 4 cycles plus osimertinib with PR
  - RT to residual paraspinal mass
  - Osimertinib continued

Take Home Messages: EGFR mutated NSCLC with SCLC transformation

- Histologic transformation to SCLC is a mechanism of resistance to EGFR TKI
- ~ 3-10 % of EGFR-mut NSCLC will undergo SCLC transformation following EGFR TKI
- The median time to SCLC transformation is approximately 17-18 months
- Biopsy is needed to diagnose SCLC transformation
- SCLC transformation is seen with Rb1, TP53, and PIK3CA mutations plus retention of original EGFR mutation
- Inactivation of TP53 and Rb1 may be present at initial NSCLC diagnosis
- Platinum-etoposide is the preferred regimen for transformed SCLC
  - Taxanes have shown clinical benefit while ICI lacked benefit
- The role of continuing EGFR TKI with chemotherapy remains unclear in this setting

Case 2

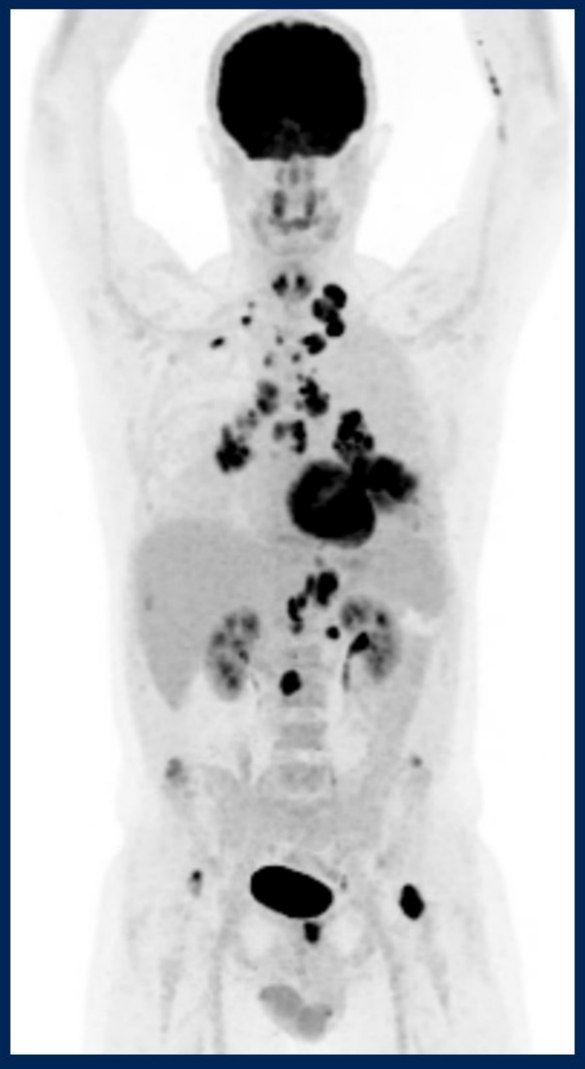
- 36 years old male
- Husband and father of two kids
- Founder and CEO of a start-up company
- Active in all kinds of outdoor sports
- Smoking history with 10 pack years

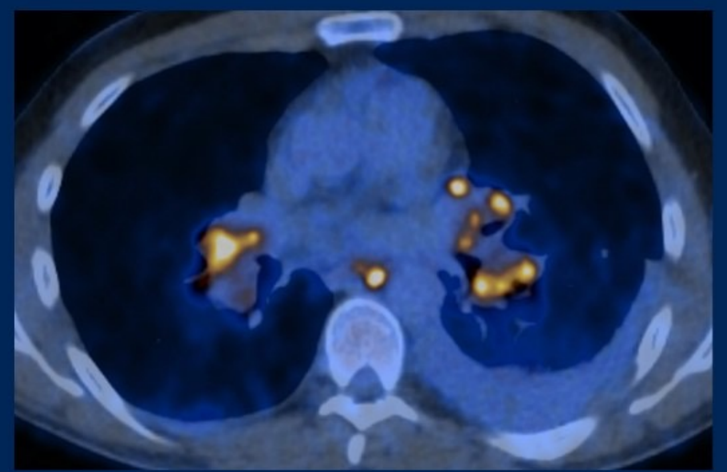
- ➢ History of productive cough for 7 weeks
- ➢ Intermitted fever
- ➢ Reduction of activity and fitness level. Patient denies any other symptoms

