

Case Presentation

An aerial architectural rendering of a large, modern hospital complex. The central focus is a tall, multi-story building with a glass facade and a prominent entrance. To its right is a smaller, more traditional-looking building. The complex is surrounded by lush green trees and a well-maintained landscape. A road with cars and a bus is visible in the foreground, and a river or stream flows through the area. The overall scene is bright and clear, suggesting a sunny day.

은평성모병원 호흡기내과

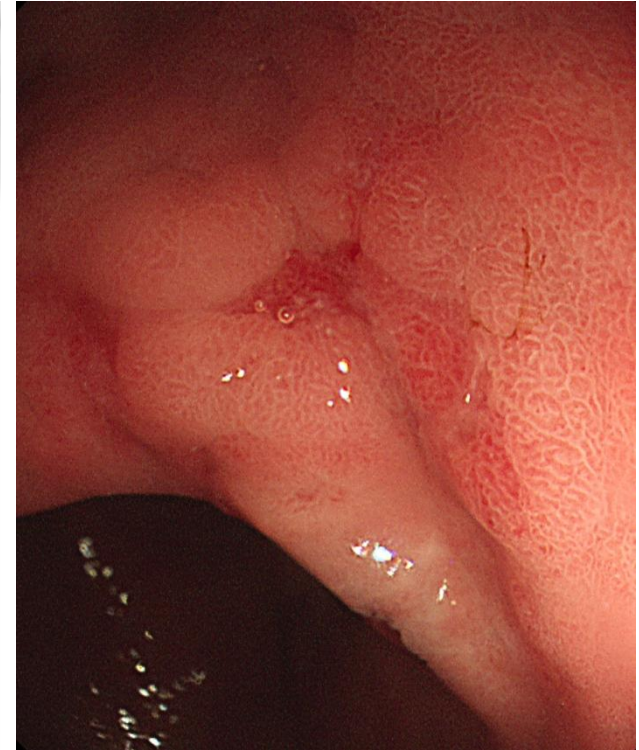
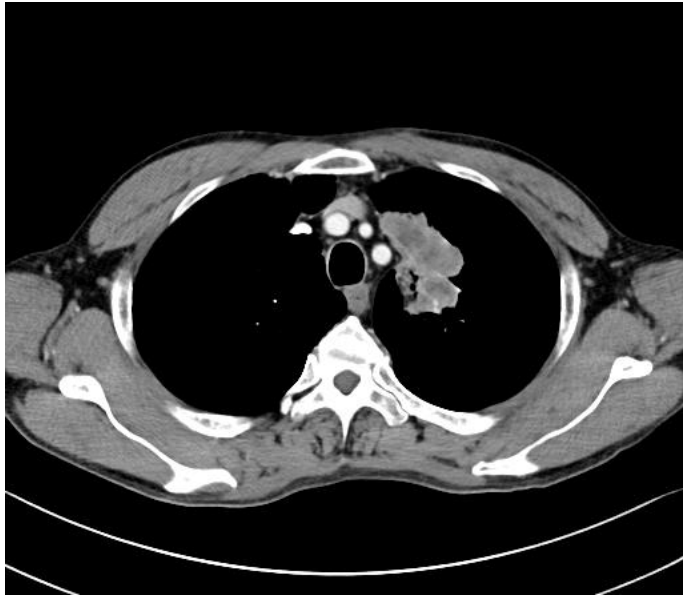
여창동

Case#1, M/55



- 2019 Sep
- 55/M, Current Smoker (40PY)
- Category 4X

Case#1, M/55



- Adenocarcinoma
- cT2bN0M0
- EGFR/ALK/ROS1/BRAF : WT
- PD-L1 SP263 90%

- ECGa
- sT2N0M0

Case#1, M/55



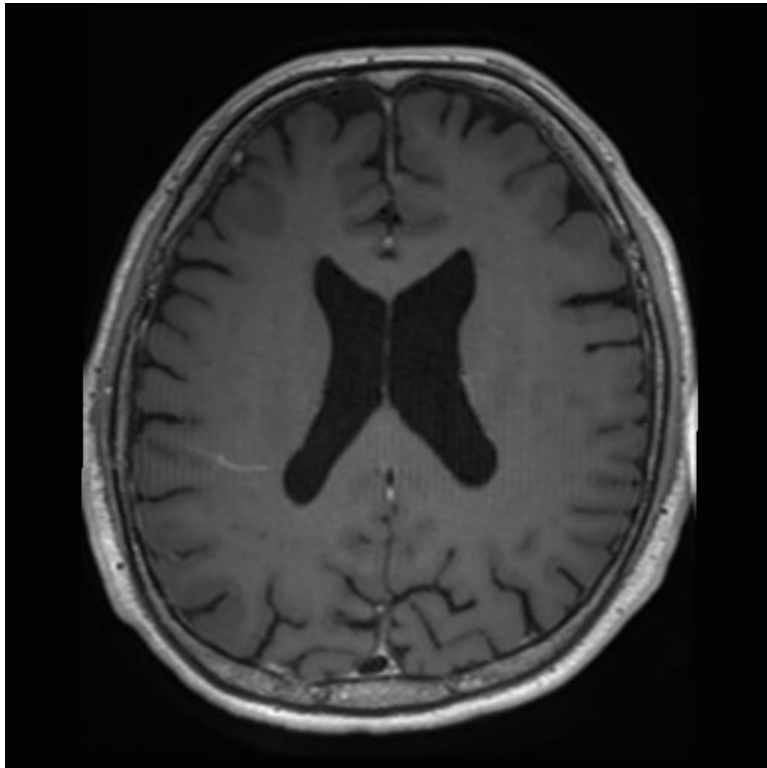
- 2019 Oct 7
- VATS LUL lobectomy
- pT2bN0M0



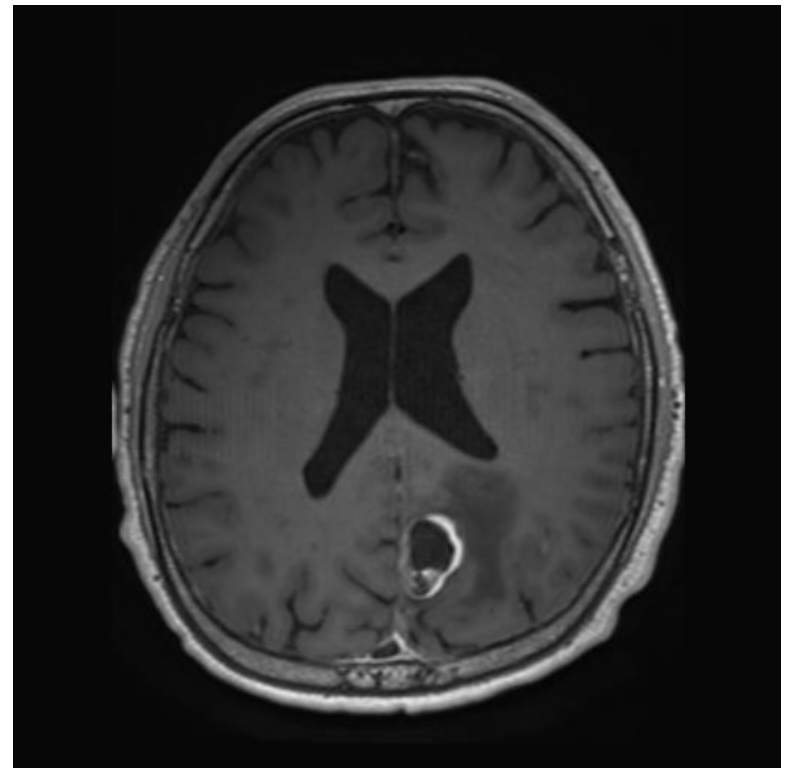
- 2019 Oct 24
- Curative R-Y LDG c D2 dissection
- pT1aN0M0

