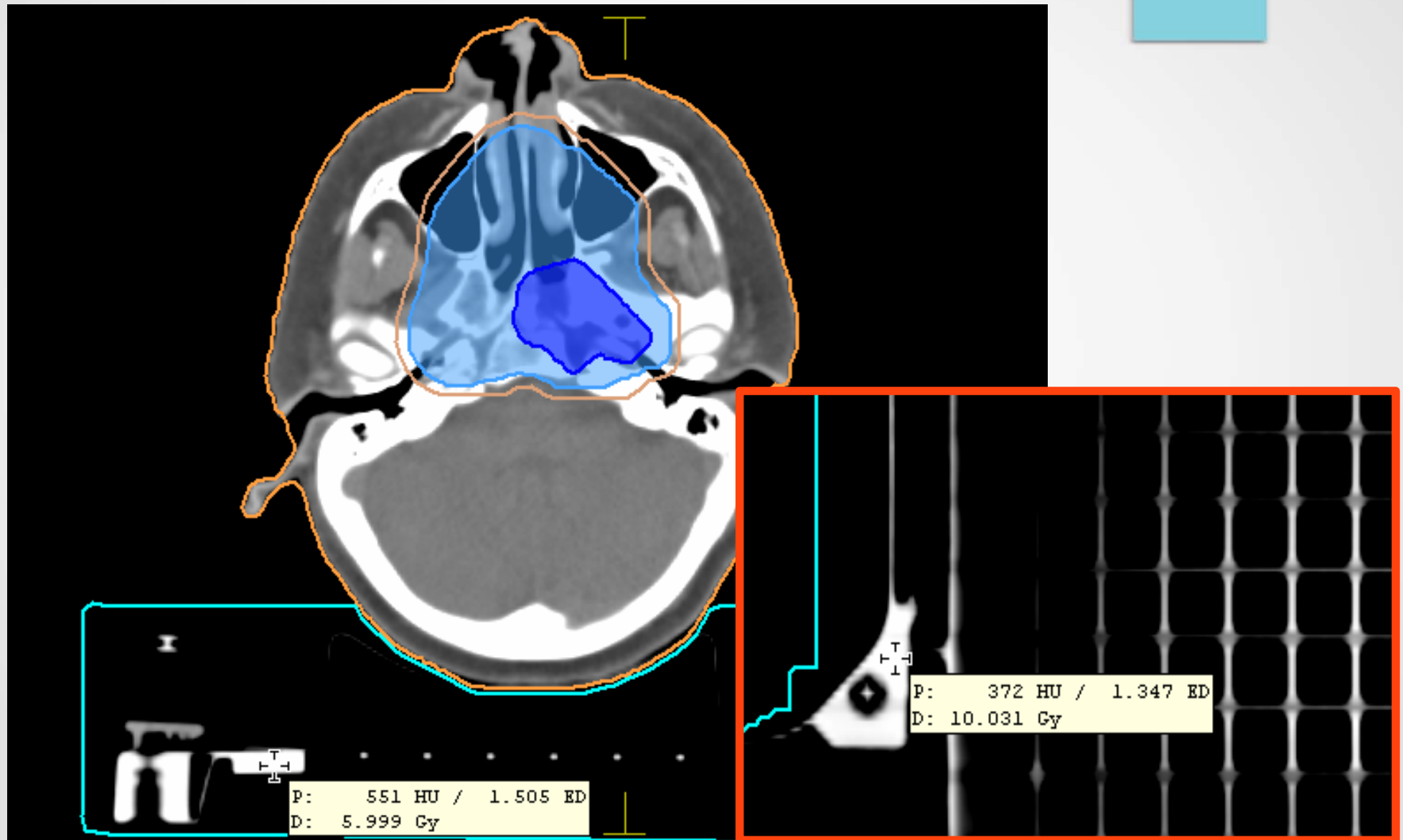


Vmat – Bas Boyun

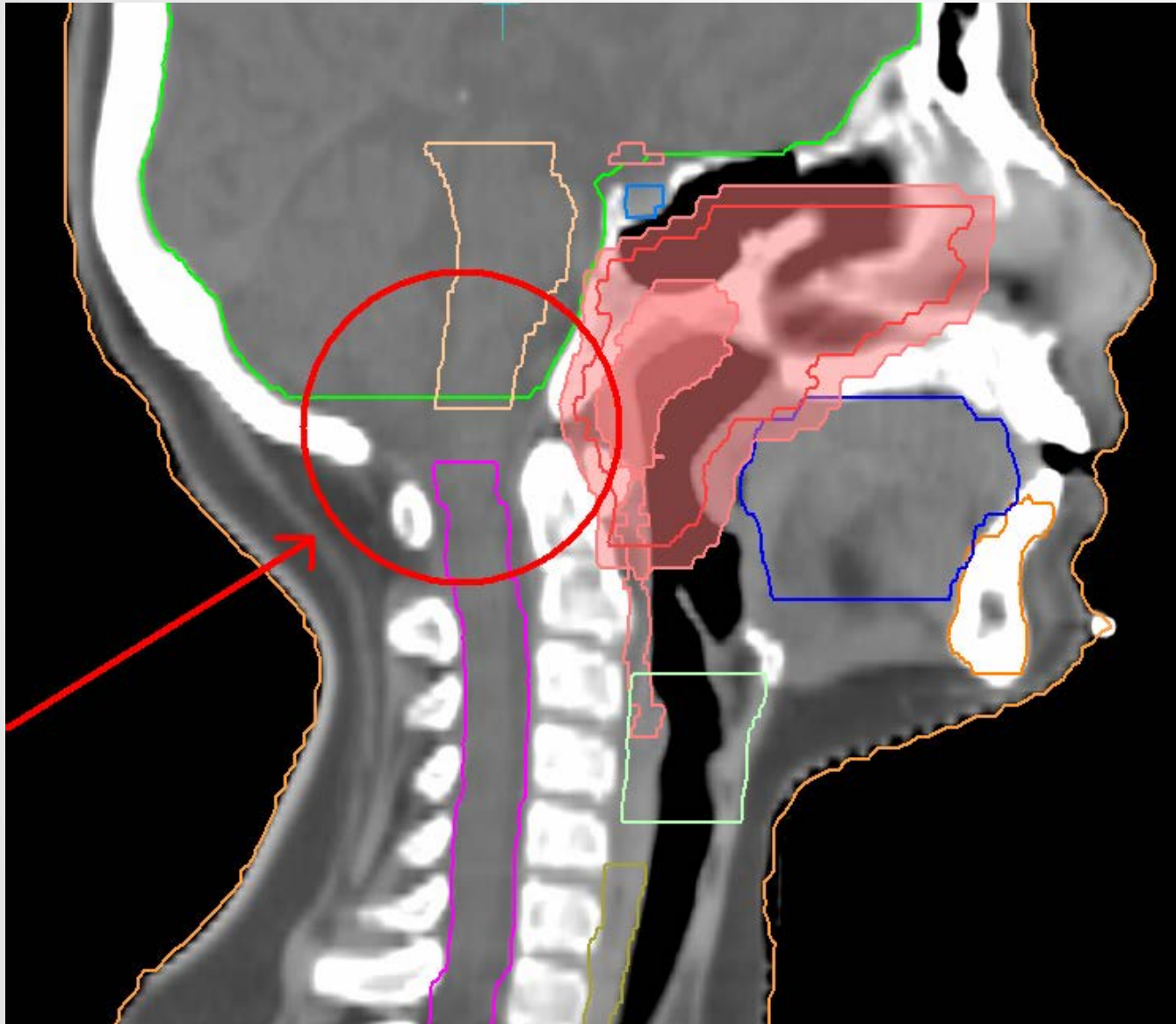


emin.tavlayan

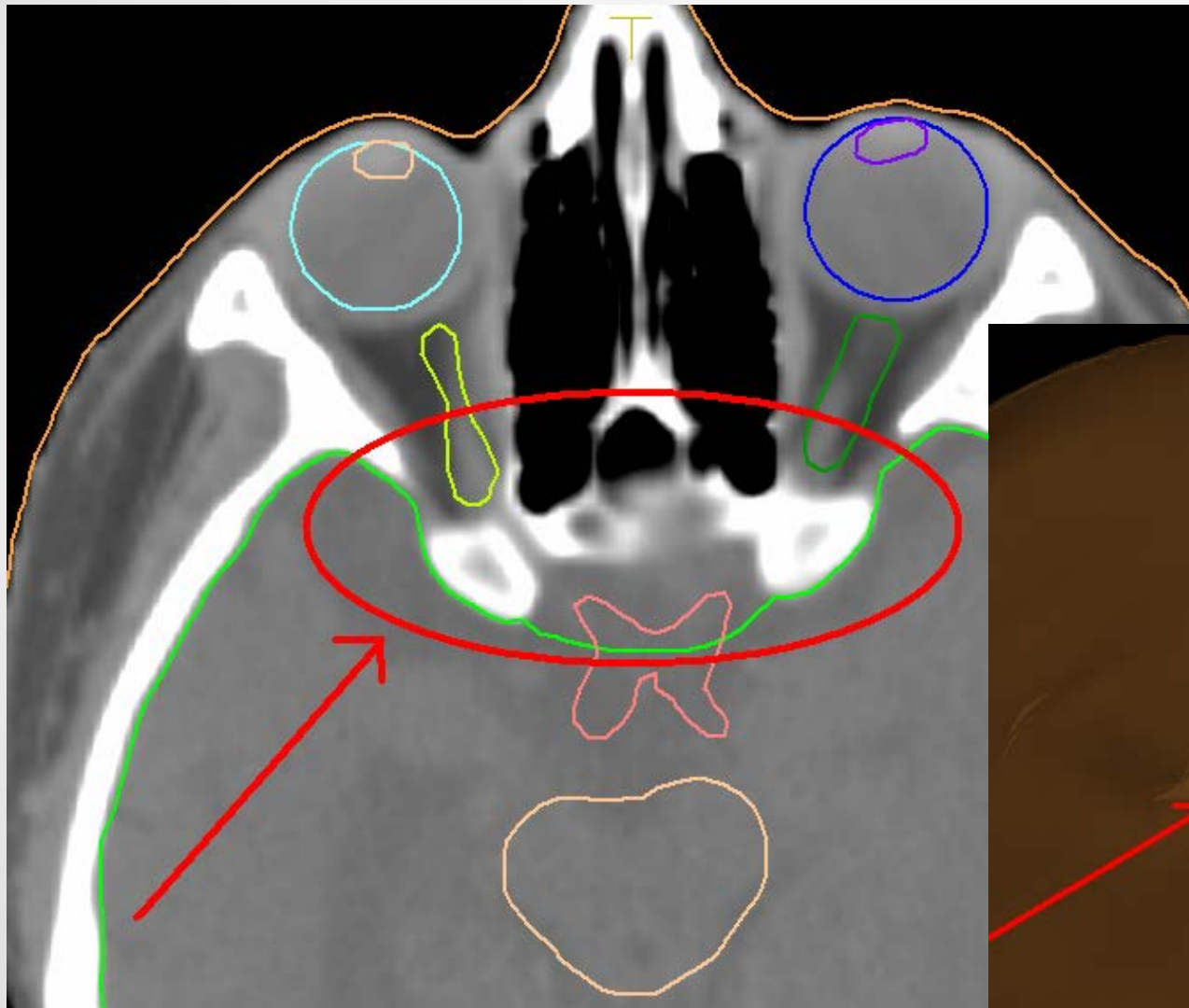
Hazırlık - board



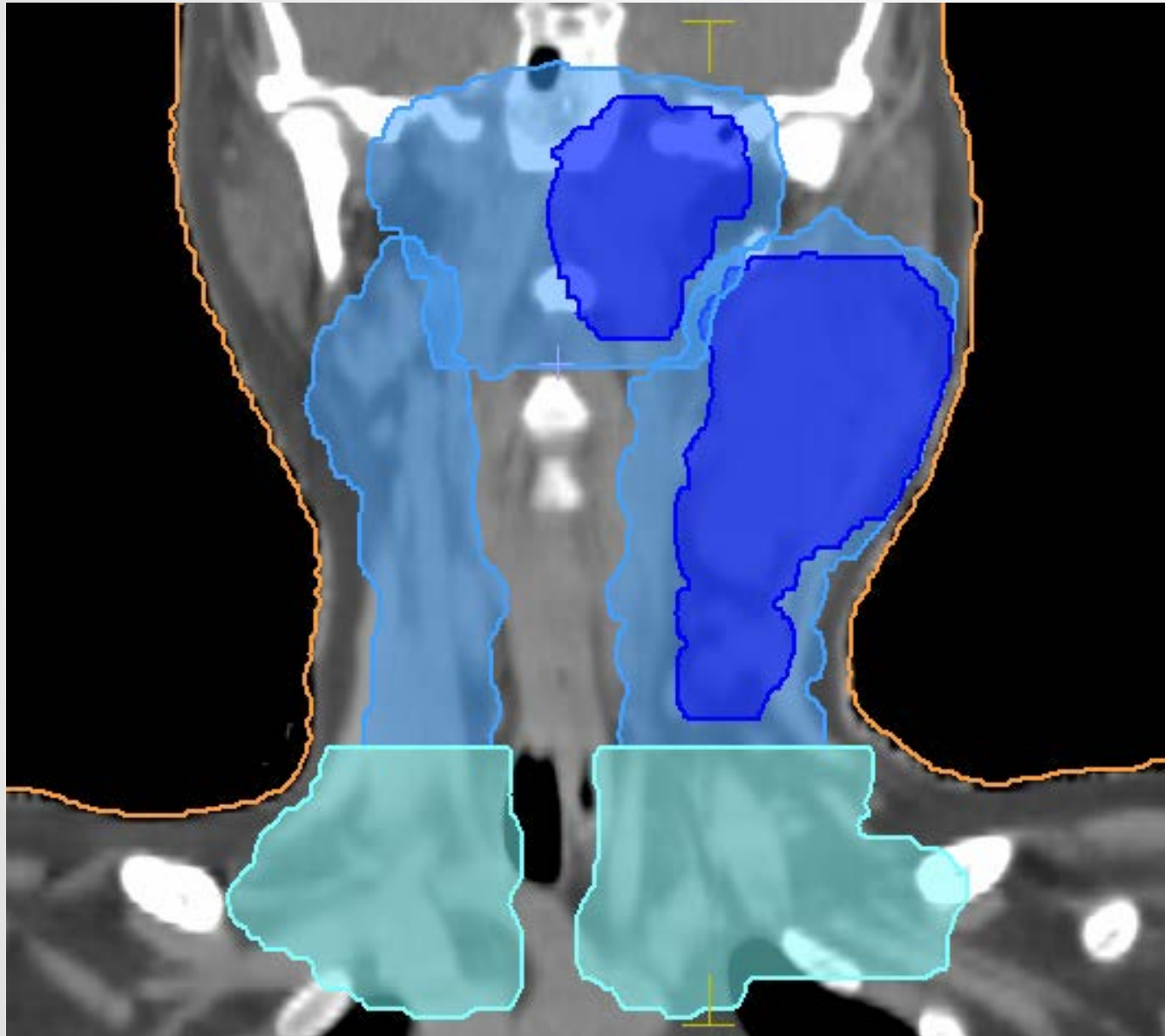
Hazırlık - kontur



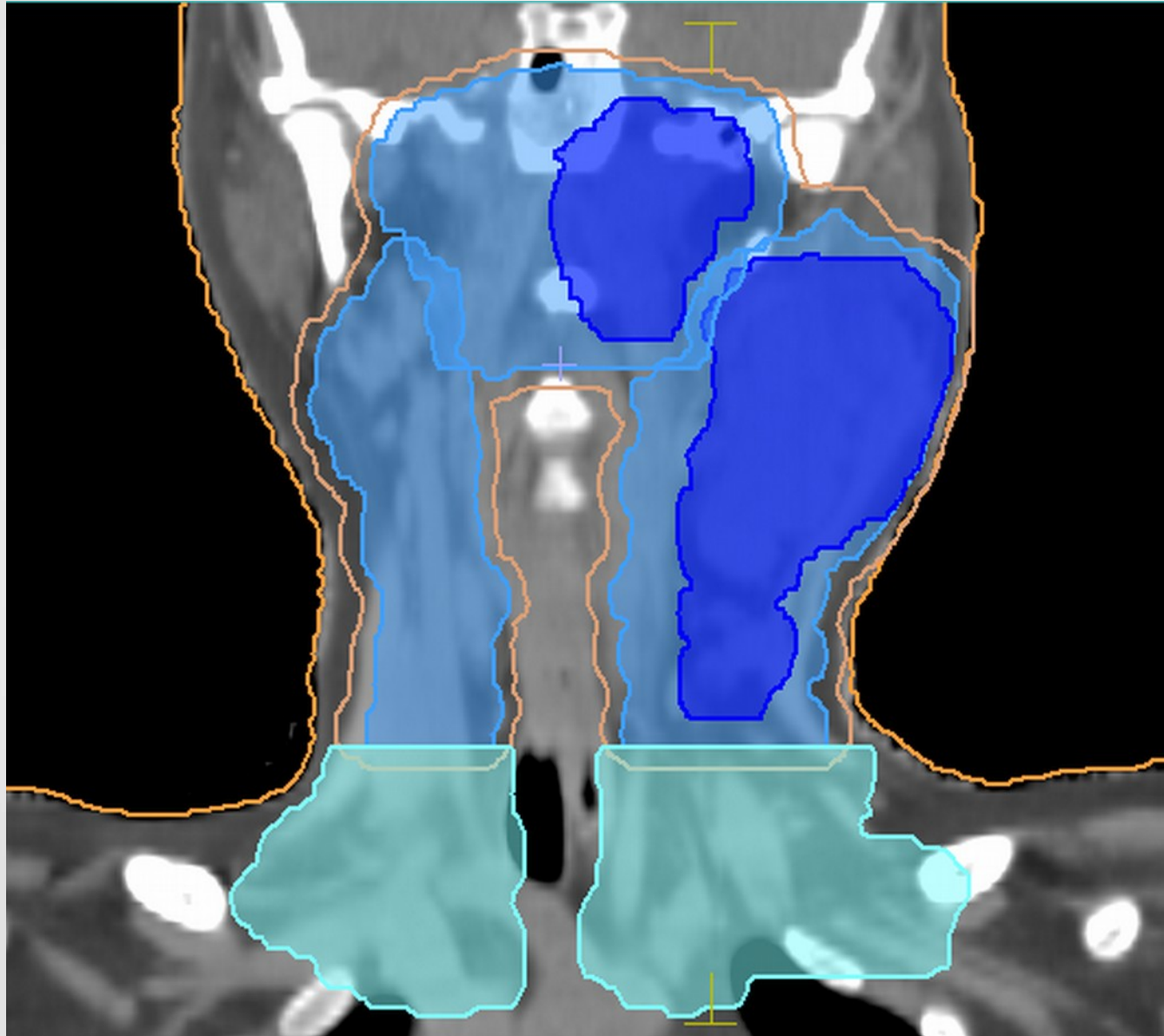
Hazırlık - kontur