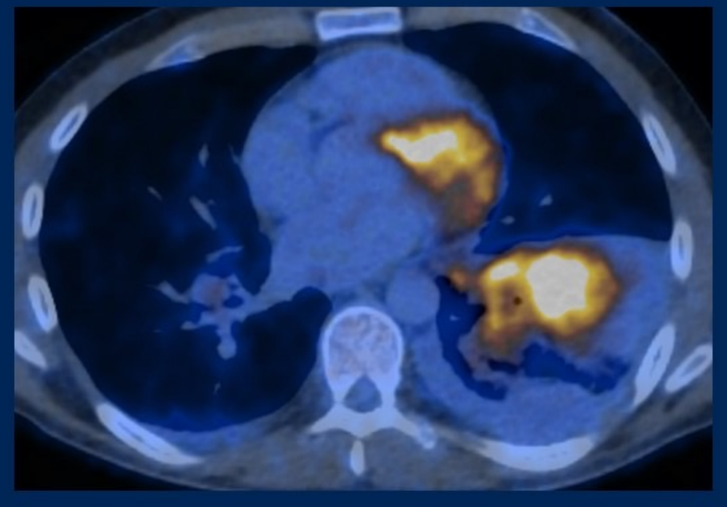
Case 2 Continued

Work-up

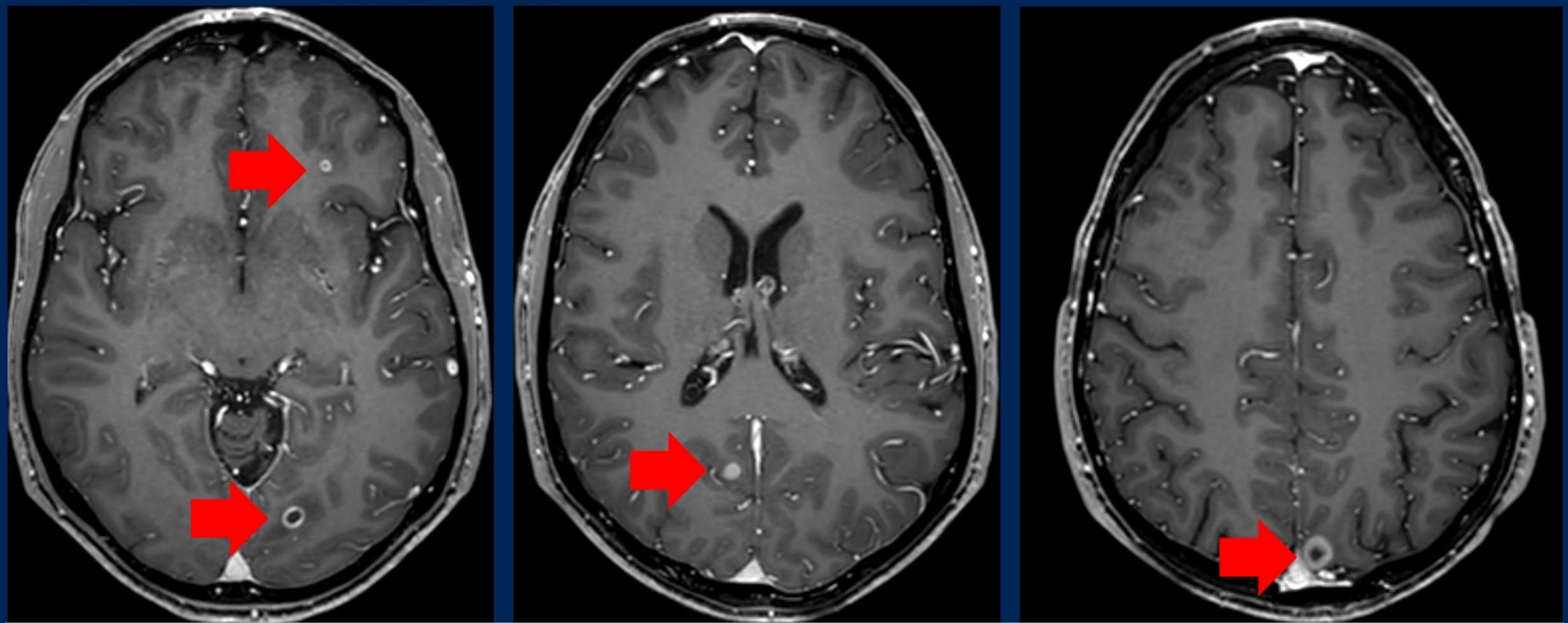
- 10/2021: CT thorax
- 10/2021: EBUS
- 10/2021: FDG-PET
- 10/2021: c-MRI







Case 2 continued



- n=10 supra- and infratentorial brain metastases, max 11mm

Case 2 continued

Pathology:

- Mediastinal LN & pleura
- Malignant cells in pleural effusion
- All LN stations (11R, 4R, 7, 4L, 11L) positive for adenocarcinoma, TTF-1+

Foundation one:

- EGFR amplification, rearrangement exon 25
- PD-L1 (tumor cells) > 50%
- MSI stable
- TMB 8Muts/Mb

Case 2 continued

10/2021: Interdisciplinary tumor board

- Systemic therapy with Osimertinib
- Radiotherapy of painful femur metastasis

Multiple Choice Question:
How would you manage brain metastases?

A. Systemic therapy

B. Radiosurgery of all brain metastases

C. Whole brain irradiation

D. Radiosurgery followed by whole brain irradiation

E. Whole brain irradiation with integrated boost

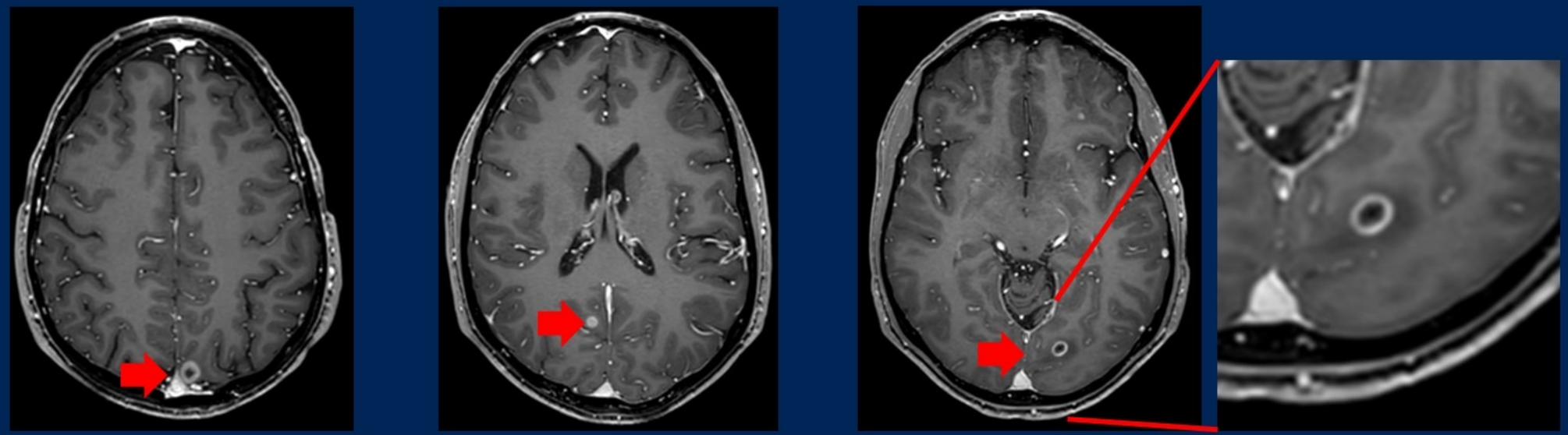
Case 2 continued

Discussion with patient:

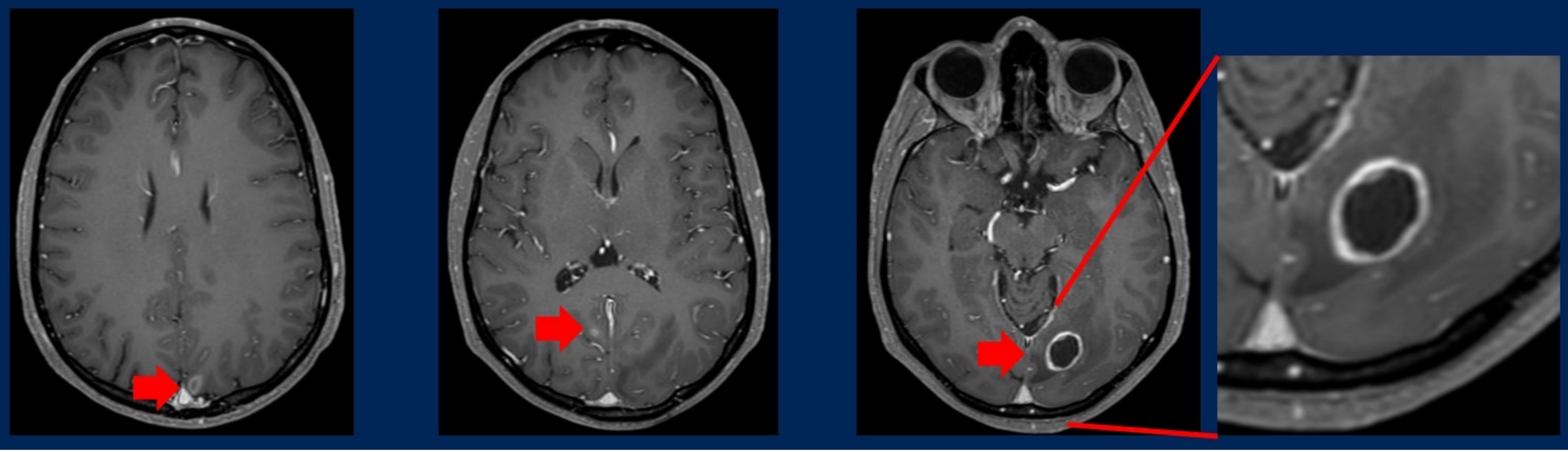
- Decision against up-front SRS or other forms of brain radiation
- Early follow-up c-MRI after 4 weeks of Osimertinib

Case 2 continued

10/2021



11/2021



Multiple Choice Question:
What would you do next?