Case#1, M/55

- Dizziness
- Seizure

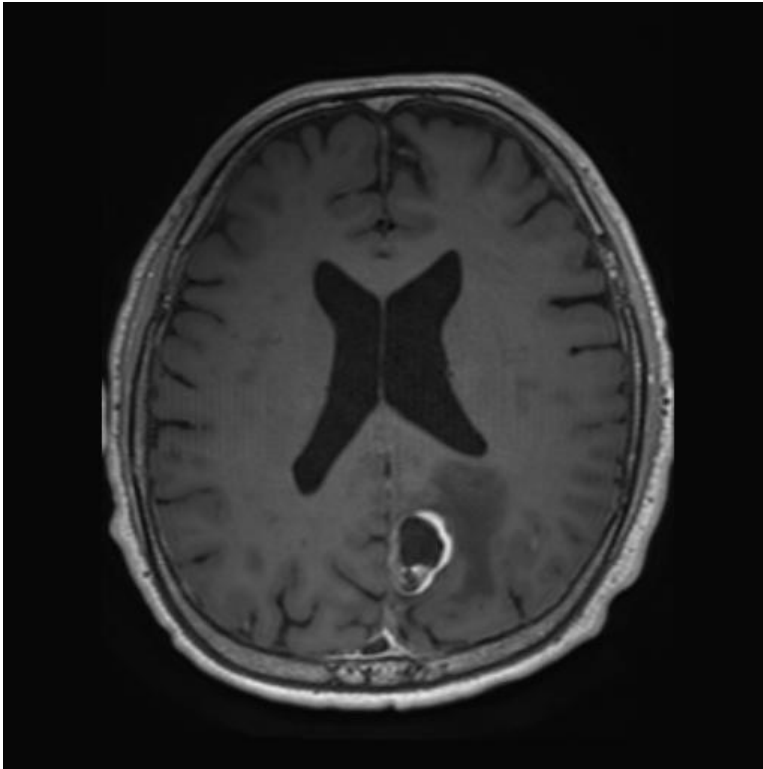


• 2019 Oct



• 2020 Jun

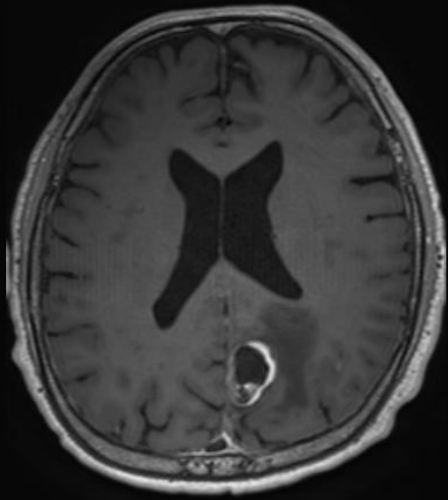
Case#1, M/55



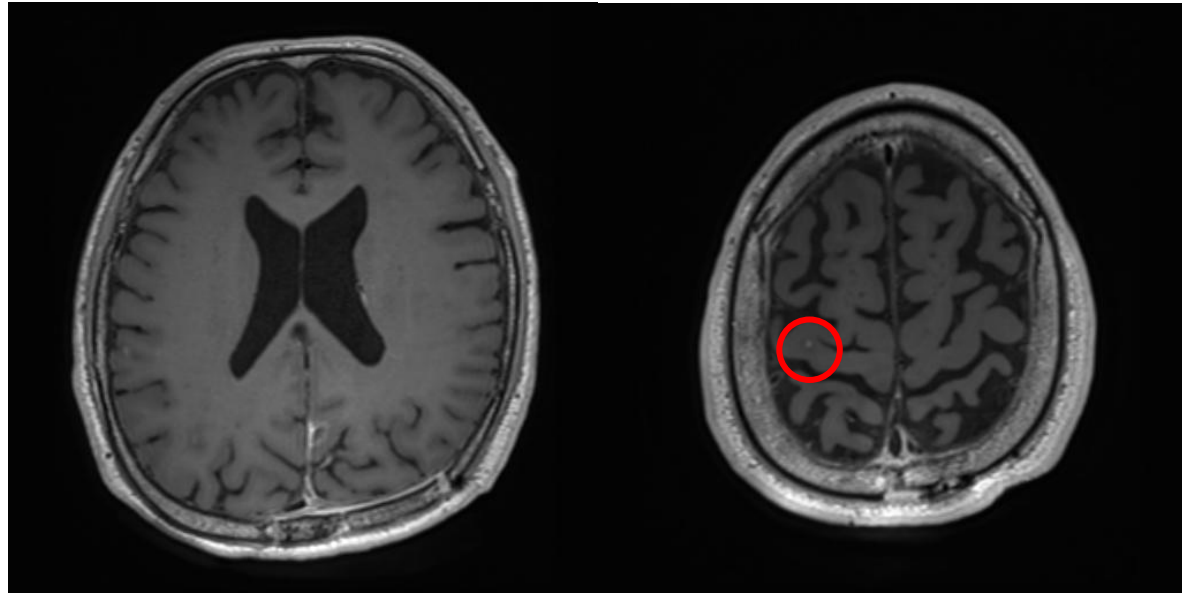
- 2020 Jun

- Craniotomy c tumor removal
- Adenocarcinoma
- EGFR/ALK/ROS1/BRAF : WT
- SP263 90%
- Postoperative SRS (24 Gr/3 fxs)
- Systemic chemotherapy : refused

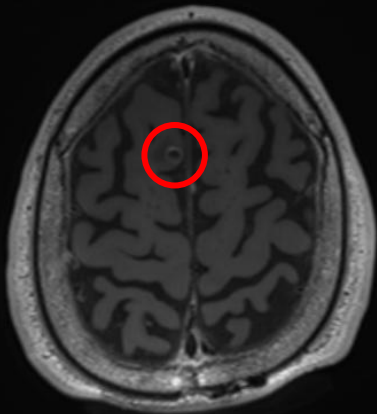
Case#1, M/55



- 2020 Jun

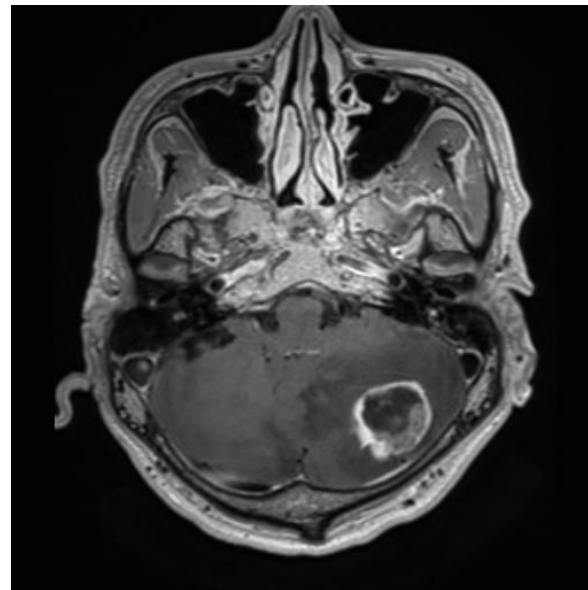
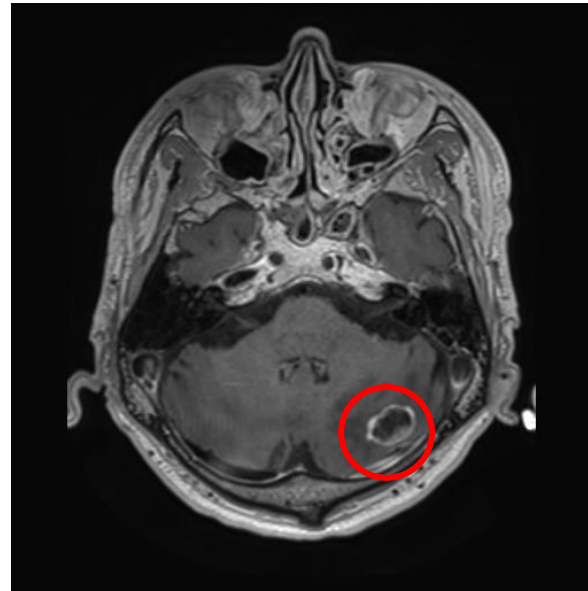


- 2020 Sep
- SRS on new mets, 22Gy/1fx



- 2020 Dec
- SRS on new mets, 22Gy/1fx

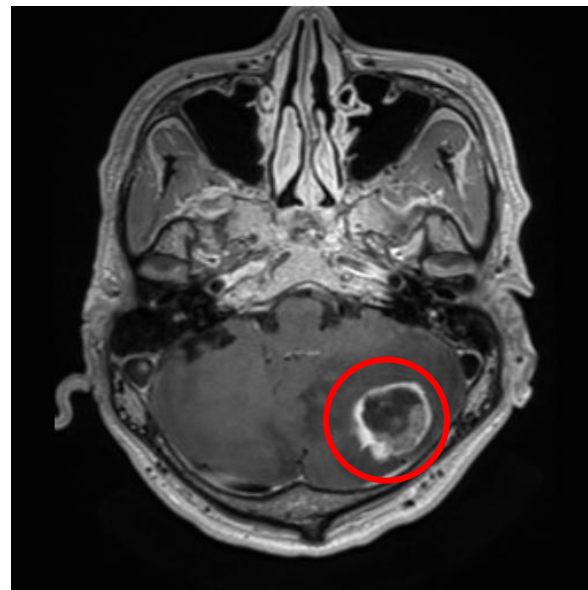
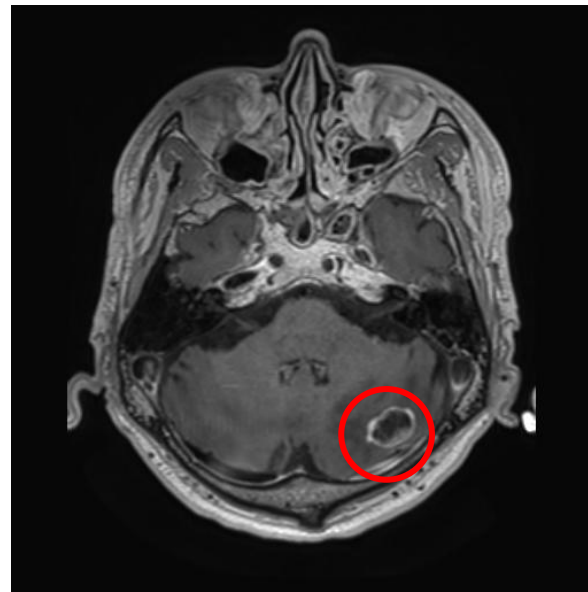
Case#1, M/55



