



RADIATION THERAPY PRACTICE CASES

The good, the bad & the ugly.

Case 1 ~ Solitary Lung

77-year-old married, white, non-Hispanic female presents with an enlarging right upper lobe lung nodule. Biopsy proved Squamous Cell Carcinoma. Patient is not a surgical candidate due to her comorbidities and decision made to proceed with SBRT.

5/15/23 CT Chest: Interval increase in a right upper lobe nodule now measuring 1.7 cm (previously 1.3 cm). This is suspicious for a slow-growing lung cancer. Recommend PET Scan.

5/24/23 PET Scan: Right upper lobe nodule measuring 1.6 cm has an SUV of 3.4. Hilar and mediastinal lymph nodes are below blood pool. No distant metastatic disease.

6/1/23 CT-Guided biopsy of 1.7 cm right upper lobe nodule = Well differentiated Squamous Cell Carcinoma (S23-1224). PD-L1 = 15%.

Course: C1 SBRT RUL

Treatment Site	Ref. ID	Energy	Dose/Fx	#Fx	Dose Corre (cGy)	Total Dose (cGy)	Start Date	End Date	Elapsed Days
RUL SBRT	RUL	6X	750	8 / 8	0	6,000	7/6/2023	7/17/2023	11

Clinical Treatment Plan: SBRT

Case 1 Practice

Date Therapy Started	
Date Radiation Ended	
Radiation Treatment Discontinued Early	
Therapy Facility	
Location of Radiation	
Number of Phases	
Total Dose (Across All Phases)	

Phase I Rad Primary Tx Volume	
Phase I Rad to Draining Lymph Node	
Phase I Rad Tx Modality	
Phase I External Beam Planning Technique	
Phase I Dose per Fraction	
Phase I Number of Fractions	
Phase I Total Dose	
Phase I Therapy Local Hospital ID	

Phase II Rad Primary Tx Volume	
Phase II Rad to Draining Lymph Node	
Phase II Rad Tx Modality	
Phase II External Beam Planning Technique	
Phase II Dose per Fraction	
Phase II Number of Fractions	
Phase II Total Dose	
Phase II Therapy Local Hospital ID	

Phase III Rad Primary Tx Volume	
Phase III Rad to Draining Lymph Node	
Phase III Rad Tx Modality	
Phase III External Beam Planning Technique	
Phase III Dose per Fraction	
Phase III Number of Fractions	
Phase III Total Dose	
Phase III Therapy Local Hospital ID	

Case 2: Lung with boost

75-year-old married, black, non-Hispanic male presents with c/o cough and SOA. Imaging notes and RLL mass 'concerning' for primary lung malignancy. Patient underwent bronchoscopy with FNA of Station 11 which was positive for adenocarcinoma. CTG biopsy of RLL mass was also positive for PD Adenocarcinoma.

06/19/2023 CT chest: There is a 3.2 x 1.5 cm spiculated nodule in the right hilum which appears to involve the proximal right lower lobe bronchus.

IMPRESSION: There is a spiculated masslike density in the right infrahilar region of the right lower lobe which appears to be just posterior to the right mainstem bronchus and involving the right lower lobe bronchial. This is seen best on axial image number 82. This is concerning for primary lung malignancy. This may be amenable to bronchoscopic evaluation. Nuclear medicine PET scan may also be utilized. There is diffuse emphysema and areas of nodular airspace disease involving the right lower lobe and the right middle lobe consistent with pneumonia.

6/20/2023 Robotic navigational assisted bronchoscopy with radial probe endobronchial ultrasound, transbronchial needle aspiration, transbronchial lung biopsies, brushings, bronchoalveolar lavage, bronchial washings.

6/20/2023 (CY23-1234) Right lower lobe, BAL & brushings: Atypical cells suspicious for adenocarcinoma.

Lymph Node Station 7: Negative for malignant cells
Lymph node, Station 11: Positive for malignant cells, adenocarcinoma.

6/21/23 (S23-4321) Lung, Right Lower Lobe, Biopsy: Poorly differentiated Adenocarcinoma.

Course: C1 RLL
Treatment Site: RLL 60Gy
Ref. ID: RLL
Energy: 6X-FFF
Dose/Fx (cGy): 200
#Fx: 30 / 30
Dose Correction (cGy): 0
Total Dose (cGy): 6,000
Start Date: 7/17/2023
End Date: 8/25/2023
Elapsed Days: 39

Course: C1 RLL
Treatment Site: RLL boost
Ref. ID: RLL Boost
Energy: 6X-FFF
Dose/Fx (cGy): 200
#Fx: 3 / 3
Dose Correction (cGy): 0
Total Dose (cGy): 600
Start Date: 8/28/2023
End Date: 8/30/2023
Elapsed Days: 2

From completion note as well: Volumetric modulated arc therapy was employed using 6x-FFF photons. Daily pretreatment image guidance with CBCT was performed. The patient received 6000 cGy in 30 daily fractions of 200 cGy each, followed by a boost field receiving 600 cGy in 3 fractions.