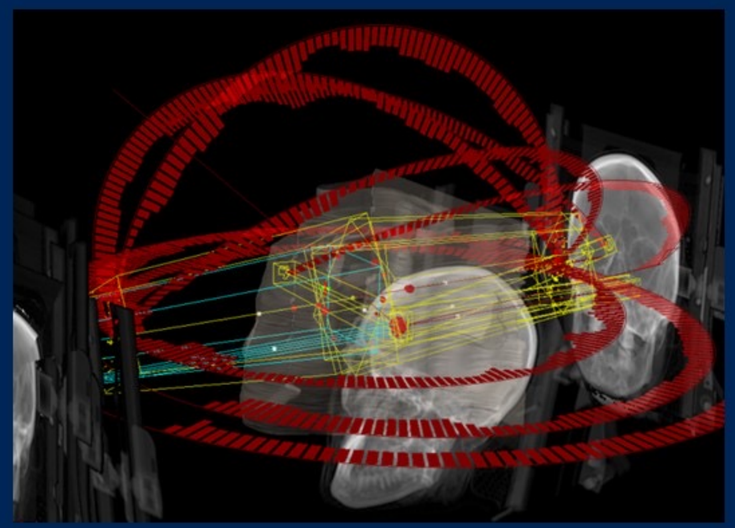
A. Continue Osimertinib in asymptomatic patient
B. Continue Osimertinib and SRS to a single progressive brain metastasis only
C. Continue Osimertinib SRS to progressive and all residual brain metastases

Case 2 continued

11/2021:

N=9 residual brain mets:

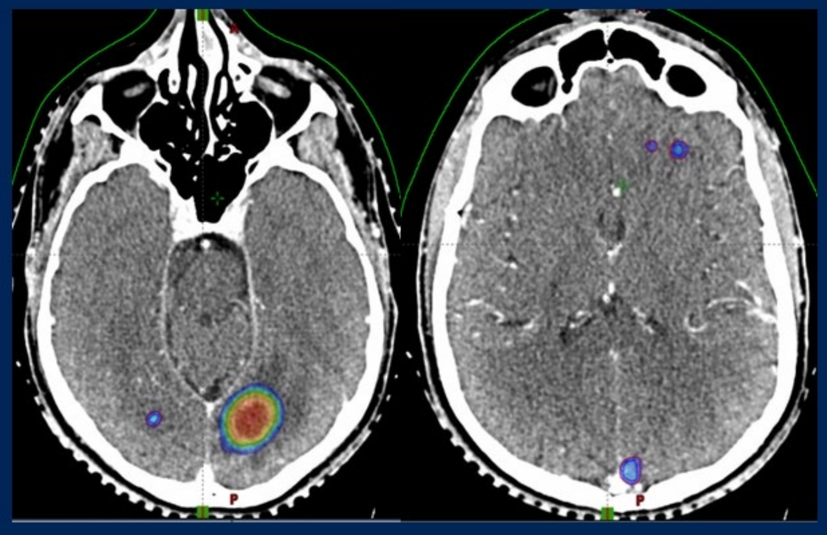
➢SRS with 1 x 20Gy, single-isocenter



N=1 progressive brain met:

➢SRT with 6 x 5Gy

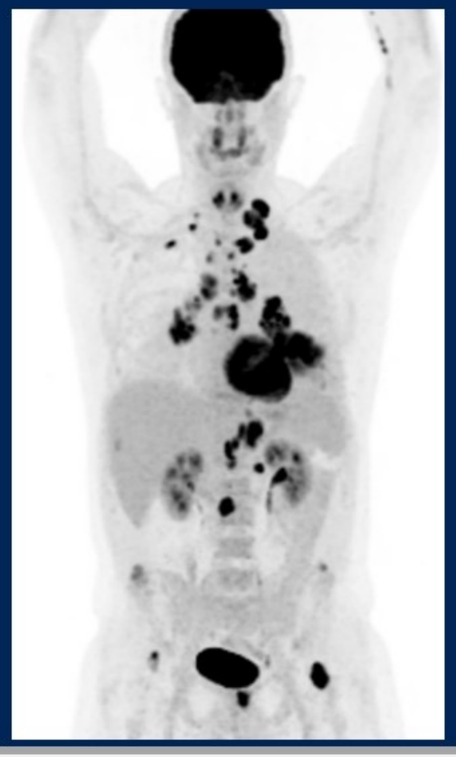
➢Continuation of Osimertinib



Case 2 continued

02/2022: Follow-up imaging FDG-PET and c-MRI

10/2021



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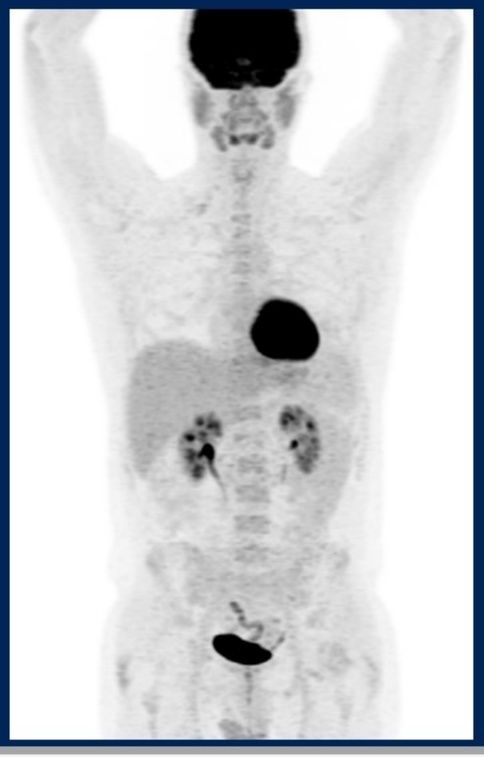
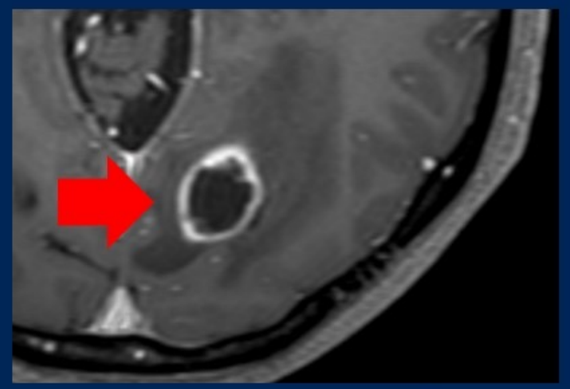
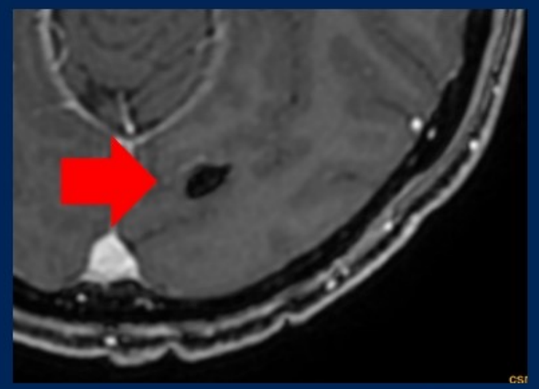
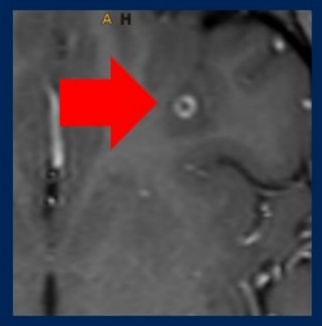