- 2021 Apr
- SRS 24Gy/3fxs

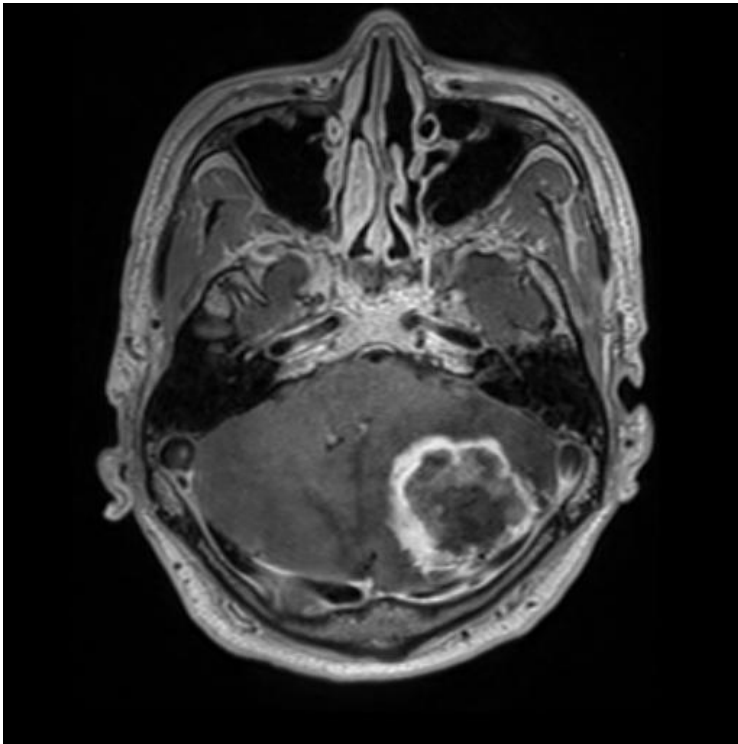
- 2021 Oct
- Palliative RT
30Gy/10fxs

Case#1, M/55



- 2021 Apr
- SRS 24Gy/3fxs
- 2021 Oct
- Palliative RT
30Gy/10fxs
- Surgery - refused

Case#1, M/55



- 2022 May
- Headache, Seizure
- Craniotomy and tumor removal
- Adenocarcinoma
- EGFR/ALK/ROS1/BRAF : WT
- SP263 10%

Case#1, M/55



1. Clinically significant biomarkers

(1) Mutation

TP53 p.Gly266Arg c.796G>C 72.01% COSM11205 II

NF1 p.Glu1436Ter c.4306G>T 29.46% II

(2) Amplification

MAPK1 22q11.21(22123473-22162093) x6.70312 II

(3) Fusion : None

2. Biomarkers of unknown significance

(1) Mutation

NF1 Splicing site c.6642+1G>T 30.55 %

(2) Amplification

RIT1 1q22(155870154-155880332) x6.375

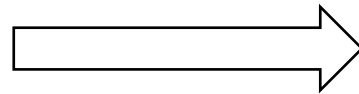
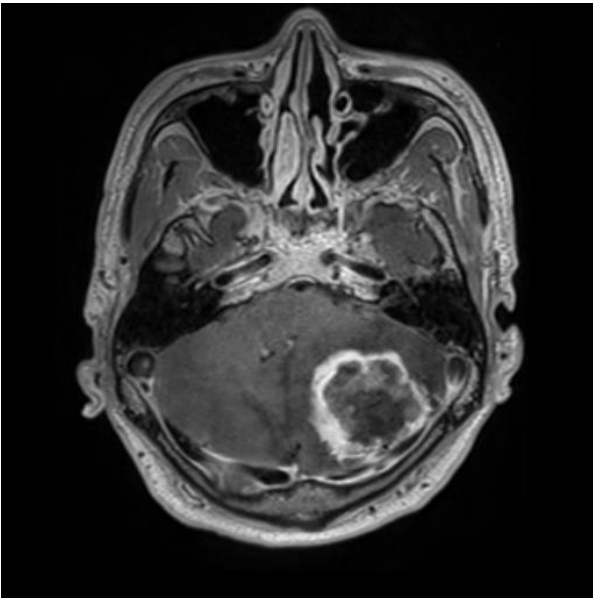
PXDNL 8q11.22q11.23(52233342-52721900) x7.125

(3) Fusion : None

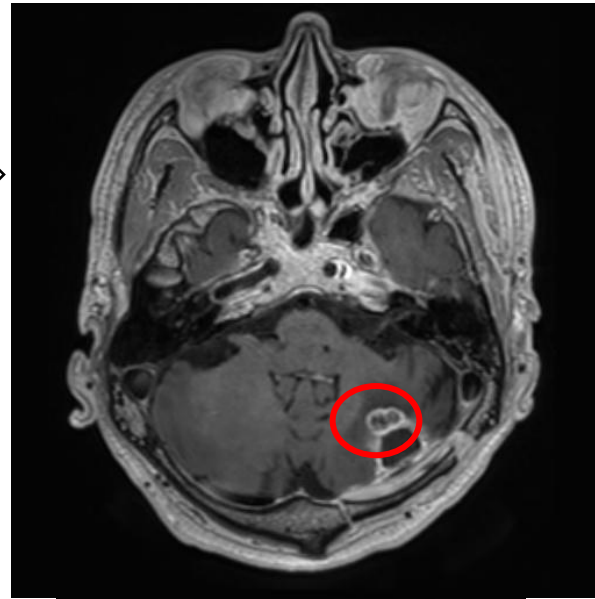
3. Tumor Mutational Burden (Mutations/Mb):13.27

4. MSI Score:4.39(MSS)

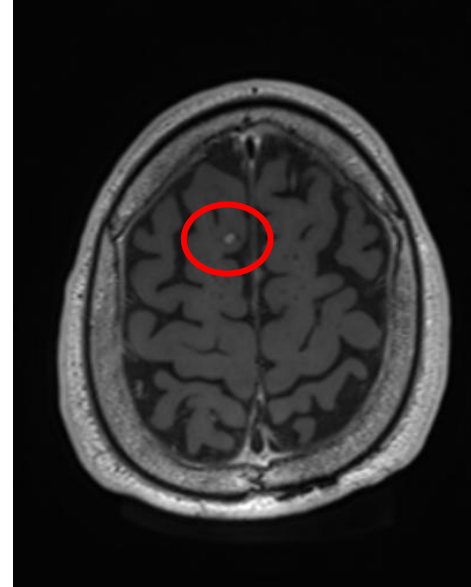
Case#1, M/55



Pembrolizumab
Pemetrexed
Carboplatin
(4th cycle)

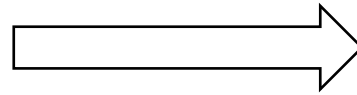
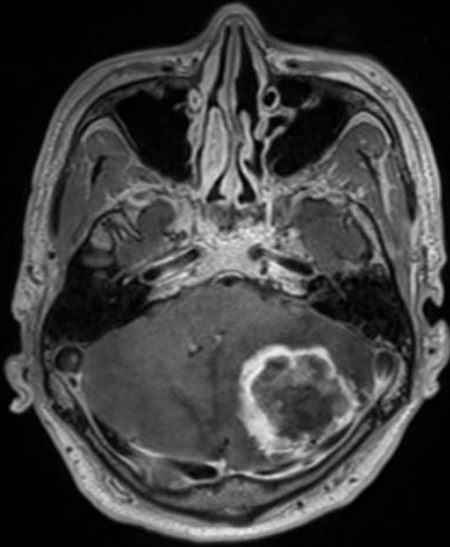


- 2022 May
- Craniotomy and tumor removal



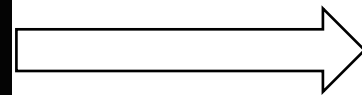
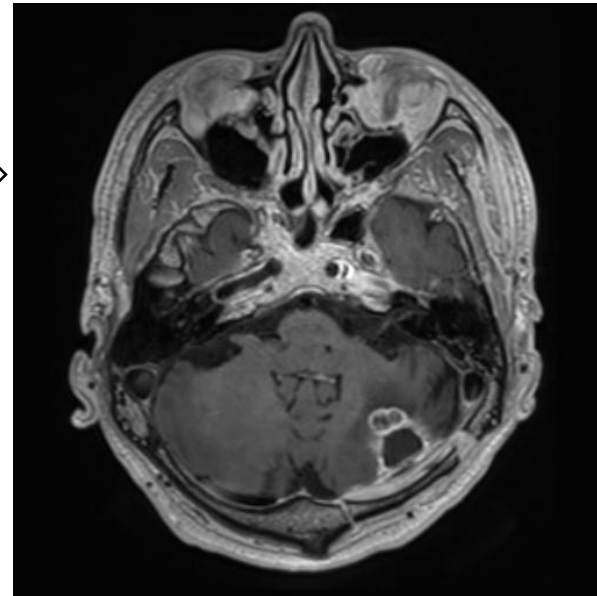
- 2022 Sep

Case#1, M/55



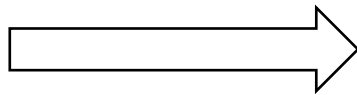
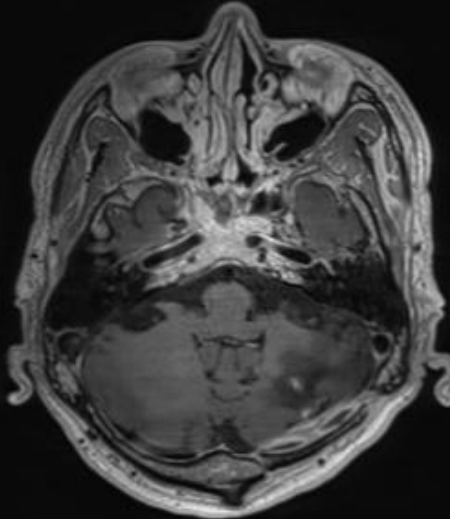
**Pembrolizumab
Pemetrexed
Carboplatin
(4th cycle)**