Hazırlık - yardımcı yapı



Hazırlık - yardımcı yapı

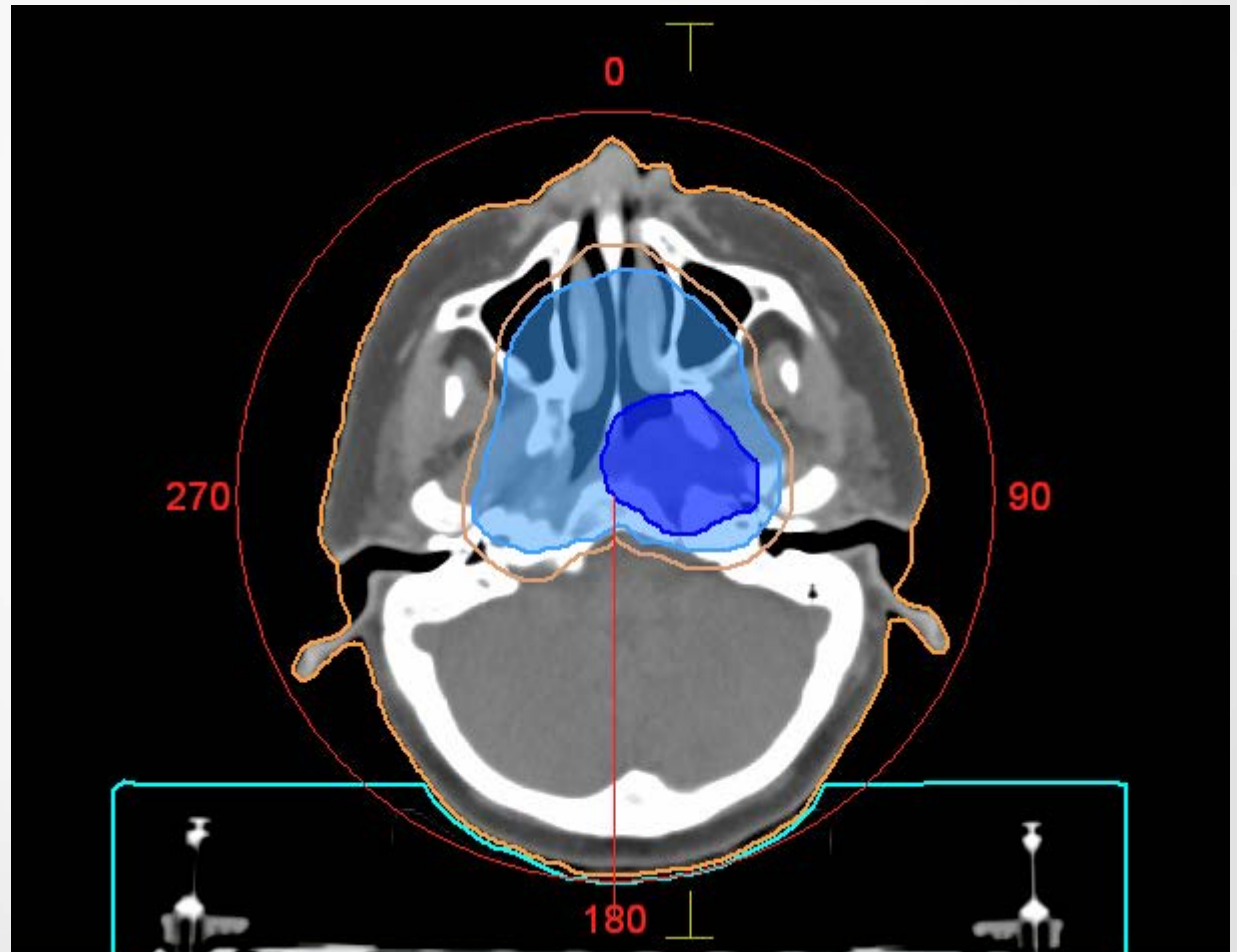


Cihaz - enerji

- Elekta Synergy S - 6MV
- MLCi - 80 lif

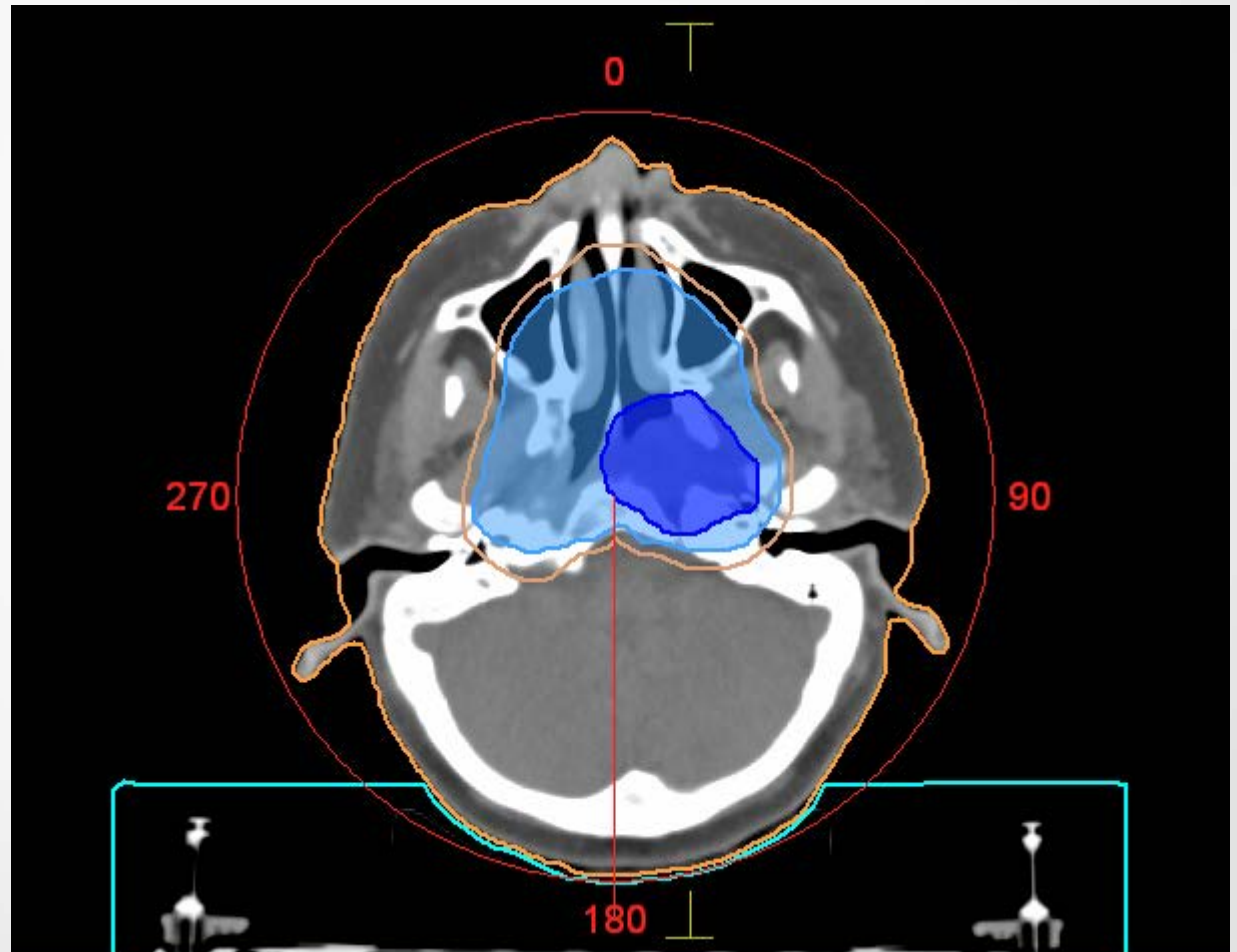
Cihaz - enerji

- Elekta Synergy S - 6MV
- MLCi - 80 lif
- Tek Arc / Çift Arc



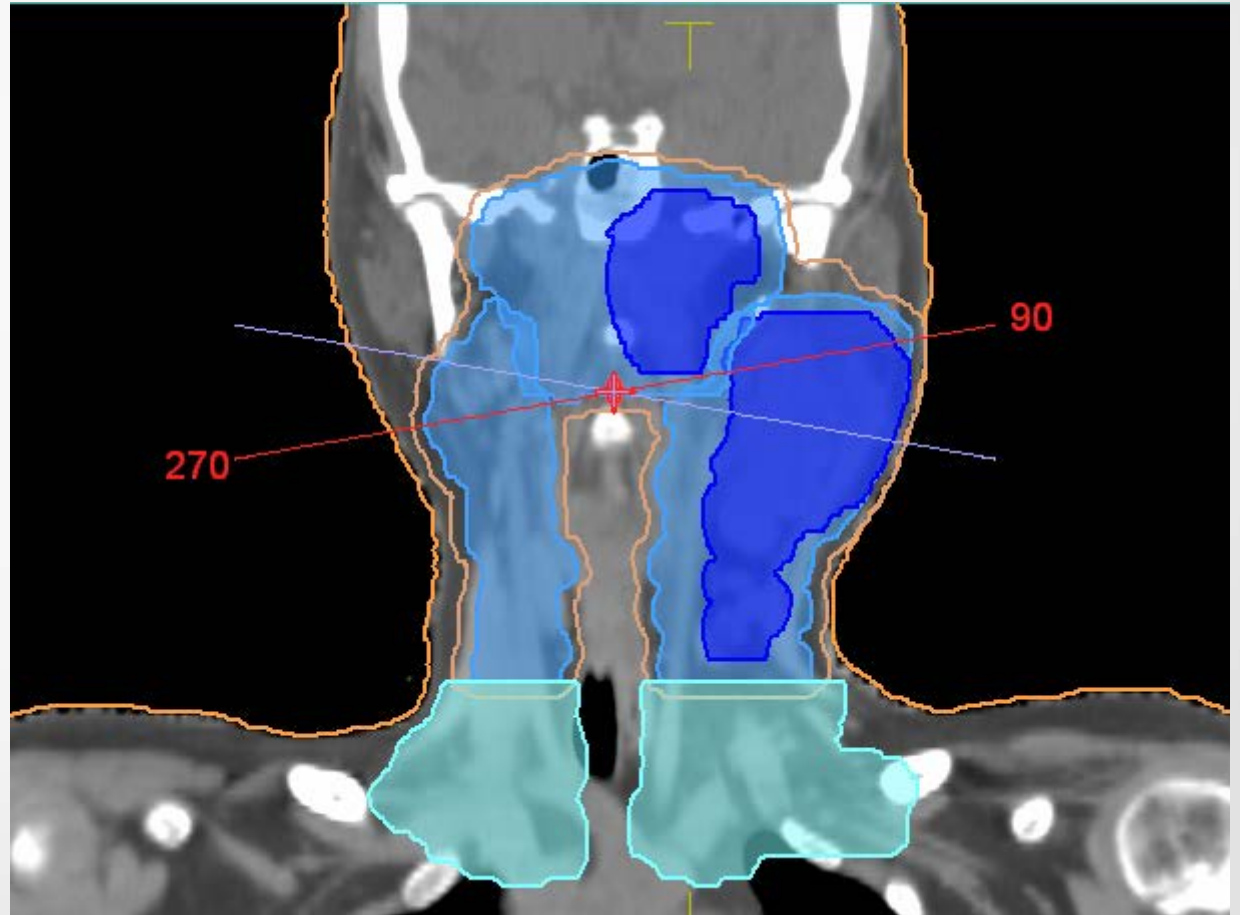