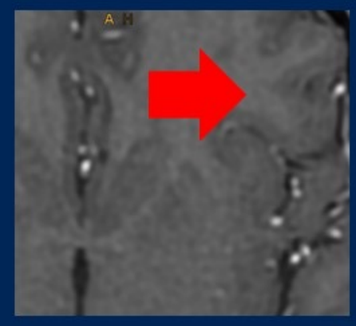
11/2021



02/2022







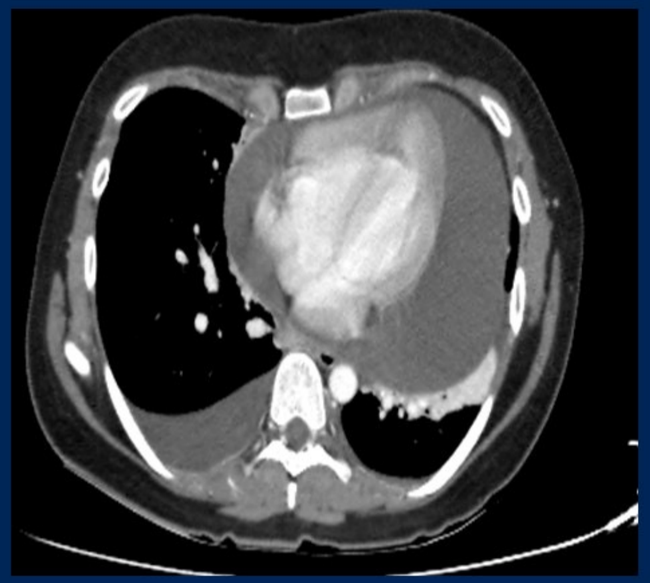
- Patient being in CR and free from any symptoms

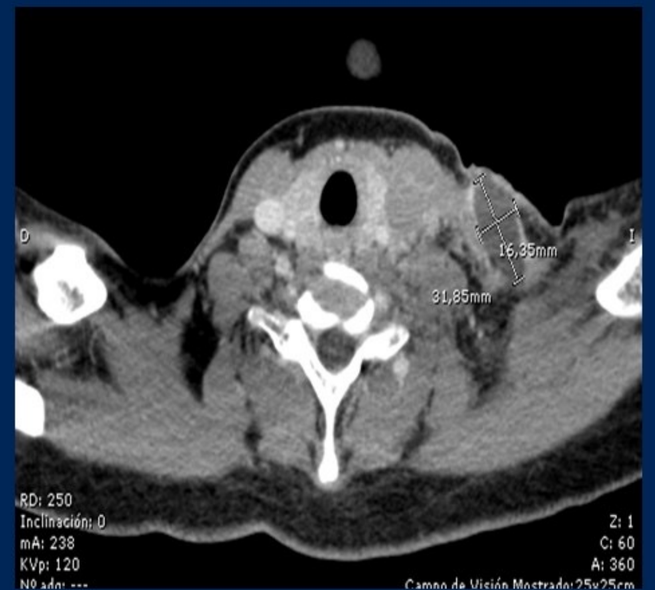
Take Home messages

- EGFR kinase domain duplication is rare with 0.2% of all NSCLC pts
- Limited clinical evidence suggest sensitivity to targeted EGFRi
- No data about prevalence of brain metastases and efficacy of EGFRi
- Overall, no prospective randomized evidence about the sequencing of systemic therapy and local radiotherapy in asymptomatic patients
- If decision is made against up-front local radiotherapy, **early c-MRI restaging is recommended to identify non-responders**

Case 3

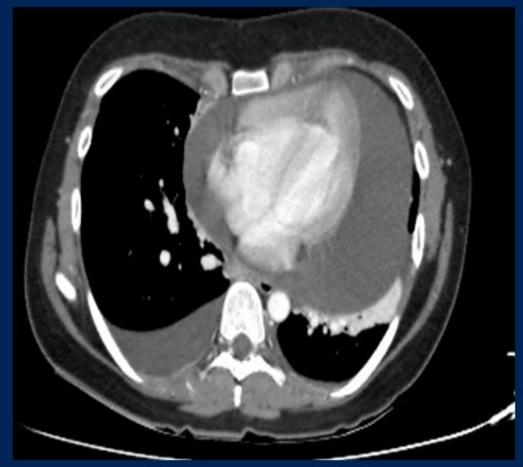
- 29-year-old female (2015)
- Non-smoker; presented with 3 weeks of symptoms: dyspnea, cough, and dysphonia
- Findings:
  - Pleural and pericardial effusion
  - Multiple nodal involvement (bilateral cervical and supraclavicular)
  - Small lung nodule. No brain or bone metastasis
- Diagnosis: Stage IV Adenocarcinoma ALK + (FISH) in supraclavicular node biopsy and pericardial cytology
- Treatment (April 2015): Crizotinib 250 mg/12 h