Clinical Treatment Plan: IMRT/VMAT/Rapid Arc

Case 2 Practice

Date Therapy Started	
Date Radiation Ended	
Radiation Treatment Discontinued Early	
Therapy Facility	
Location of Radiation	
Number of Phases	
Total Dose (Across All Phases)	

Phase I Rad Primary Tx Volume	
Phase I Rad to Draining Lymph Node	
Phase I Rad Tx Modality	
Phase I External Beam Planning Technique	
Phase I Dose per Fraction	
Phase I Number of Fractions	
Phase I Total Dose	
Phase I Therapy Local Hospital ID	

Phase II Rad Primary Tx Volume	
Phase II Rad to Draining Lymph Node	
Phase II Rad Tx Modality	
Phase II External Beam Planning Technique	
Phase II Dose per Fraction	
Phase II Number of Fractions	
Phase II Total Dose	
Phase II Therapy Local Hospital ID	

Phase III Rad Primary Tx Volume	
Phase III Rad to Draining Lymph Node	
Phase III Rad Tx Modality	
Phase III External Beam Planning Technique	
Phase III Dose per Fraction	
Phase III Number of Fractions	
Phase III Total Dose	
Phase III Therapy Local Hospital ID	

Case 3: Metastatic Lung

56-year-old single, white, Hispanic, female presents with a painful lower back lesion which biopsy proved as metastatic adenocarcinoma from a lung primary. Imaging revealed a 5.0 cm right upper lobe mass, multiple right hilar lymphadenopathy, left adrenal, subcutaneous soft tissue nodules and multiple brain lesions c/w metastatic disease. Decision made for palliative systemic therapy with palliative radiation therapy.

8/4/23 CT C/A/P: CT scan of the chest with IV contrast demonstrating 4.8 cm mass in the posterior and medial right upper lobe with confluent right hilar adenopathy. CT scan of the abdomen and pelvis with IV contrast demonstrating 2.5 cm left adrenal mass.

8/14/23 PET:

1. 5 cm FDG avid mass within right upper lobe, most compatible with primary lung malignancy.
2. Right hilar lymphadenopathy is mildly FDG avid, concerning for metastasis.
3. Left adrenal mass is significantly FDG avid, likely metastatic.
4. FDG avid soft tissue nodules within left posterior lower back and left medial gluteal region, likely metastatic.
5. Partially solid and cystic FDG avid mass within left posterior lower thigh, likely metastatic. It has a component of fluid and gas, which may represent a component of necrosis and/or infection.
6. Suggestion of 2.2 cm FDG avid mass within left frontal lobe with surrounding vasogenic edema, not well characterized on this exam, but concerning for metastasis. Recommend evaluation with MRI brain with/without IV contrast.

8/20/23 MRI Brain: There are at least 10 metastatic lesions in the brain with the largest occurring in the left measuring 26 mm. The metastasis is associated with surrounding vasogenic edema and mass effect resulting in sulcal effacement without midline shift or herniation.

7/15/23 Skin, Left Lower Back/Trunk: Metastatic adenocarcinoma, favor lung primary.

Course: C1 LOWER BACK
Treatment Site: LOWER BACK
Ref. ID: PTV_BACK
Energy: 18X/6X
Dose/Fx (cGy): 800
#Fx: 1 / 1
Dose Correction (cGy): 0
Total Dose (cGy): 800
Start Date: 3/29/2023
End Date: 3/29/2023
Elapsed Days: 0

Course: C2 WHOLE BRAIN
Treatment Site: WHOLE BRAIN
Ref. ID: PTV_WB
Energy: 6X
Dose/Fx (cGy): 300
#Fx: 10 / 10
Dose Correction (cGy): 0
Total Dose (cGy): 3,000
Start Date: 3/30/2023
End Date: 4/12/2023
Elapsed Days: 13

Course: C3 LT LEG 3D
Treatment Site: LT LEG 3D
Ref. ID: PTV_LeftLeg
Energy: 6X
Dose/Fx (cGy): 800
#Fx: 1 / 1
Dose Correction (cGy): 0
Total Dose (cGy): 800
Start Date: 4/4/2023
End Date: 4/4/2023
Elapsed Days: 0

Clinical Treatment Plan: 3D technique

Case 3 Practice

Date Therapy Started	
Date Radiation Ended	
Radiation Treatment Discontinued Early	
Therapy Facility	
Location of Radiation	
Number of Phases	
Total Dose (Across All Phases)	

Phase I Rad Primary Tx Volume	
Phase I Rad to Draining Lymph Node	
Phase I Rad Tx Modality	
Phase I External Beam Planning Technique	
Phase I Dose per Fraction	
Phase I Number of Fractions	
Phase I Total Dose	
Phase I Therapy Local Hospital ID	

Phase II Rad Primary Tx Volume	
Phase II Rad to Draining Lymph Node	
Phase II Rad Tx Modality	
Phase II External Beam Planning Technique	
Phase II Dose per Fraction	
Phase II Number of Fractions	
Phase II Total Dose	
Phase II Therapy Local Hospital ID	