• 2022 Mar



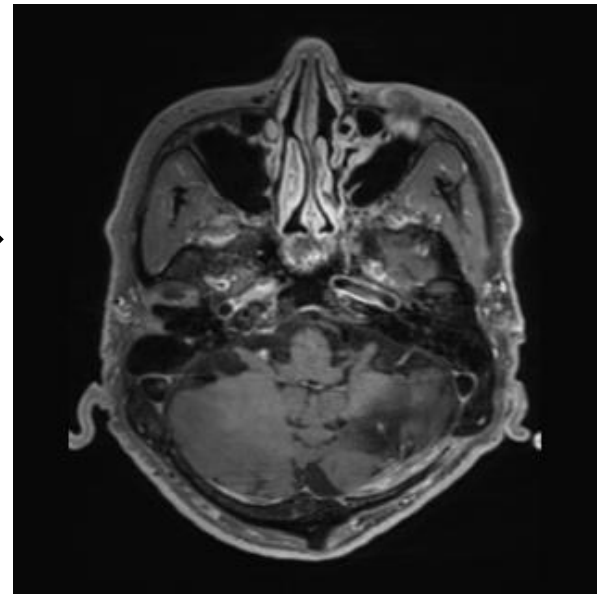
Watch and wait

• 2022 Sep



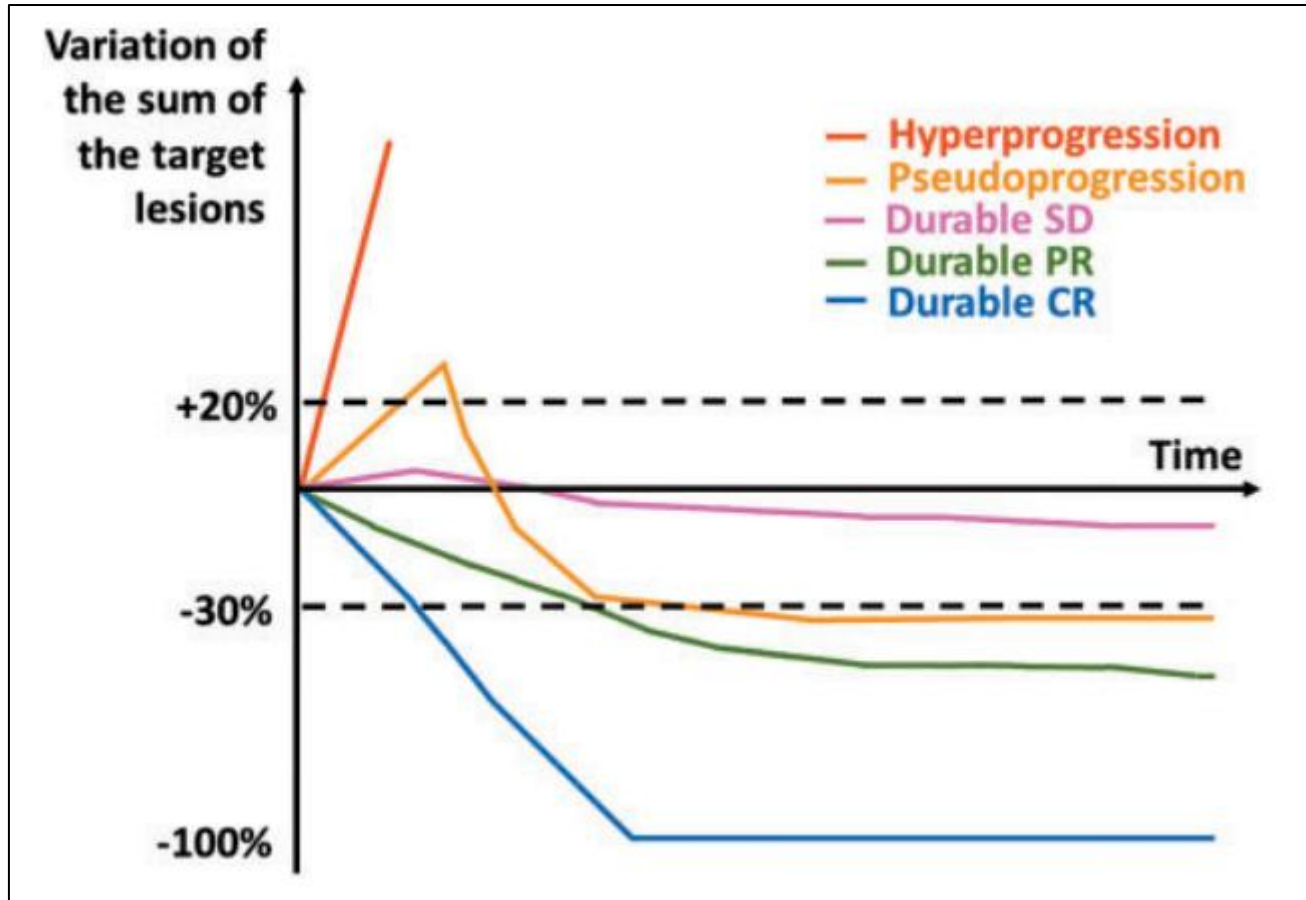
Watch and wait

• 2023 Mar

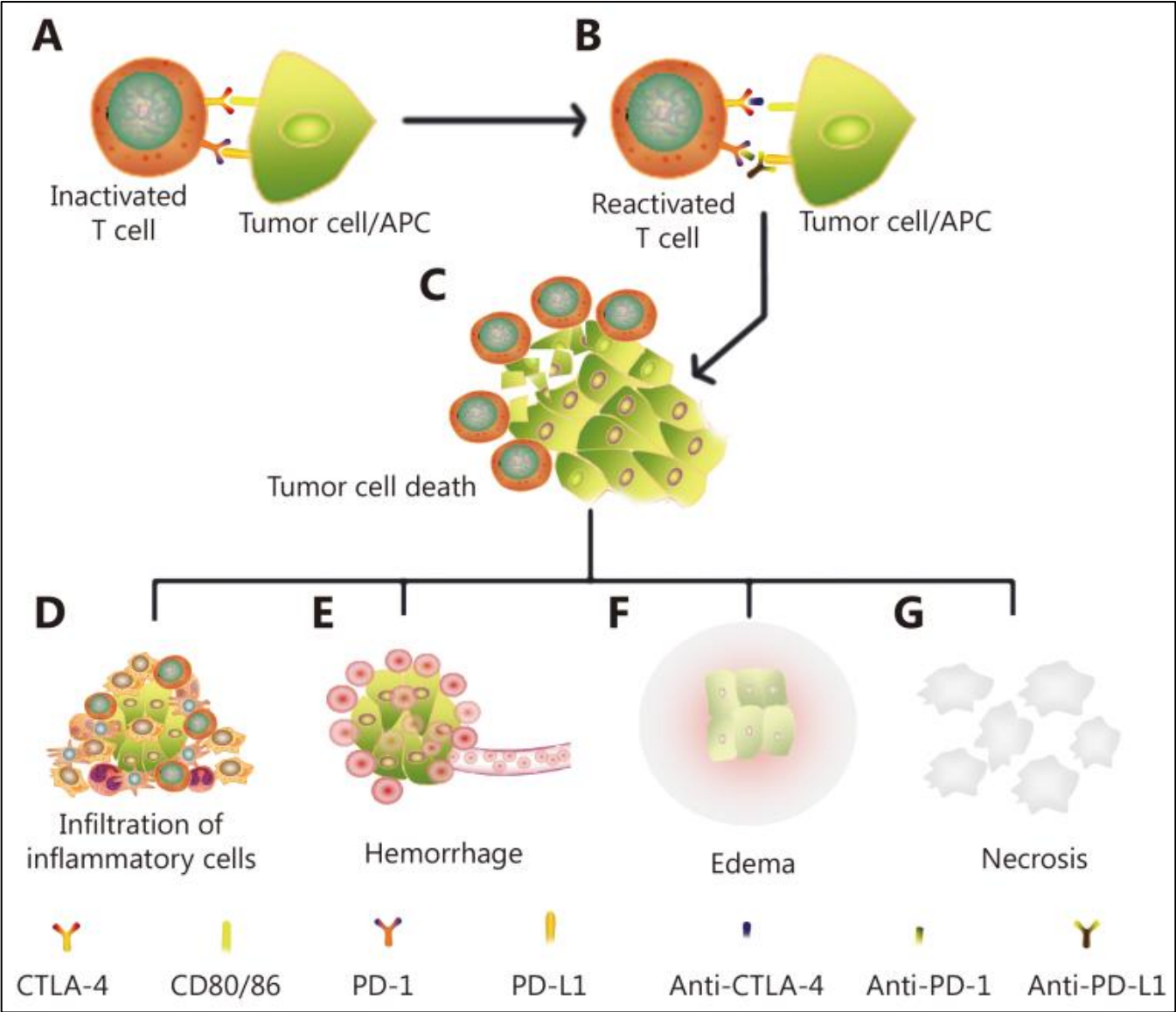


• 2025 Jan

Response pattern of IO



Pseudoprogression

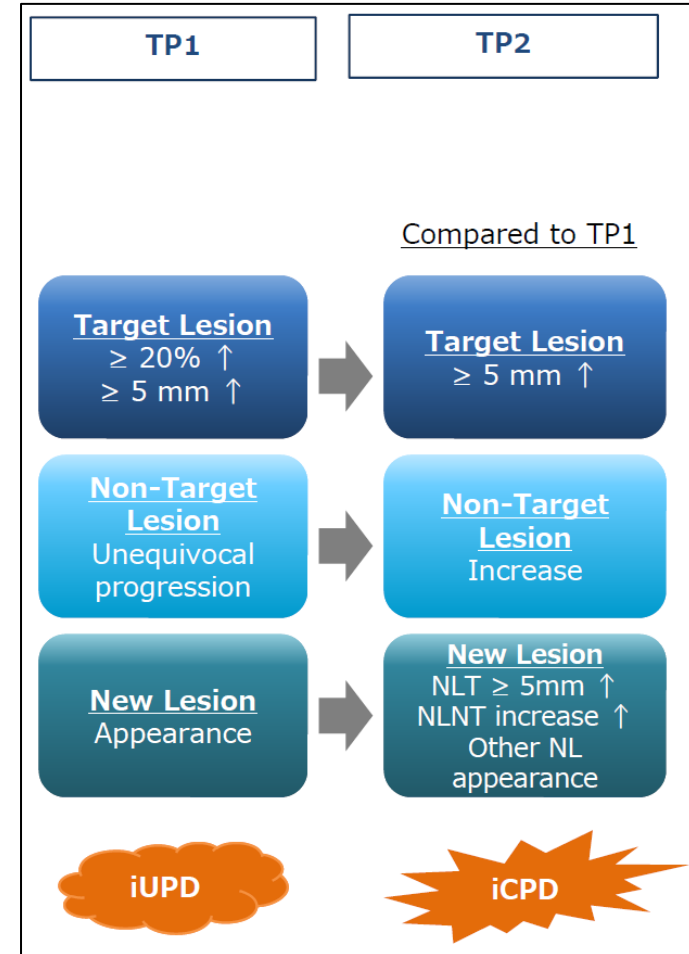


iRECIST



Details	RECIST 1.1	iRECIST
New Lesion	-	New target lesions and new non-target lesions
Overall Response After PD	PD after PD	Consider pseudoprogression
Confirmation of PD	-	New definitions (iUPD and iCPD)
Date of Progression	The first date of PD	If iCPD is confirmed, the first date of iUPD that is confirmed a progression date. Also, in case, iCPD can't be determined and iUPD date is used as progression date, need to gather reasons. (See page 9 for details)