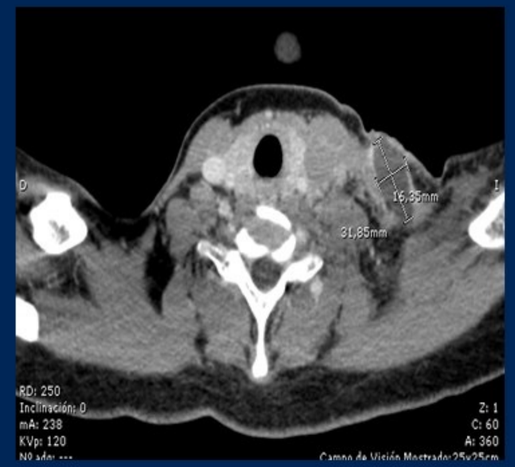




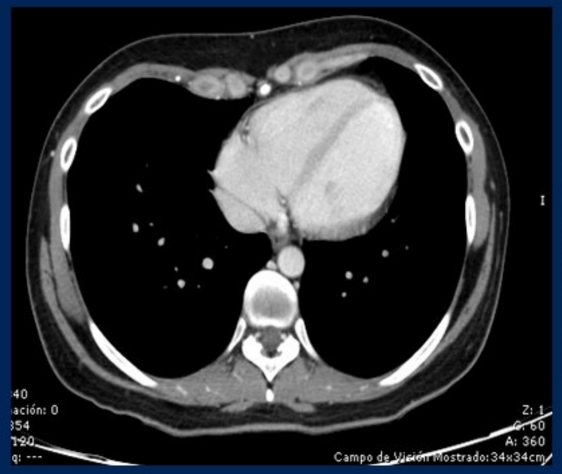
Case 3 continued

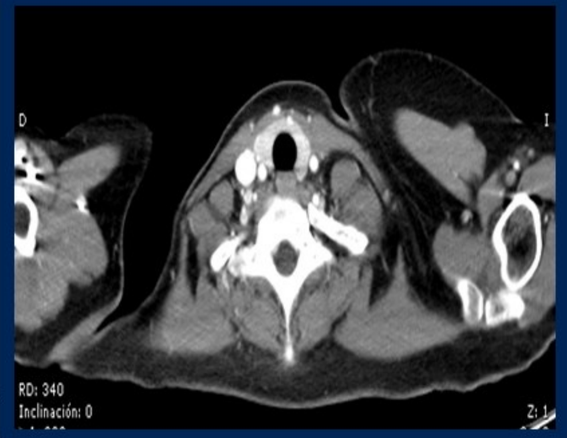
- Complete Response at first CT scan
- Treatment well tolerated





April 2015

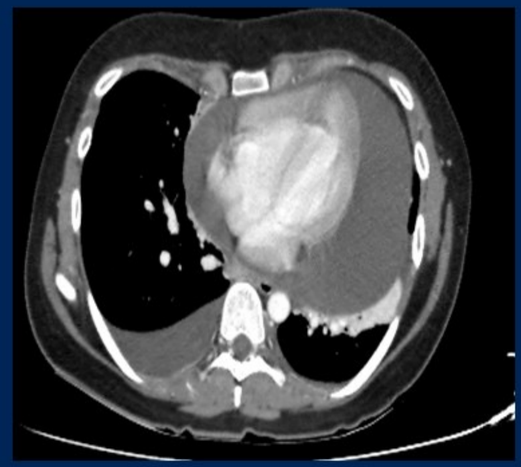


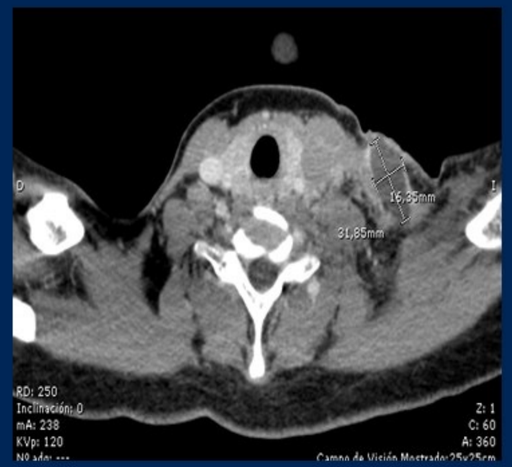


Sept 2015

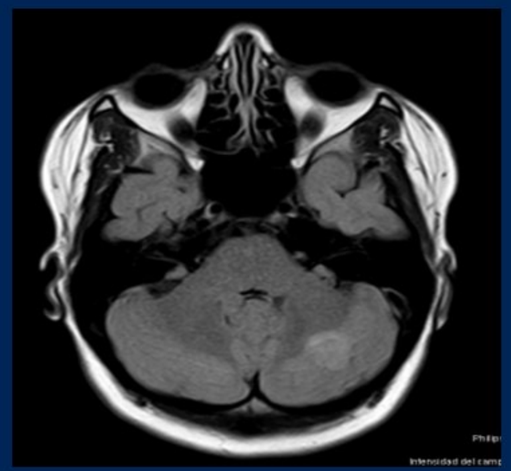
Case 3 continued

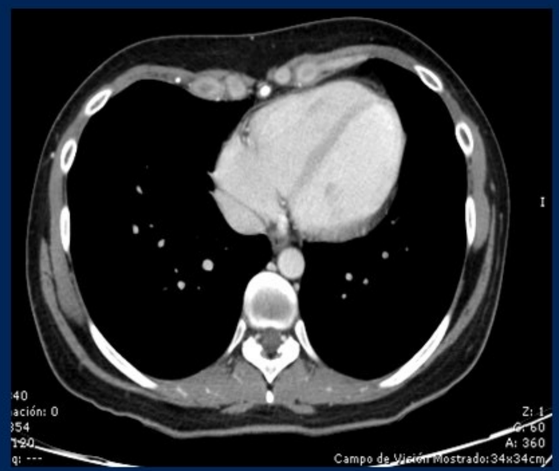
- Complete Response at first CT scan
- Treatment well tolerated
- April 2016 developed brain only progression

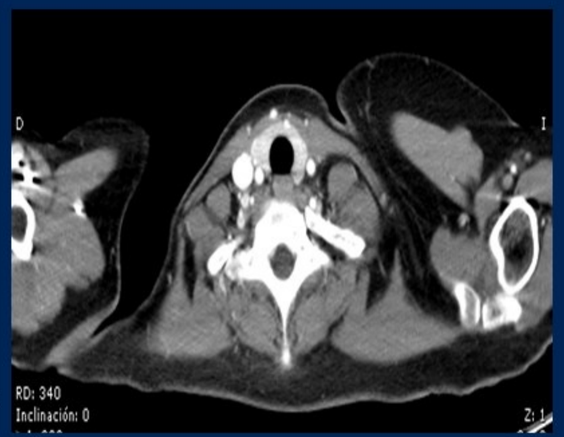




April 2015





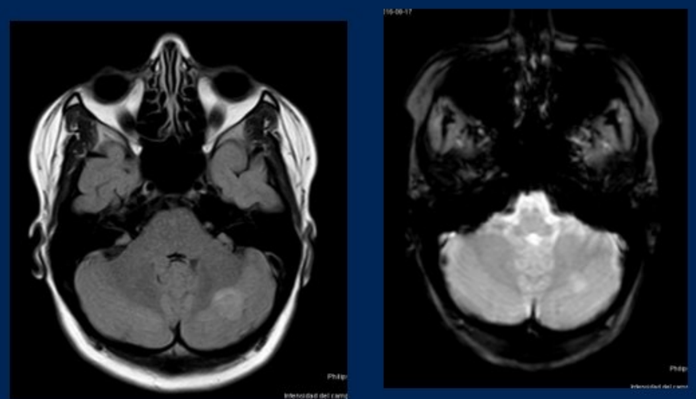


Sept 2015

Likely Scale: How Likely Are You To Recommend "liquid biopsy" For This Patient with brain only progression?