Cihaz - enerji

- Elekta Synergy S - 6MV
- MLCi - 80 lif
- Tek Arc / Çift Arc
- Kolimatör 0 / 90



Cihaz - enerji

- Elekta Synergy S - 6MV
- MLCi - 80 lif
- Tek Arc / Çift Arc
- Kolimatör 0 / 90
- Masa +10 / -10



Hesaplama Parametreleri

7.56



IMRT Calculation Properties

Calculation Parameters

Grid Spacing (cm): 0.30

Number of Fractions: 33

Prescription (Gy): 70.000

Secondary Algorithm: Monte Carlo Photon

Calculate dose to: Medium

Monte Carlo Standard Deviation (%): 1.00

☐ Per Control Point ☒ Per Plan

Global Parameters

Minimum Electron Density: 1.000
Use with Fill option.

Minimum CT Number: -500
Use with Clear option.

Auto Flash Margin (cm): 0.20

Surface Margin (cm): 0.30

Beamlet Width (cm): 0.30

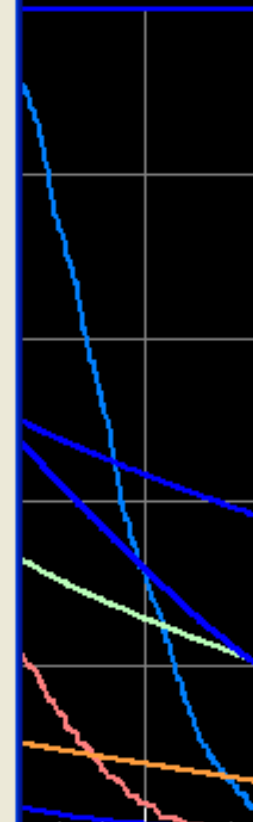
Target Margin: Normal (8mm)

Avoidance Margin: Normal (8mm)

OK

Cancel

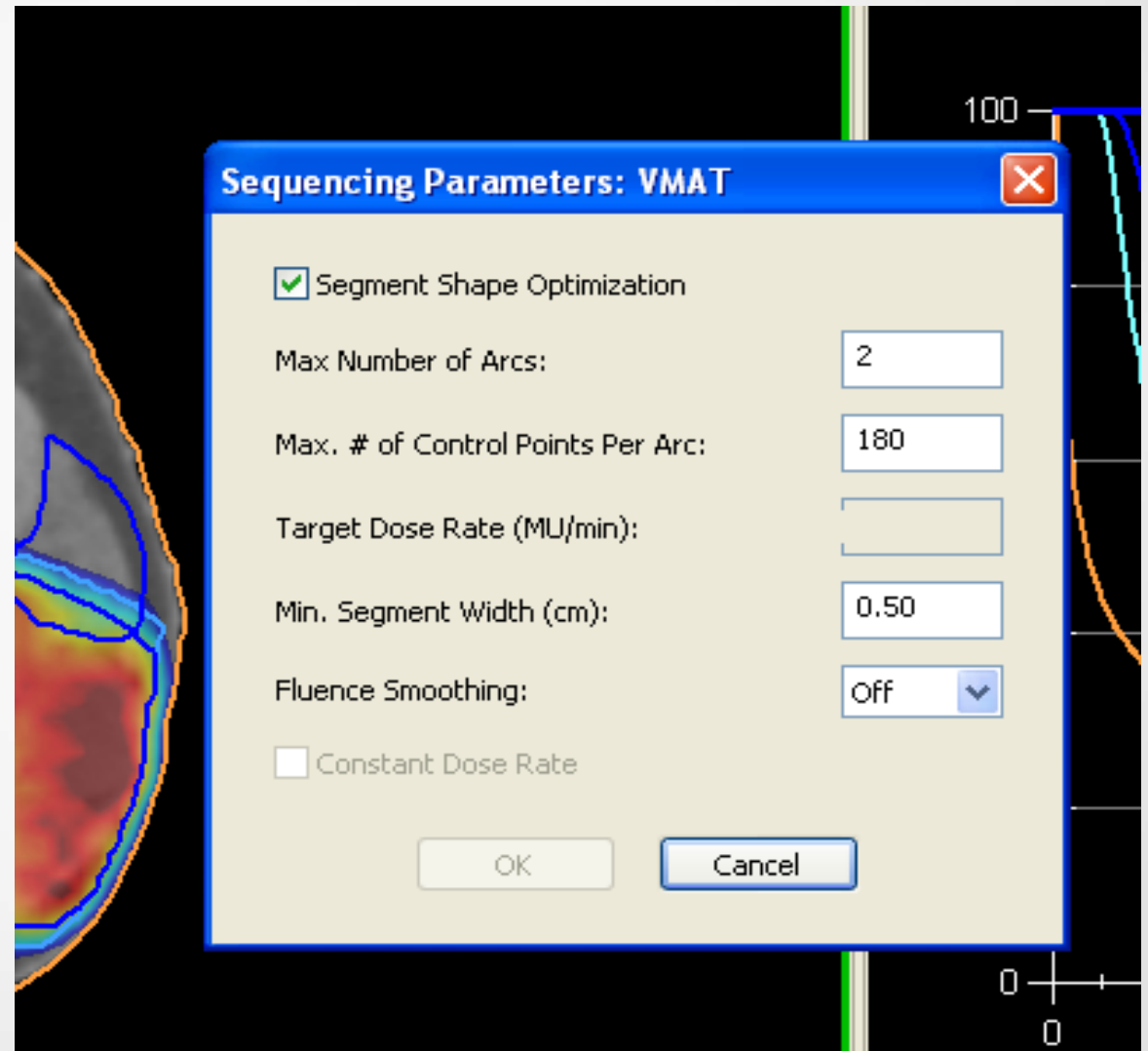
total Volume DVH



Dose (Gy)