iUPD : immune unconfirmed PD
iCPD : immune confirmed PD



Reset iUPD

iCPD is always determined at the next assessment after iUPD. If tumor shrinkage occurs following iUPD (iSD, iPR, or iCR is determined), then iUPD is reset so that iUPD needs to occur again.

If iCPD criteria is not met, compare with BL. Not a comparison with iUPD.

$\geq 20\%$ and ≥ 5 mm increase compared to nadir

Target lesion
sum of diameters

20 mm

10 mm

0 mm

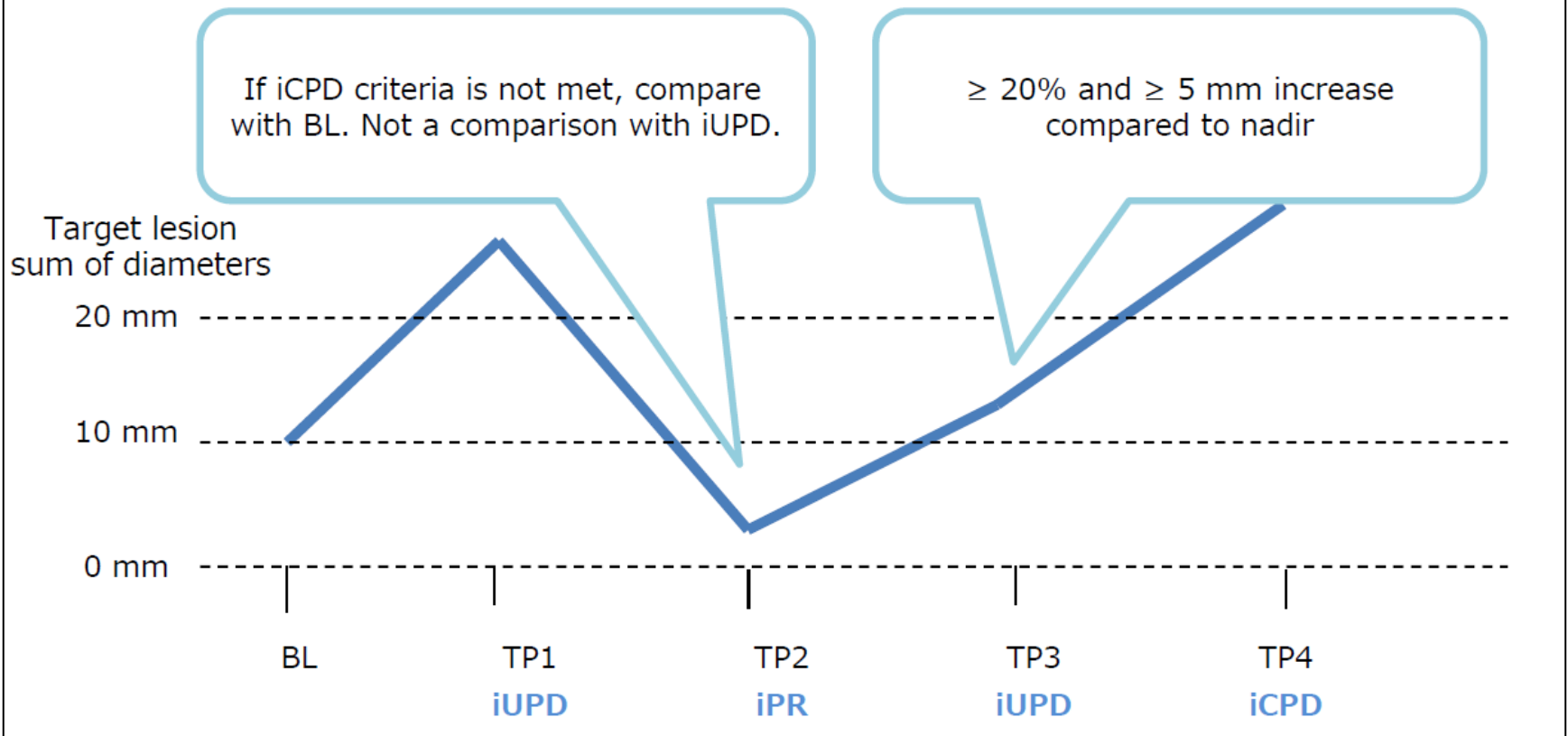
BL

TP1
iUPD

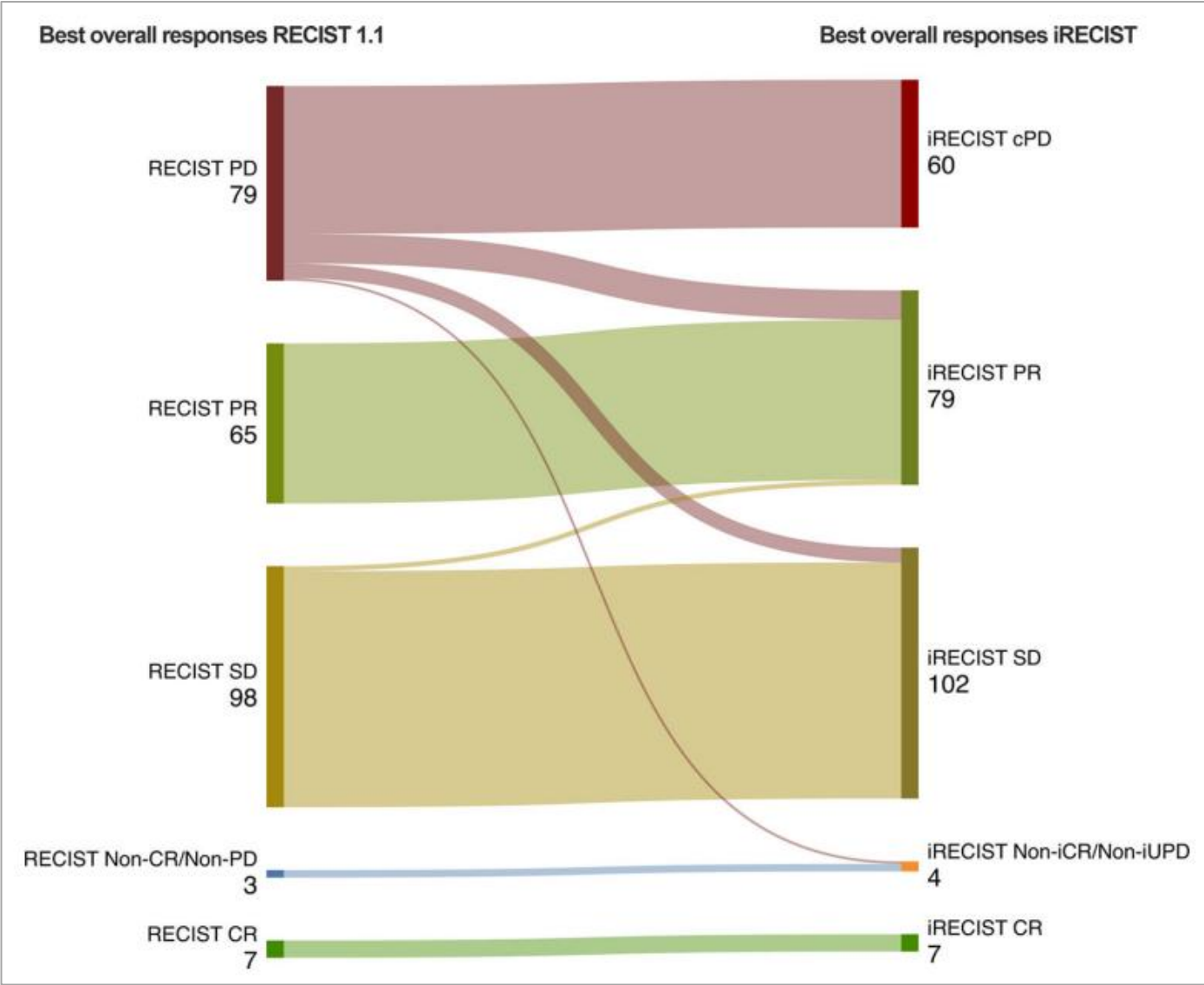
TP2
iPR

TP3
iUPD

TP4
iCPD



Pseudoprogression



Pseudoprogression



Table 2: Subgroup Analysis and Meta-Regression

Parameter	Pooled Incidence of Pseudoprogression (%)	Univariable Meta-Regression		Multivariable Meta-Regression	
		Odds Ratio	<i>P</i> Value	Odds Ratio	<i>P</i> Value
Definition of pseudoprogression					
Progressive disease followed by SD or PR or CR on irRC	8.0 (5.9, 10.0)	Reference		Reference	
Progressive disease followed by PR or CR on RECIST 1.1	5.2 (4.1, 6.3)	0.97 (0.94, 1.00)	.07	0.97 (0.94, 1.00)	.10