Case 3 continued

- The patient was enrolled in ASCEND 7 study[1] (Cerinitinb 750 mg/24h)
- Tolerability: Required dose reduction (600 mg/24h) due to GI tox
- Outcome:
  - Partial Response
  - Duration of response 1 year
  - Once again exclusive brain progression



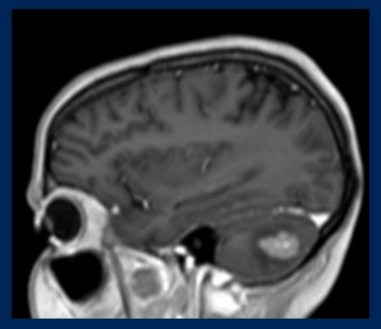
April 2016 Aug 2016

[1] Chow L, Garrido P. Clin Cancer Research 2022

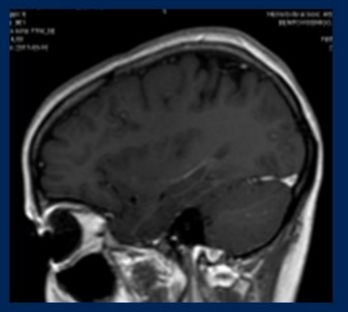
Likely Scale: How Likely Are You To introduce Alectinib And Wait For CNS Efficacy Before Suggesting Radiotherapy?

Case 3 continued

- Patient started Alectinib in Jan 2017
- Treatment well tolerated
- Achieved Complete Response



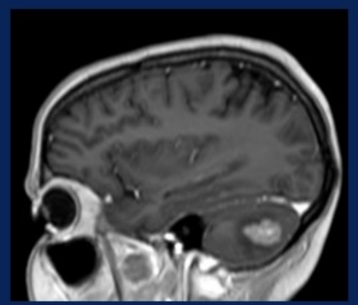
Jan 2017



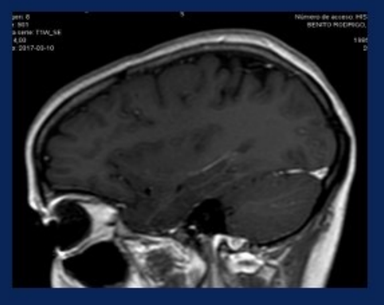
Dec 2017

Case 3 continued

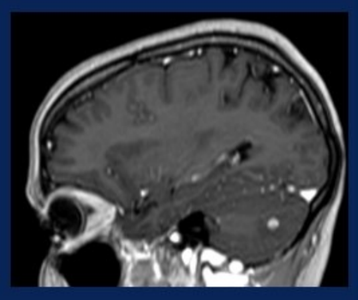
- 22 months later, new exclusive solitary brain metastasis treated with SRS (stereotactic radiosurgery)
- 7 months later (May 2019), Cerebellum lesions and radiological meningeal carcinomatosis. ECOG 0, asymptomatic.
- Lorlatinib (100 mg/ 24) was started
- So far, no progressive disease



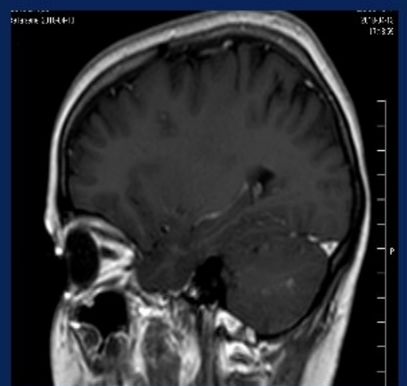
April 2017: Alectinib



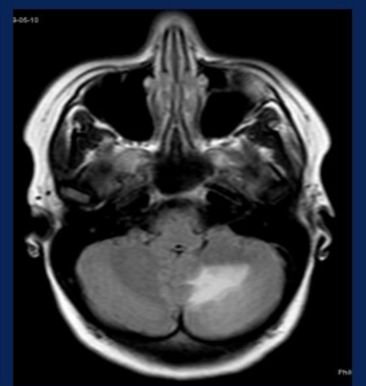
June 2017



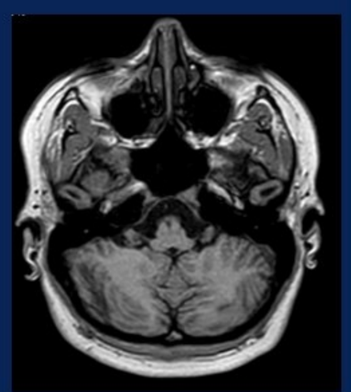
Oct 2018 SRS + Alectinib



Feb 2019



May 2019:Lorlatinib



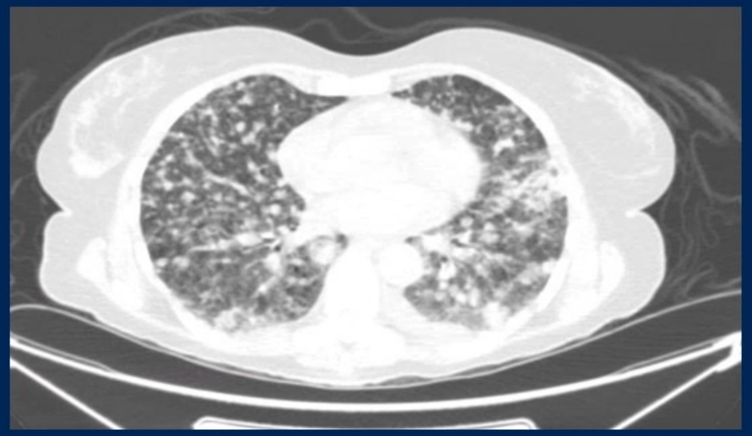
Feb 2021

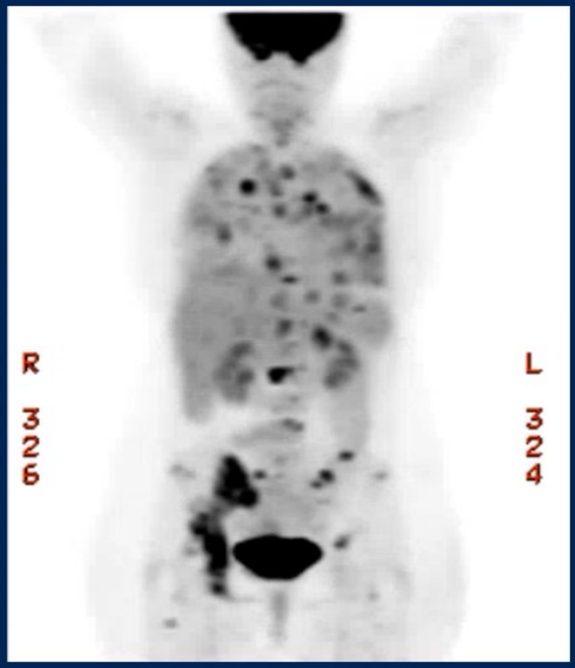
Take Home Message

- Patients with advanced NSCLC ALK + tumors have long-term survival but cure is not an option yet.
- CNS is a recurrent site of progression in ALK+ tumors and its inaccessibility for sampling remains a challenge.
- The spectrum of coverage of ALK mutations is different for each ALKi but we don´t have drugs approved based on mechanisms of resistance.
- Treatment success is more than survival: short and long-term risk of toxicities, potential interactions, and even pill burden has to be taken into consideration when deciding on a therapeutic strategy.