Phase III Rad Primary Tx Volume	
Phase III Rad to Draining Lymph Node	
Phase III Rad Tx Modality	
Phase III External Beam Planning Technique	
Phase III Dose per Fraction	
Phase III Number of Fractions	
Phase III Total Dose	
Phase III Therapy Local Hospital ID	

Case 4: Endometrium

Course: C1 PELVIS/INDOME
Treatment Site: PELVIS/ENDOME
Ref. ID: PTV_PELVIS 50.4
Energy: 6X-FFF
Dose/Fx (cGy): 180
#Fx: 28 / 28
Dose Correction (cGy): 0
Total Dose (cGy): 5,040
Start Date: 1/5/2023
End Date: 2/13/2023
Elapsed Days: 39

From completion note as well: Pt completed 28 planned fractions of external beam radiotherapy over the course of 39 elapsed days. Radiotherapy was delivered via volumetric modulated arc therapy, utilizing 6 MV photons.

Clinical Treatment Plan: IMRT/VMAT/Rapid Arc

68-year-old married, black, Hispanic female with c/o PMB. Endometrial biopsy proved FIGO grade 1 Endometroid Adenocarcinoma. Patient elected for TAHBSO with FIGO stage IIB Endometrioid Adenocarcinoma, Grade 1. XRT recommended.

Case 4 Practice

Date Therapy Started	
Date Radiation Ended	
Radiation Treatment Discontinued Early	
Therapy Facility	
Location of Radiation	
Number of Phases	
Total Dose (Across All Phases)	

Phase I Rad Primary Tx Volume	
Phase I Rad to Draining Lymph Node	
Phase I Rad Tx Modality	
Phase I External Beam Planning Technique	
Phase I Dose per Fraction	
Phase I Number of Fractions	
Phase I Total Dose	
Phase I Therapy Local Hospital ID	

Phase II Rad Primary Tx Volume	
Phase II Rad to Draining Lymph Node	
Phase II Rad Tx Modality	
Phase II External Beam Planning Technique	
Phase II Dose per Fraction	
Phase II Number of Fractions	
Phase II Total Dose	
Phase II Therapy Local Hospital ID	

Phase III Rad Primary Tx Volume	
Phase III Rad to Draining Lymph Node	
Phase III Rad Tx Modality	
Phase III External Beam Planning Technique	
Phase III Dose per Fraction	
Phase III Number of Fractions	
Phase III Total Dose	
Phase III Therapy Local Hospital ID	

Case 5: Thyroid I-131

44-year-old single, black, non-Hispanic male with multinodular goiter s/p total thyroidectomy with multifocal invasive papillary carcinoma, follicular variant, confined to thyroid. Pt presents to Facility A for I-131 treatment.

PROCEDURE: NM THERAPY ABLATION THYROID CANCER

DATE: 7/8/2024

COMPARISON: None

INDICATIONS: thyroid cancer

RADIONUCLIDE: 155 mCi I-131 Capsule(s) - P.O.

FINDINGS:

The patient is post-thyroidectomy for papillary thyroid cancer.

The rationale and technique of I 131 ablation was discussed with the patient, including precautions related to reduction of exposure to self and others. The importance of hydration and maintaining salivary function over the next 72 hours was emphasized.

The remote possibility of radiation induced malignancy was discussed. The importance of returning for the I 131 whole body scan was emphasized.

The patient is post-hysterectomy and has a plan at home.

The patient's questions are answered. Consent was granted. The appropriate paperwork was signed.

I 131 151 mCi was administered p.o. without incident.

IMPRESSION:

Uneventful I 131 ablation for thyroid malignancy.

PROCEDURE: NM I131 POST THERAPY SCAN

COMPARISON: HARDIN MEMORIAL HOSPITAL, NM, NM THERAPY ABLATION THYROID CANCER
8/24/2024, 14:00.

INDICATIONS: papillary thyroid ca

FINDINGS: Prominent tracer uptake is noted within the thyroid bed. No abnormal tracer uptake is identified elsewhere to suggest metastatic disease.

IMPRESSION: No evidence of metastatic disease.

Case 5 Practice

Date Therapy Started	
Date Radiation Ended	
Radiation Treatment Discontinued Early	
Therapy Facility	
Location of Radiation	
Number of Phases	
Total Dose (Across All Phases)	

Phase I Rad Primary Tx Volume	
Phase I Rad to Draining Lymph Node	
Phase I Rad Tx Modality	
Phase I External Beam Planning Technique	
Phase I Dose per Fraction	
Phase I Number of Fractions	
Phase I Total Dose	
Phase I Therapy Local Hospital ID	

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Phase II Rad to Draining Lymph Node	
Phase II Rad Tx Modality	
Phase II External Beam Planning Technique	
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Phase III Rad Primary Tx Volume	
Phase III Rad to Draining Lymph Node	
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