Progressive disease followed by SD or PR or CR on RECIST 1.1	6.6 (4.2, 9.0)	0.98 (0.95, 1.01)	.28	1.00 (0.95, 1.04)	.96
Progressive disease followed by SD or PR or CR on RECIST 1.0	4.5 (2.0, 7.0)	0.96 (0.92, 1.00)	.08	0.98 (0.93, 1.02)	.32
Tumor type					
Genitourinary	7.0 (5.2, 8.8)	Reference		Reference	
Melanoma	6.4 (4.6, 8.3)	0.99 (0.96, 1.01)	.57	0.98 (0.96, 1.01)	.32
NSCLC	5.0 (3.4, 6.7)	0.98 (0.95, 1.00)	.16	0.96 (0.93, 1.00)	.07
Squamous cell carcinoma	2.2 (0.2, 6.5)	0.95 (0.90, 1.00)	.08	0.96 (0.91, 1.01)	.15
Type of ICIs					
CTLA-4	9.7 (5.8, 13.5)	Reference		Reference	
PD-1	5.6 (4.6, 6.6)	0.96 (0.91, 1.00)	.10	0.97 (0.92, 1.02)	.31
PD-L1	6.8 (4.0, 9.6)	0.97 (0.91, 1.03)	.31	0.98 (0.92, 1.05)	.61

Pseudoprogression during Chemo-IO

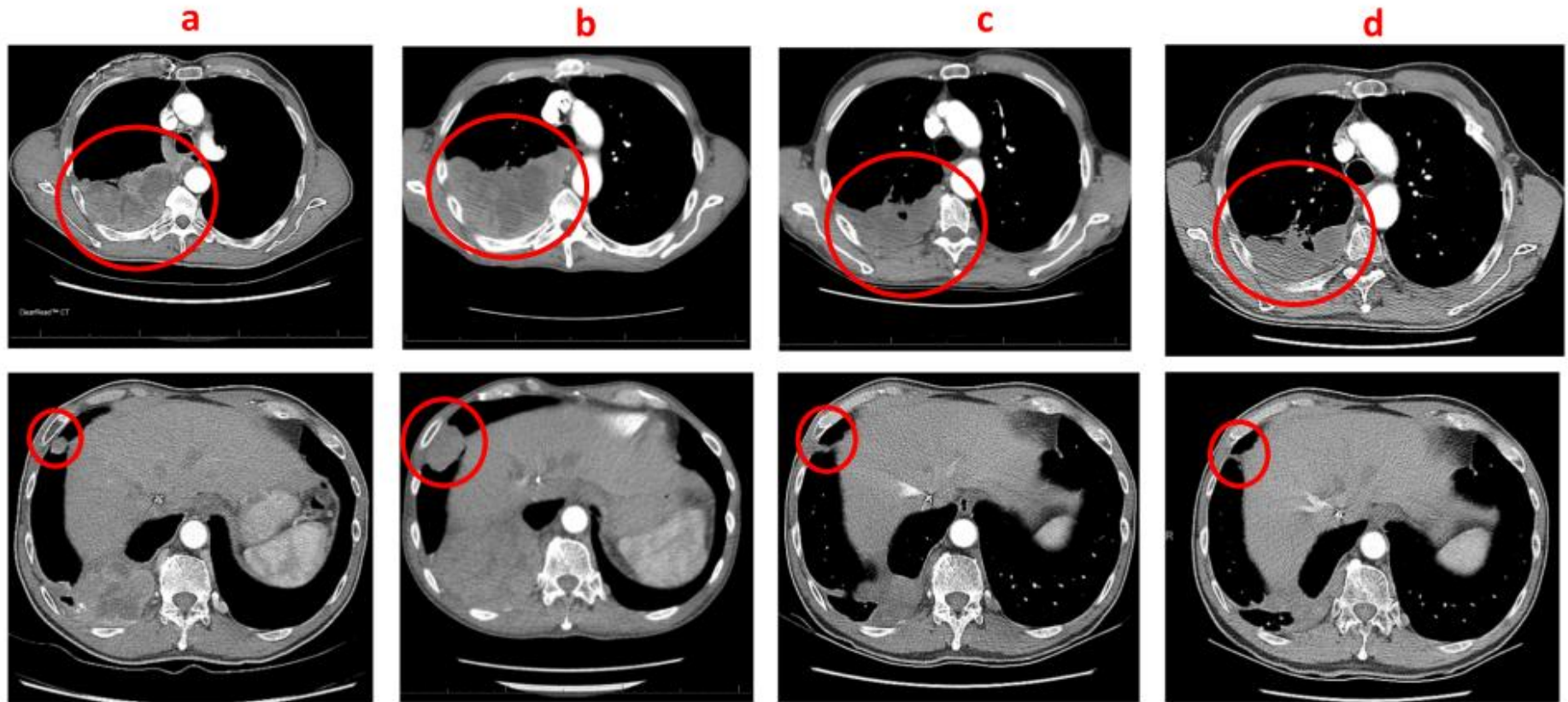
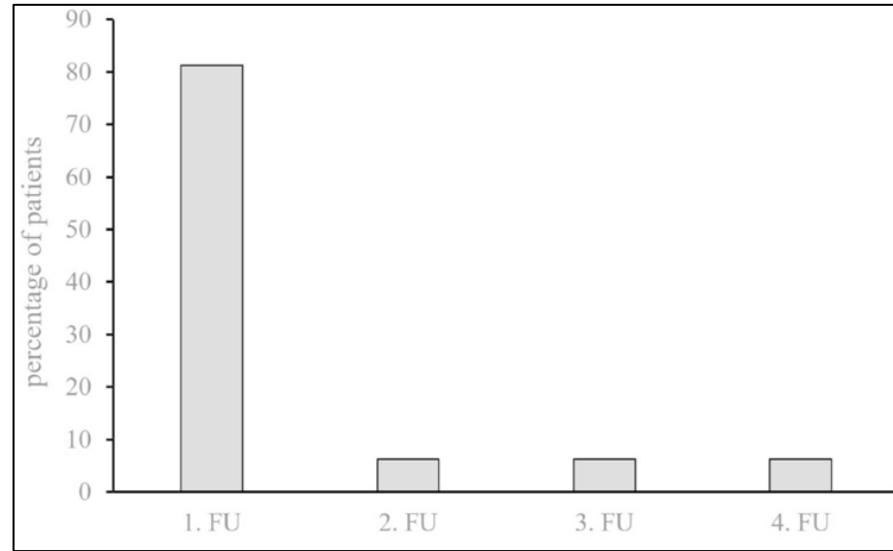


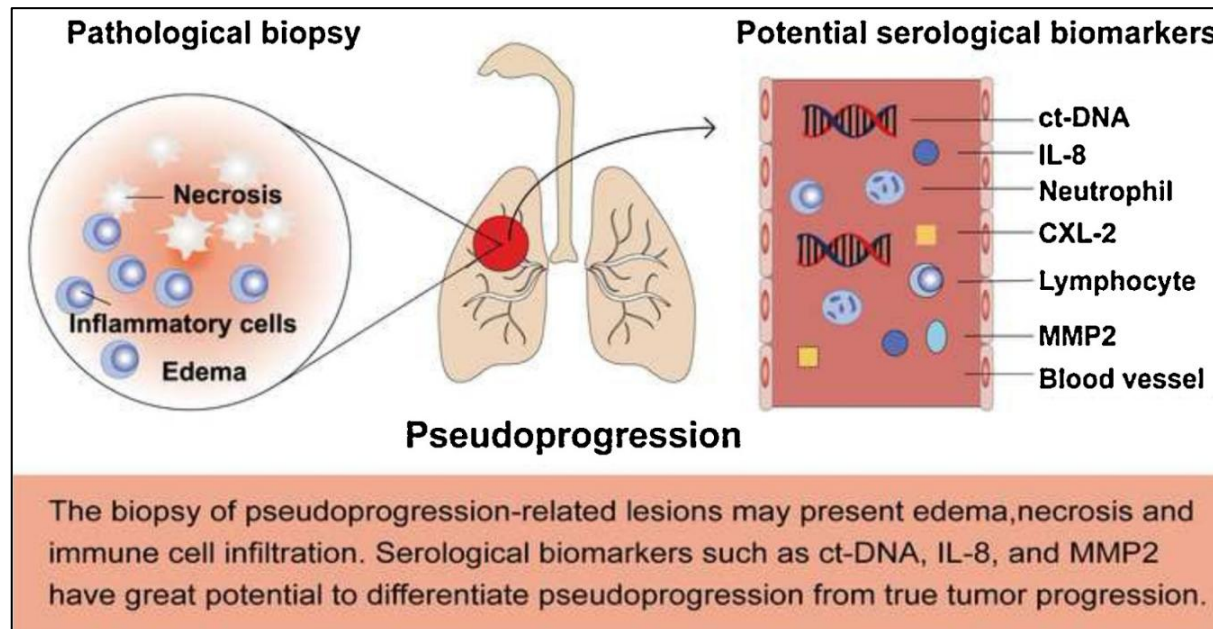
Fig. 1 Serial computed tomography axial images. **a** Baseline, **b** after 2 cycles of chemotherapy + immune checkpoint inhibitor (ICI), **c** after 4 cycles of chemotherapy + ICI and **d** 4 cycles of maintenance ICI. Circled regions denote right-sided thoracic tumors