Hesaplama Parametreleri

- Max. arc sayısı
 - en fazla 3
- Max. CP sayısı
 - 100 ile başla
 - Max. 180
- Min. seg. Width
 - 1.0 ile başla
- Fluence Smoothing
 - low / med / high



Prescription											
Constraints											
Sensitivities											
	Structure	Cost Function	Enabled	Status	Manual	Weight	Reference Dose (Gy)	Multicriterial	Isoconstraint	Isoeffect	Relative Impact
	PTV 70_Tumor	Target EUD	☒	On	☒	8.00			70.000	0.000	
		Target Penalty	☒	On	☒	8.00			70.000	0.000	
		Quadratic Overdose	☒	On	☒	5.00	74.000	☐	0.450	0.000	
		Overdose DVH	☒	On	☒	5.00	75.000	☐	15.00	0.00	
		Overdose DVH	☒	On	☒	0.15	78.000	☐	1.00	0.00	
	PTV 70_Nodal	Target EUD	☒	On	☒	8.00			70.000	0.000	
		Target Penalty	☒	On	☒	8.00			70.000	0.000	
		Quadratic Overdose	☒	On	☒	5.00	74.000	☐	0.300	0.000	
		Overdose DVH	☒	On	☒	3.00	75.000	☐	15.00	0.00	
		Overdose DVH	☒	On	☒	3.00	78.000	☐	1.00	0.00	
	PTV 60_Tumor	Target EUD	☒	On	☒	8.00			60.000	0.000	
		Target Penalty	☒	On	☒	8.00			60.000	0.000	
		Quadratic Overdose	☒	On	☒	1.00	69.000	☐	1.000	0.000	
		Quadratic Overdose	☒	On	☒	3.00	65.000	☐	0.500	0.000	
		Quadratic Overdose	☒	On	☒	1.00	69.500	☐	0.050	0.000	
	PTV 60_Nodal	Target EUD	☒	On	☒	8.00			60.000	0.000	
		Target Penalty	☒	On	☒	8.00			60.000	0.000	
		Quadratic Overdose	☒	On	☒	1.00	69.000	☐	0.800	0.000	
		Quadratic Overdose	☒	On	☒	3.00	65.000	☐	0.500	0.000	
		Quadratic Overdose	☒	On	☒	1.00	69.500	☐	0.050	0.000	
	PTV 56_Nodal	Target EUD	☒	On	☒	8.00			56.000	0.000	
		Target Penalty	☒	On	☒	8.00			56.000	0.000	
		Quadratic Overdose	☒	On	☒	5.00	60.000	☐	0.400	0.000	
		Overdose DVH	☒	On	☒	15.00	61.000	☐	10.00	0.00	
		Overdose DVH	☒	On	☒	5.00	63.000	☐	3.00	0.00	
	Spinal cord	Maximum Dose	☒	On	☒	1.00			45.000	0.000	
	Brain stem	Maximum Dose	☒	On	☒	1.00			54.000	0.000	
	Kiazma	Maximum Dose	☒	On	☒	1.00			54.000	0.000	
	Optic nerve R	Maximum Dose	☒	On	☒	1.00			54.000	0.000	
	Optic nerve L	Maximum Dose	☒	On	☒	1.00			54.000	0.000	
	Parotis R	Parallel	☒	On	☒	0.07	26.000	☐	48.00	0.00	
		Maximum Dose	☒	On	☒	0.01			62.000	0.000	
		Quadratic Overdose	☒	On	☒	1.00	30.000	☐	1.000	0.000	
	Parotis L	Parallel	☒	On	☒	150.00	26.000	☐	52.00	0.00	
		Maximum Dose	☒	On	☒	10.00			64.000	0.000	
		Quadratic Overdose	☒	On	☒	50.00	30.000	☐	1.000	0.000	
	Hipofiz	Quadratic Overdose	☒	On	☒	0.50	40.000	☐	0.500	0.000	
	Oral cavity	Parallel	☒	On	☒	300.00	30.000	☐	45.00	0.00	
		Maximum Dose	☒	On	☒	5.00			62.000	0.000	
		Quadratic Overdose	☒	On	☒	0.01	48.000	☐	0.500	0.000	
	Larenks	Quadratic Overdose	☒	On	☒	0.01	53.000	☐	0.500	0.000	
		Parallel	☒	On	☒	250.00	44.000	☐	47.00	0.00	
		Overdose DVH	☒	On	☒	300.00	50.000	☐	27.00	0.00	
		Maximum Dose	☒	On	☒	0.02			63.000	0.000	
	Lens L	Quadratic Overdose	☒	On	☒	1.28	6.000	☐	0.800	0.000	
	Lens R	Quadratic Overdose	☒	On	☒	0.72	6.000	☐	0.500	0.000	
	Eye R	Parallel	☒	On	☒	0.01	35.000	☐	50.00	0.00	
		Maximum Dose	☒	On	☒	0.01			54.000	0.000	
	Eye L	Parallel	☒	On	☒	0.01	35.000	☐	50.00	0.00	