Case 4

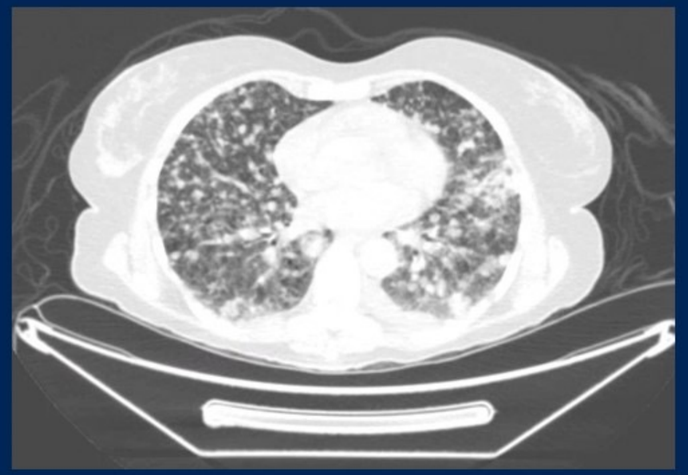
- 61 year-old female presented with cough. CXR was performed showing lung nodules.
- CT chest showed innumerable diffuse bilateral pulmonary nodules, enlarged bilateral mediastinal and hilar lymphadenopathy and a liver lesion measuring 1.1 cm.
- PET/CT with bone metastases
- Brain MRI with multiple small brain metastases. No CNS symptoms



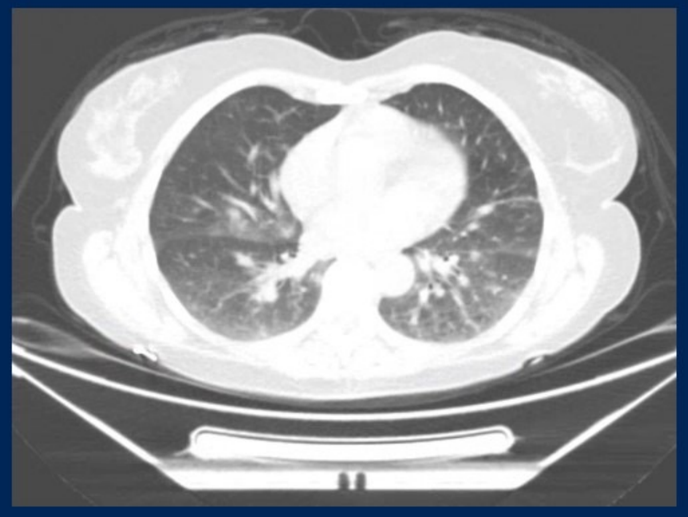


Case 4 continued

- IR-guided biopsy of a left lung nodule revealed **moderately differentiated lung adenocarcinoma** (Positive for CK7, TTF-1, Napsin-A). PD-L1 (Dako 22C3) TPS = 0%
- **EGFR exon 19 del**.
- Patient was started on Osimertinib. Radiation to the brain deferred. She had an excellent response in all sites of the disease including the brain and resolution of respiratory symptoms.