- 65/M, Never smoker
- Sarcomatoid NSCLC, PD-L1 80%, NGS – METex14 skipping
- 1st line : pembrolizumab-pemetrexed-carboplatin

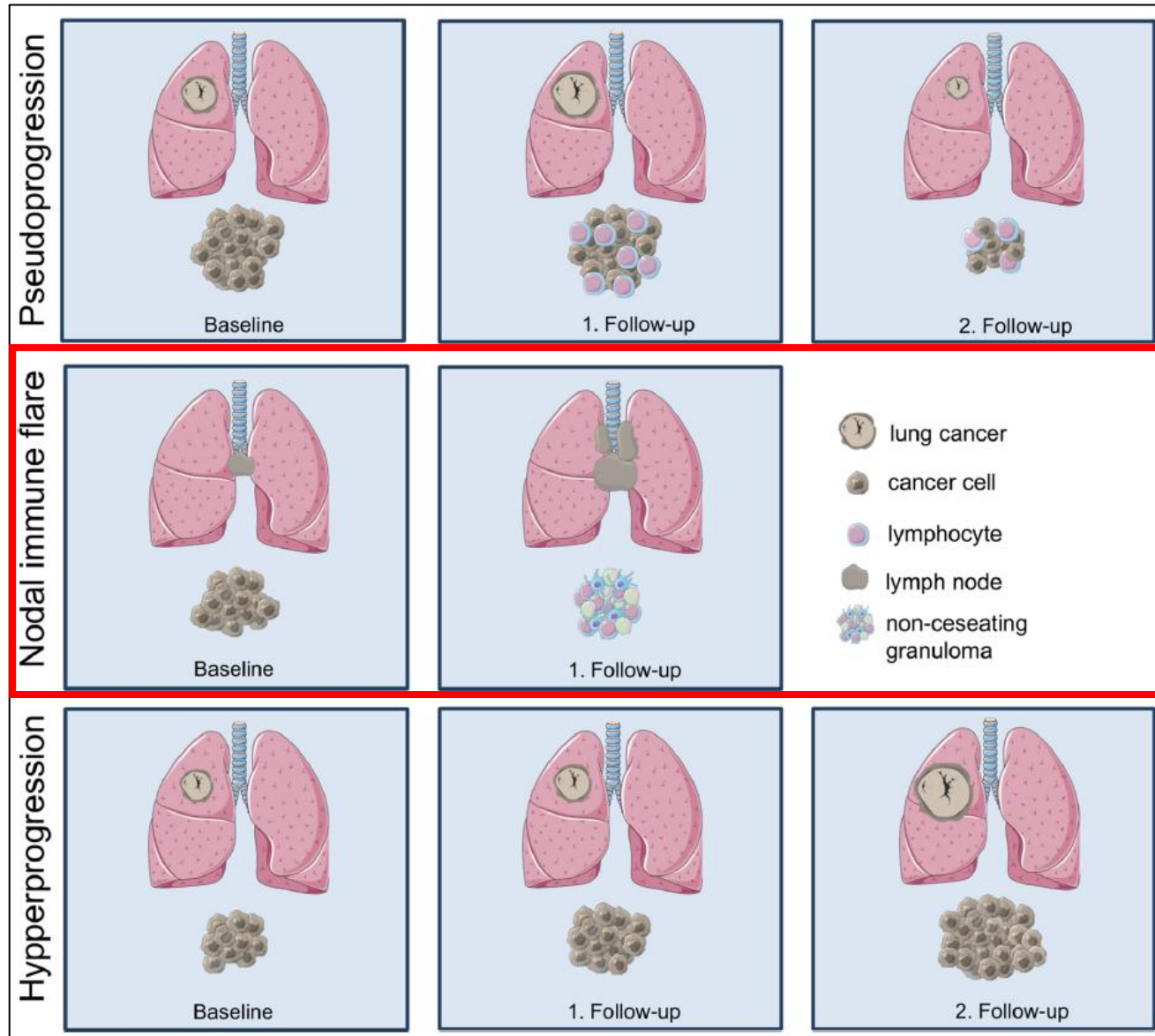
Pseudoprogression



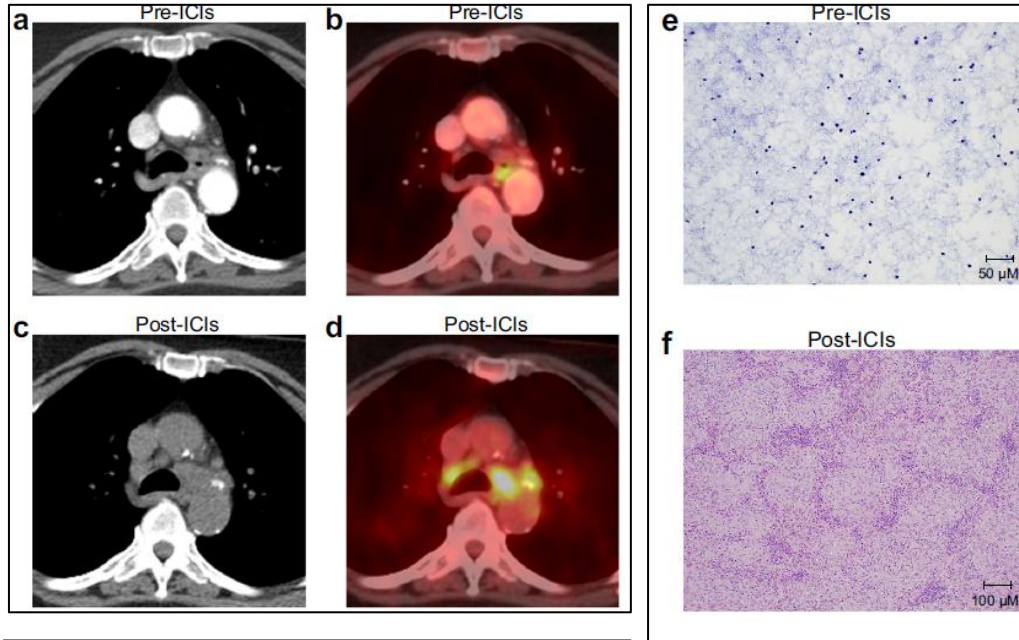
Cancer Imaging 2023;23:58



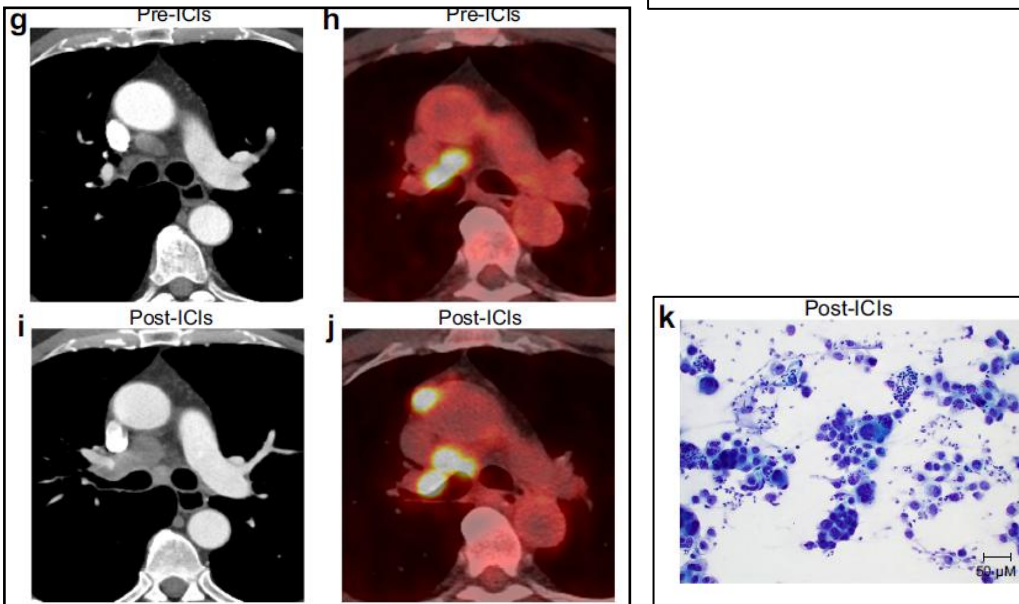
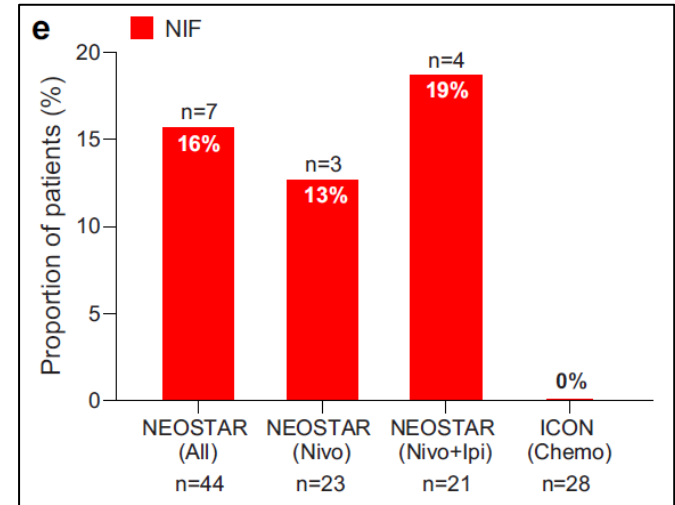
Atypical Response Patterns