		Target Penalty	☒	On	☒	8.00			60.000	0.000
		Quadratic Overdose	☒	On	☒	1.00	69.000	☐	0.800	0.000
		Quadratic Overdose	☒	On	☒	3.00	65.000	☐	0.500	0.000
		Quadratic Overdose	☒	On	☒	1.00	69.500	☐	0.050	0.000
	PTV 56_Nodal	Target EUD	☒	On	☒	8.00			56.000	0.000
		Target Penalty	☒	On	☒	8.00			56.000	0.000
		Quadratic Overdose	☒	On	☒	5.00	60.000	☐	0.400	0.000
		Overdose DVH	☒	On	☒	15.00	61.000	☐	10.00	0.00
		Overdose DVH	☒	On	☒	5.00	63.000	☐	3.00	0.00
	Spinal cord	Maximum Dose	☒	On	☒	1.00			45.000	0.000
	Brain stem	Maximum Dose	☒	On	☒	1.00			54.000	0.000
	Kiazma	Maximum Dose	☒	On	☒	1.00			54.000	0.000
	Optic nerve R	Maximum Dose	☒	On	☒	1.00			54.000	0.000
	Optic nerve L	Maximum Dose	☒	On	☒	1.00			54.000	0.000
	Parotis R	Parallel	☒	On	☒	0.07	26.000	☐	48.00	0.00
		Maximum Dose	☒	On	☒	0.01			62.000	0.000
		Quadratic Overdose	☒	On	☒	1.00	30.000	☐	1.000	0.000
	Parotis L	Parallel	☒	On	☒	150.00	26.000	☐	52.00	0.00
		Maximum Dose	☒	On	☒	10.00			64.000	0.000
		Quadratic Overdose	☒	On	☒	50.00	30.000	☐	1.000	0.000
	Hipofiz	Quadratic Overdose	☒	On	☒	0.50	40.000	☐	0.500	0.000
	Oral cavity	Parallel	☒	On	☒	300.00	30.000	☐	45.00	0.00
		Maximum Dose	☒	On	☒	5.00			62.000	0.000
		Quadratic Overdose	☒	On	☒	0.01	48.000	☐	0.500	0.000
		Quadratic Overdose	☒	On	☒	0.01	53.000	☐	0.500	0.000
	Larenks	Parallel	☒	On	☒	250.00	44.000	☐	47.00	0.00
		Overdose DVH	☒	On	☒	300.00	50.000	☐	27.00	0.00
		Maximum Dose	☒	On	☒	0.02			63.000	0.000
	Lens L	Quadratic Overdose	☒	On	☒	1.28	6.000	☐	0.800	0.000
	Lens R	Quadratic Overdose	☒	On	☒	0.72	6.000	☐	0.500	0.000
	Eye R	Parallel	☒	On	☒	0.01	35.000	☐	50.00	0.00
		Maximum Dose	☒	On	☒	0.01			54.000	0.000
	Eye L	Parallel	☒	On	☒	0.01	35.000	☐	50.00	0.00
		Maximum Dose	☒	On	☒	0.01			54.000	0.000
	Ozefagus	Overdose DVH	☒	On	☒	5.00	45.000	☐	31.00	0.00
	Kohlea R	Parallel	☒	On	☒	35.00	45.000	☐	45.00	0.00
	Kohlea L	Parallel	☒	On	☒	55.00	45.000	☐	50.00	0.00
	Konstruktor ka	Parallel	☒	On	☒	130.00	50.000	☐	49.00	0.00
	Lungs	Parallel	☒	On	☒	0.01	20.000	☐	12.00	0.00
	Mandibula	Maximum Dose	☒	On	☒	1.00			74.000	0.000
		Quadratic Overdose	☒	On	☒	0.01	60.000	☐	0.200	0.000
	SubmandGland R	Parallel	☒	On	☒	10.00	40.000	☐	75.00	0.00
	pat60	Quadratic Overdose	☒	On	☒	0.39	63.000	☐	0.900	0.000
	patient	Quadratic Overdose	☒	On	☒	1.00	57.000	☐	0.500	0.000
		Quadratic Overdose	☒	On	☒	1.00	52.000	☐	0.500	0.000
		Quadratic Overdose	☒	On	☒	10.00	48.000	☐	0.500	0.000
		Quadratic Overdose	☒	On	☒	1.00	40.000	☐	0.800	0.000
		Quadratic Overdose	☒	On	☒	2.00	32.000	☐	0.800	0.000
		Maximum Dose	☒	On	☒	5.00			63.000	0.000

Optimization mode:

☒ Constrained (Normal Tissue Priority)

☐ Pareto (Target Volume Priority)

Print

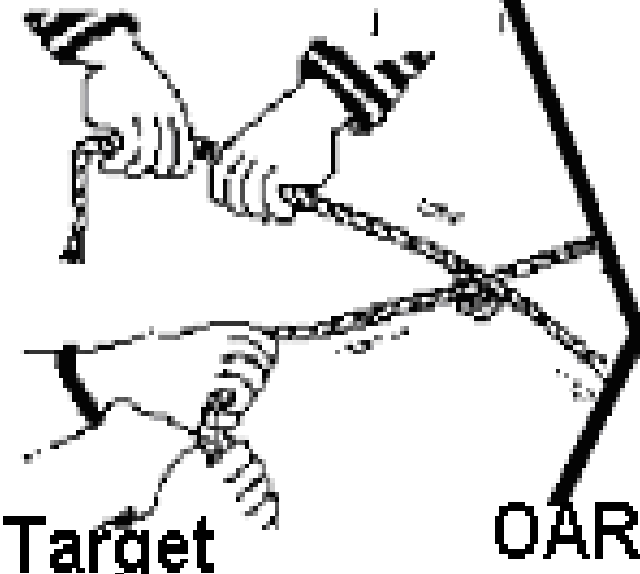
OK

Cancel

		Target Penalty	On	8.00	60.000		0.000
		Quadratic Overdose	On	1.00	69.000		0.800
		Quadratic Overdose	On	3.00	65.000		0.500
		Quadratic Overdose	On	1.00	69.500		0.050
PTV 56_Nodal		Target EUD	On	8.00			56.000
		Target Penalty	On	8.00			56.000
		Quadratic Overdose	On	5.00	60.000		0.400
		Overdose DVH	On	15.00	61.000		10.00
		Overdose DVH	On	5.00	63.000		3.00
Spinal cord		Maximum Dose	On	1.00			45.000
Brain stem		Maximum Dose	On	1.00			54.000
Kiazma		Maximum Dose	On	1.00			54.000
Optic nerve R		Maximum Dose	On	1.00			54.000
Optic nerve L		Maximum Dose	On	1.00			54.000
Parotis R		Parallel	On	0.07	26.000		48.00
		Maximum Dose	On	0.01			62.000
		Quadratic Overdose	On	1.00	30.000		1.000
Parotis L		Parallel	On	150.00	26.000		52.00
		Maximum Dose	On	10.00			64.000
		Quadratic Overdose	On	50.00	30.000		1.000
Hipofiz		Quadratic Overdose	On	0.50	40.000		0.500
Oral cavity		Parallel	On	300.00	30.000		45.00
		Maximum Dose	On	5.00			62.000
		Quadratic Overdose	On	0.01	48.000		0.500
		Quadratic Overdose	On	0.01	53.000		0.500
Larenks		Parallel	On	250.00	44.000		47.00
		Overdose D	On	0.00	50.000		27.00
		Maximum D	On	0.02			63.000
Lens L		Quadratic O	On	1.28	6.000		0.800
Lens R		Quadratic O	On				
Eye R		Parallel	On				
Eye L		Parallel	On				
		Maximum D	On				
Ozefagus		Overdose D	On				
Kohlea R		Parallel	On				
Kohlea L		Parallel	On				
Konstruktor ka		Parallel	On				
Lungs		Parallel	On				
Mandibula		Maximum D	On				
		Quadratic O	On				
SubmandGland R		Parallel	On				
pat60		Quadratic O	On				
patient		Quadratic O	On				
		Quadratic O	On				
		Quadratic O	On				
		Quadratic O	On				
		Quadratic O	On				
		Maximum D	On				