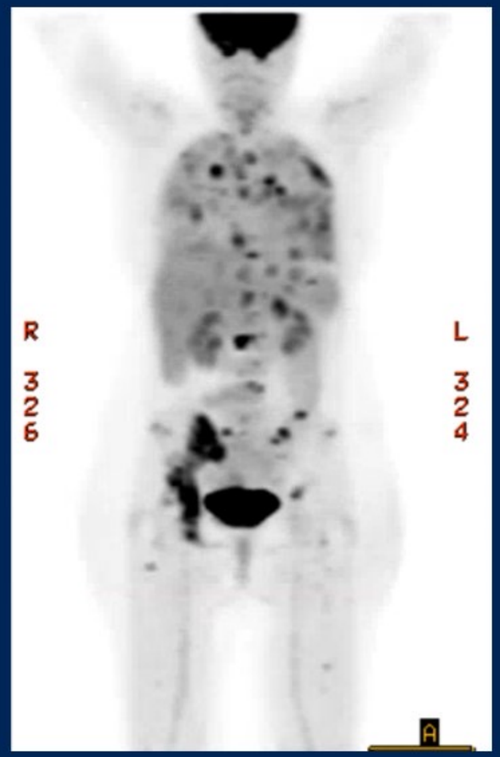
Baseline



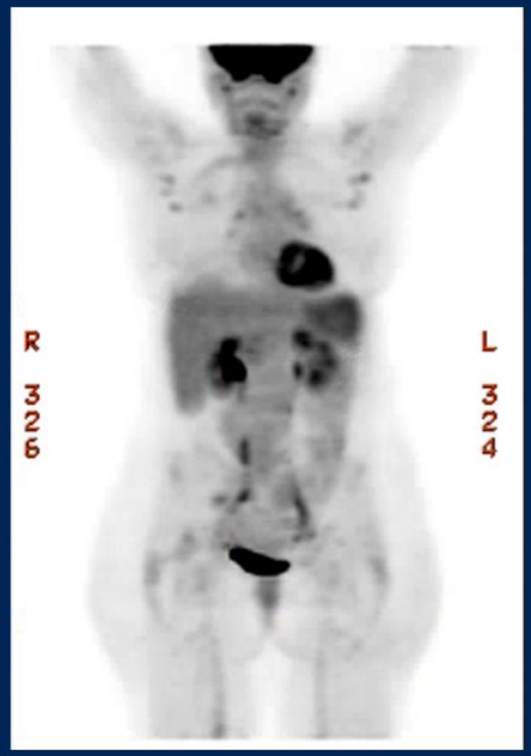
2 months on therapy

Case 4 continued

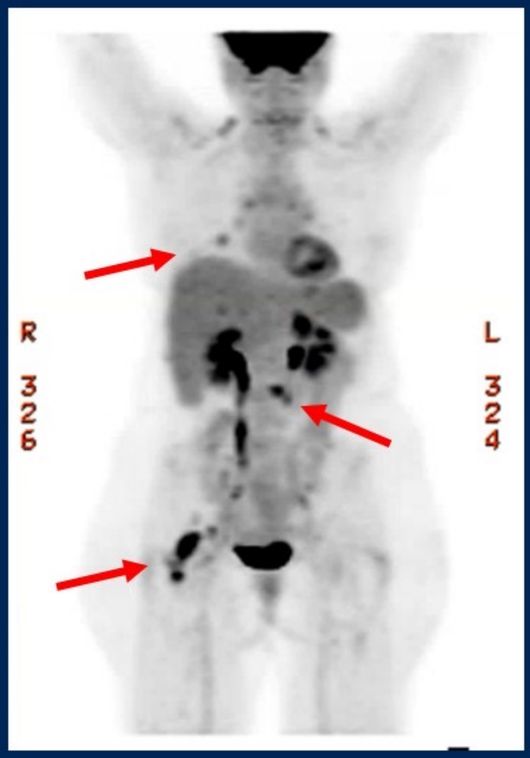
- 9 month later new bone pain
- PET/CT with PET positive bone metastasis, new lung nodule and hilar adenopathy



BASELINE



2 MONTHS



9 MONTHS

Agree/Disagree:

Would you perform a biopsy of a progressive lesion

Case 4 continued

- ctDNA no alterations
- Tissue NGS
  - EGFR Exon 19 L747_S752 del/ins Q
  - EGFR C797S
  - NTRK amplification

Multiple Choice Question: What would you do next?

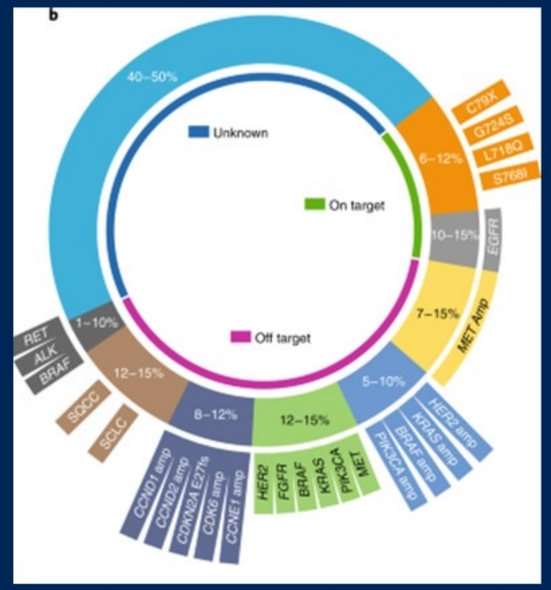
A. Switch to platinum doublet +/- immunotherapy
B. Switch to platinum doublet and continue on osimertinib
C. Switch to erlotinib
D. Add erlotinib to osimertinib

Case 4 continued.

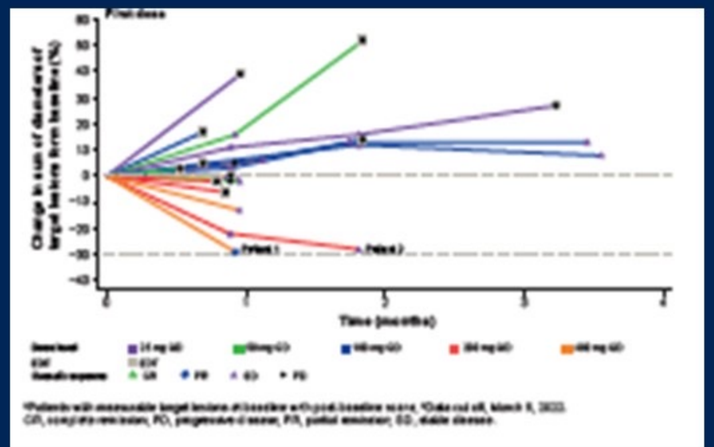
- Patient was continued on osimertinib and erlotinib was added.
- Imaging 2 month after therapy showed progression both in CNS and further systemic progression.
- Patient was switched to chemotherapy

Take home message

- On target and off target resistance to Osimertinib has been reported
- C797S mutation inhibits covalent binding of osimertinib to EGFR protein
- 1st generation inhibitors (erlotinib and gefitnib) are not affected due to different binding site
- Novel 4th generation EGFR inhibitors (EAI045, BLU 945, BLU 701) are currently in development.



Passaro et al Nature Cancer 2021



- EGFR ex19del, T790M and C797S
- L858R, T790M and C797S

Shum st al AACR 2022

TARGETED THERAPY

Clinical Benefit of Comprehensive Genomic Profiling for Advanced Cancers in India

Aju Mathew, MBBS, MD, DM, MPhil[1]; Serena Joseph, MBBS[1]; Jeffrey Boby[2]; Steve Benny[3]; Janeesh Veedu, MD[4]; Senthil Rajappa, MD, DM[5]; Nitesh Rohatgi, MBBS, MD, DNB[6]; Bhawna Sirohi, MBBS, MD, DM[7]; Reetu Jain, MD[8]; Vivek Agarwala, MD, DNB, DM[9]; Deepak Kumar Shukla, MD, DM[10]; Anurag Mehta, MD[11]; Raja Pramanik, MD, DM[12]; Vineet Talwar, DNB, DM[11]; Vinayak Maka, MD, DM[13]; and Nirmal Raut, MD[14]

original reports abstract

PURPOSE Comprehensive genomic profiling (CGP) assay is increasingly used in low-middle–income countries to detect clinically relevant genomic alterations despite its clinical benefits not being well known. Here, we describe the proportion of patients with advanced cancer in India who received targeted therapy for an actionable genetic alteration identified on CGP assays.

METHODS This was a multicenter, retrospective cohort study in adult patients with advanced nonhematologic malignancies who underwent a CGP test. If patients received a targeted therapy for ≥ 6 months, they were considered to have obtained a clinical benefit from the medication, whereas those continuing for ≥ 12 months were considered to have attained an exceptional response. Descriptive statistics were used to describe the proportion of patients with subsequent targeted therapy.

RESULTS During 2019-2020, 12 medical oncologists provided CGP reports for 297 patients; 221 met the inclusion criteria. Patients received a median of two lines (range: 0-5) of prior systemic therapy. On the basis of the CGP assay, 21 patients (10%) received targeted therapy. Among them, 33% was for human epidermal growth factor receptor 2 (HER2) amplification (nonbreast cancer) and 19% for HER2 or epidermal growth factor receptor exon 20 insertion mutation (lung cancer). After excluding patients with HER2 or epidermal growth factor receptor exon 20 insertions, 8% of 217 patients received targeted therapy. In the overall cohort of 221 patients, clinical benefit was seen in nine patients (4%), of whom two were exceptional responders (1%).

CONCLUSION We observed that in a low-middle–income country setting, 10% of patients received targeted therapy on the basis of CGP assay. Only 4% of patients who underwent CGP testing obtained a clinical benefit.

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