Nodal immune flare



Nodal immune flare



Nodal PD

Case#2, M/67



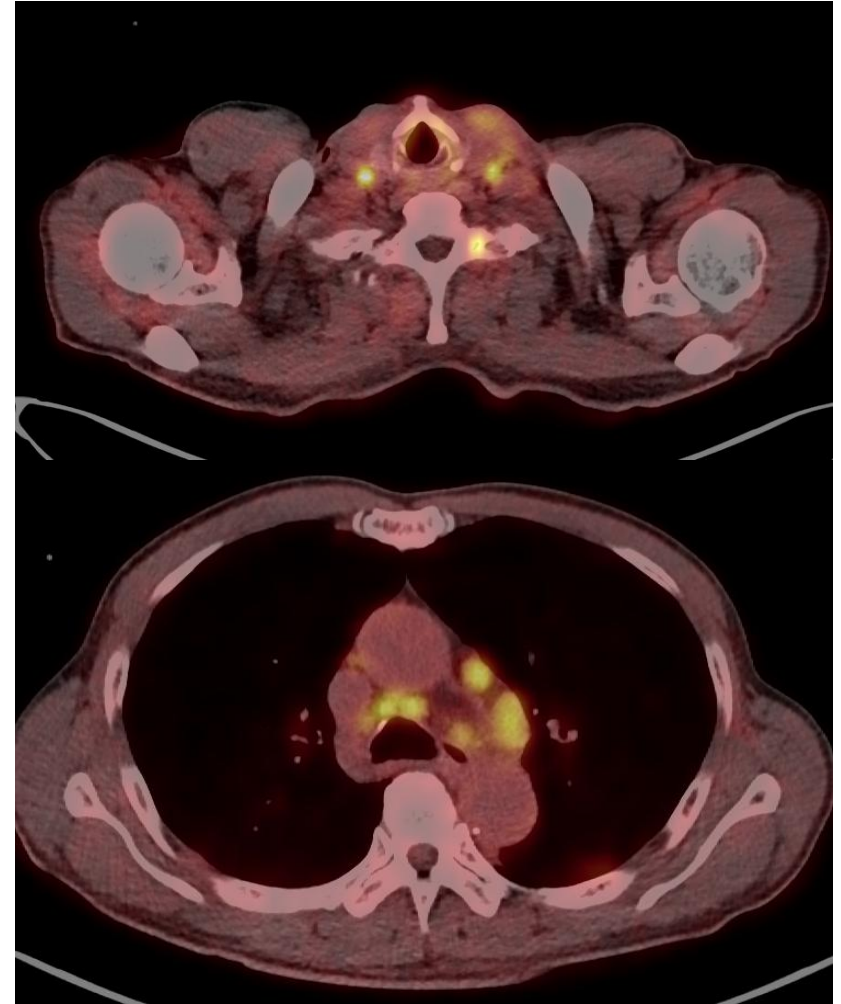
2019.12

M/67

Adenocarcinoma, cT2bN3M1c m/T1

Heavy smoker

EGFR/ALK (-/-), **PD-L1 SP263 40%**

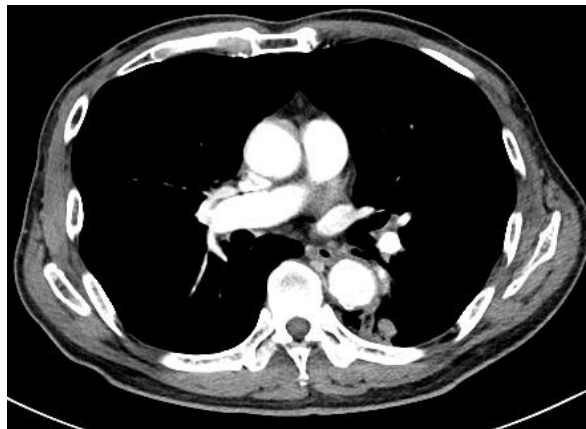


Case#2, M/67

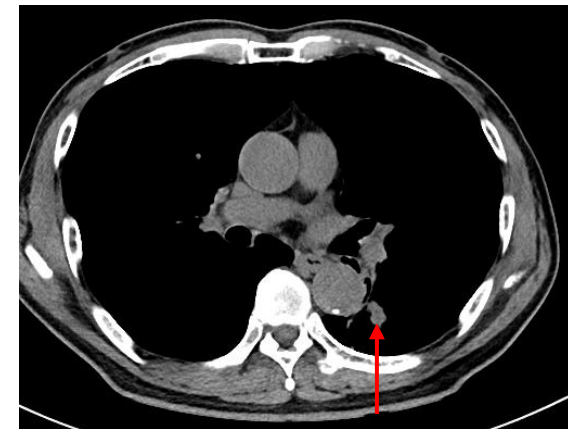


2019.12

Pemetrexed/cisplatin →

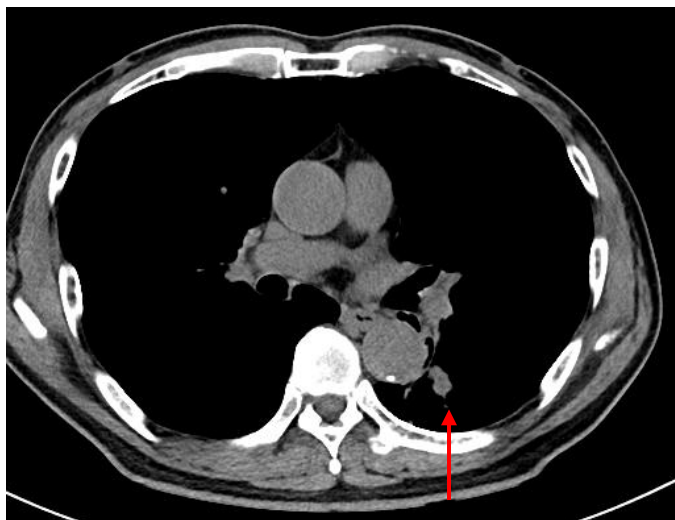


2020.5 PR



2020.7 **PD**

Atezolizumab →



2020.7



2022.7 CR



2023.12 CR

Case#2, M/67

Pemetrexed/cisplatin

Atezolizumab



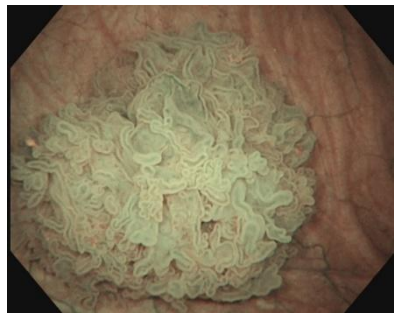
2019.12



2020.7 PD



2022.7 CR



2020.2 TUR-BT

Non-invasive papillary urothelial carcinoma, low grade



2020.6 TUR-BT

Tumor x 3

2020.9 TUR-BT

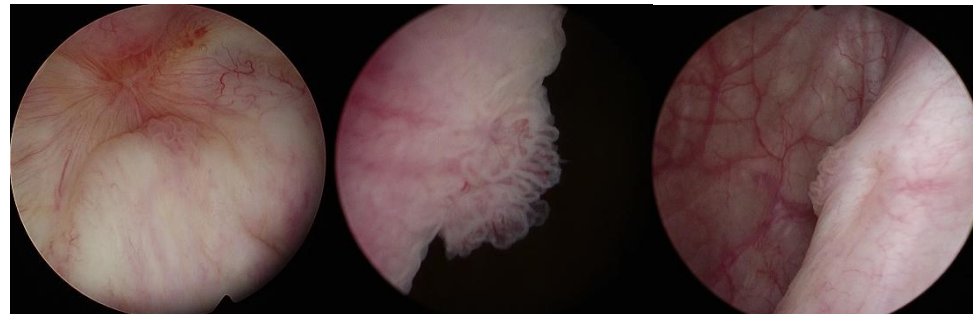
Tumor x 10

2020.12 TUR-BT

Tumor x 5

2021.3 TUR-BT

Tumor x 3



2021.6 TUR-BT

Tumor x 1

2021.10 TUR-BT

Tumor x 1

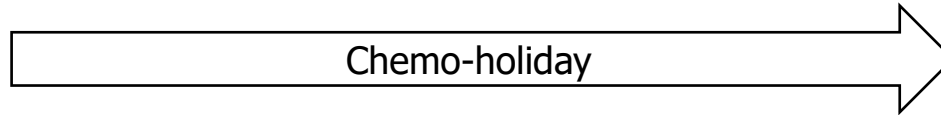
2022.5 TUR-BT

Tumor x 5

Case#2, M/67



2022.7 CR



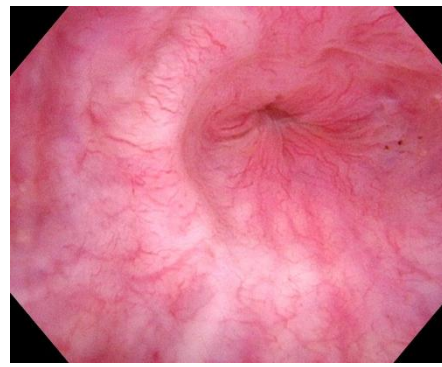
2024.12 CR



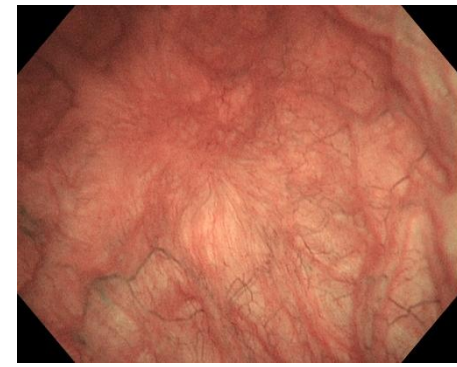
2022.8
Cystoscopy (-)



2022.11
Cystoscopy (-)



2023.8
Cystoscopy (-)



2025.1
Cystoscopy (-)

**경청해주셔서
감사합니다**