Target

OAR

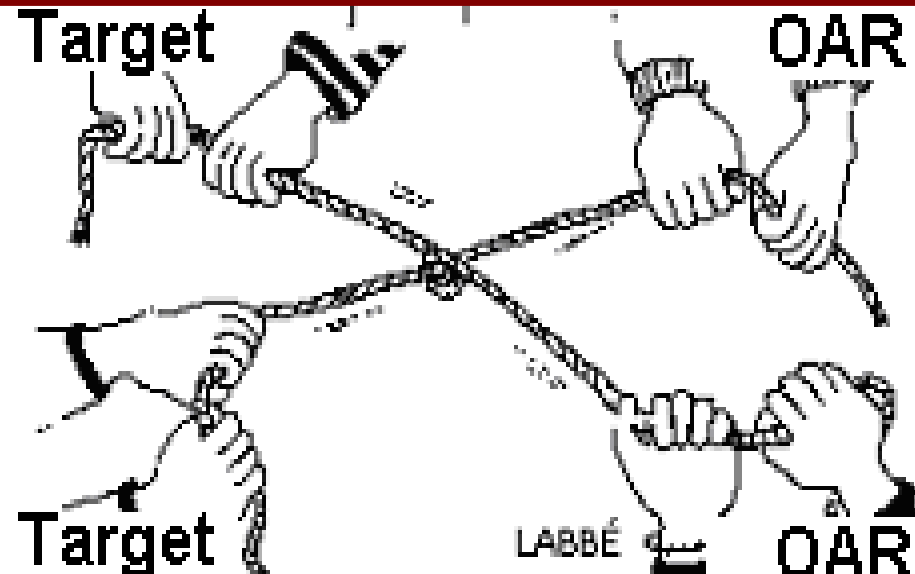


Target

OAR

Target

OAR



Target

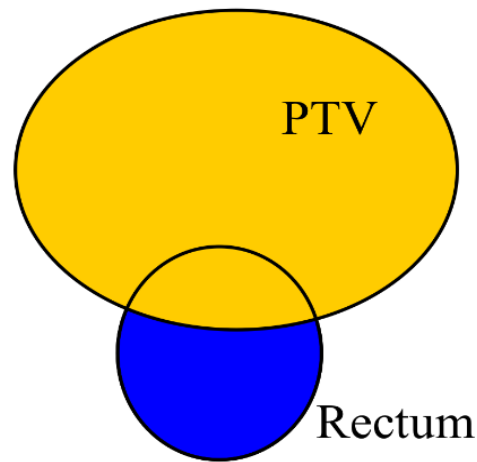
LABBÉ

OAR

Optimization mode:

- ☒ Constrained (Normal Tissue Priority)
- ☐ Pareto (Target Volume Priority)

Figure 8-7



PTV higher in layering order than Rectum

In this example, the PTV 'owns' the voxels in the overlap region. The cost function(s) assigned to the rectum will only be applied to the volume in blue.

Figure 8-8

In this example, the Rectum 'owns' the voxels in the overlap region. The cost function(s) assigned to the PTV will only be applied to the volume in yellow.

Rectum higher in layering order than PTV

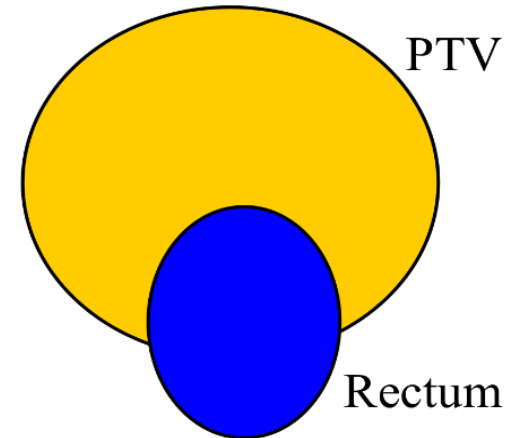
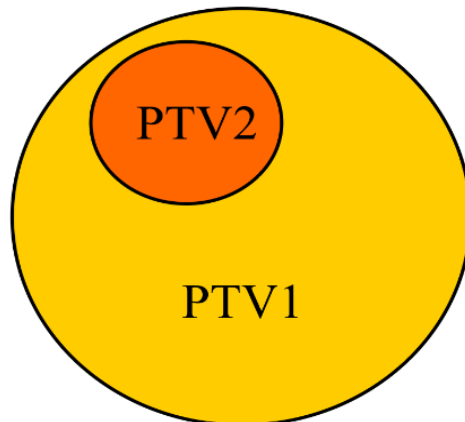


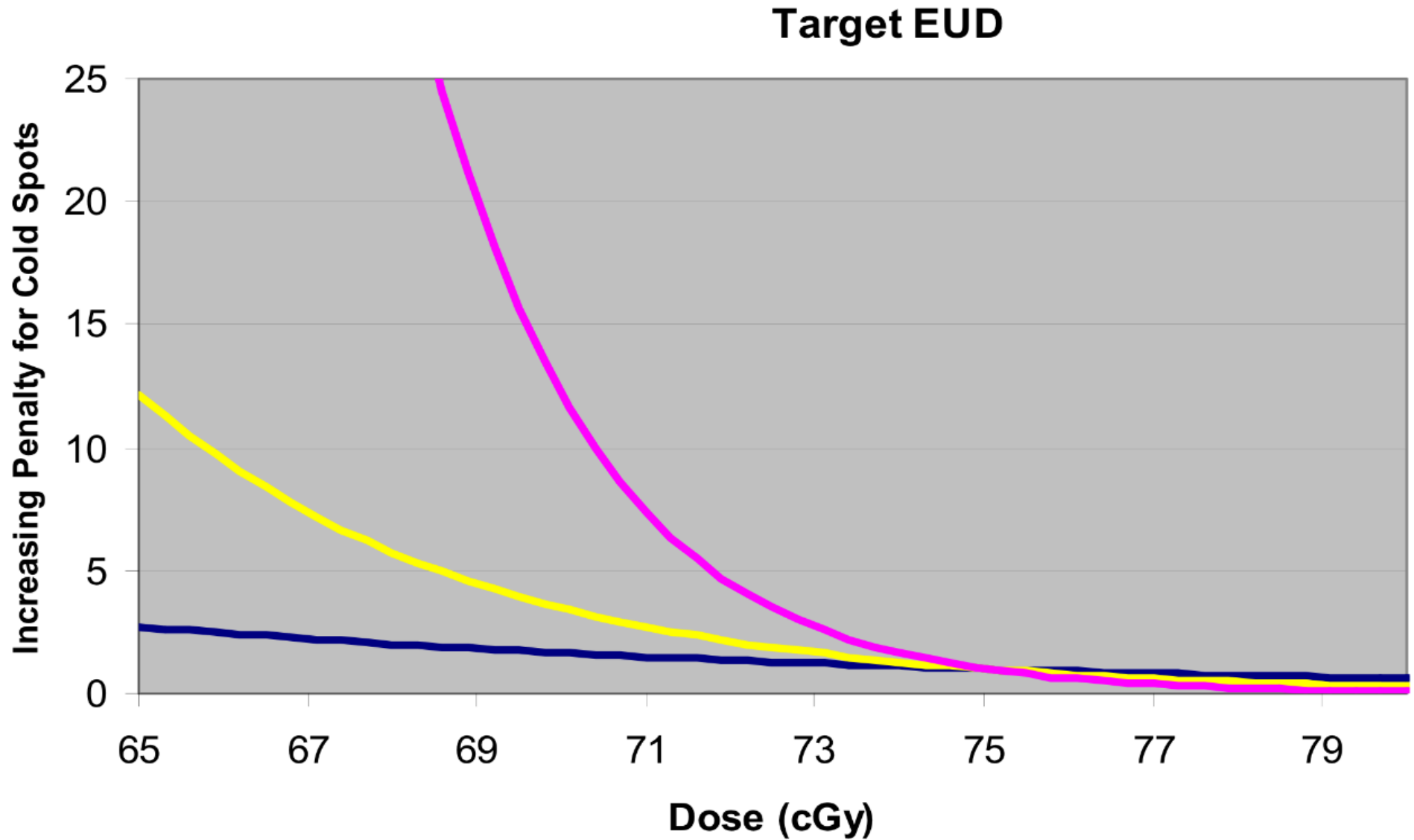
Figure 8-9



PTV2 higher in layering order than PTV1

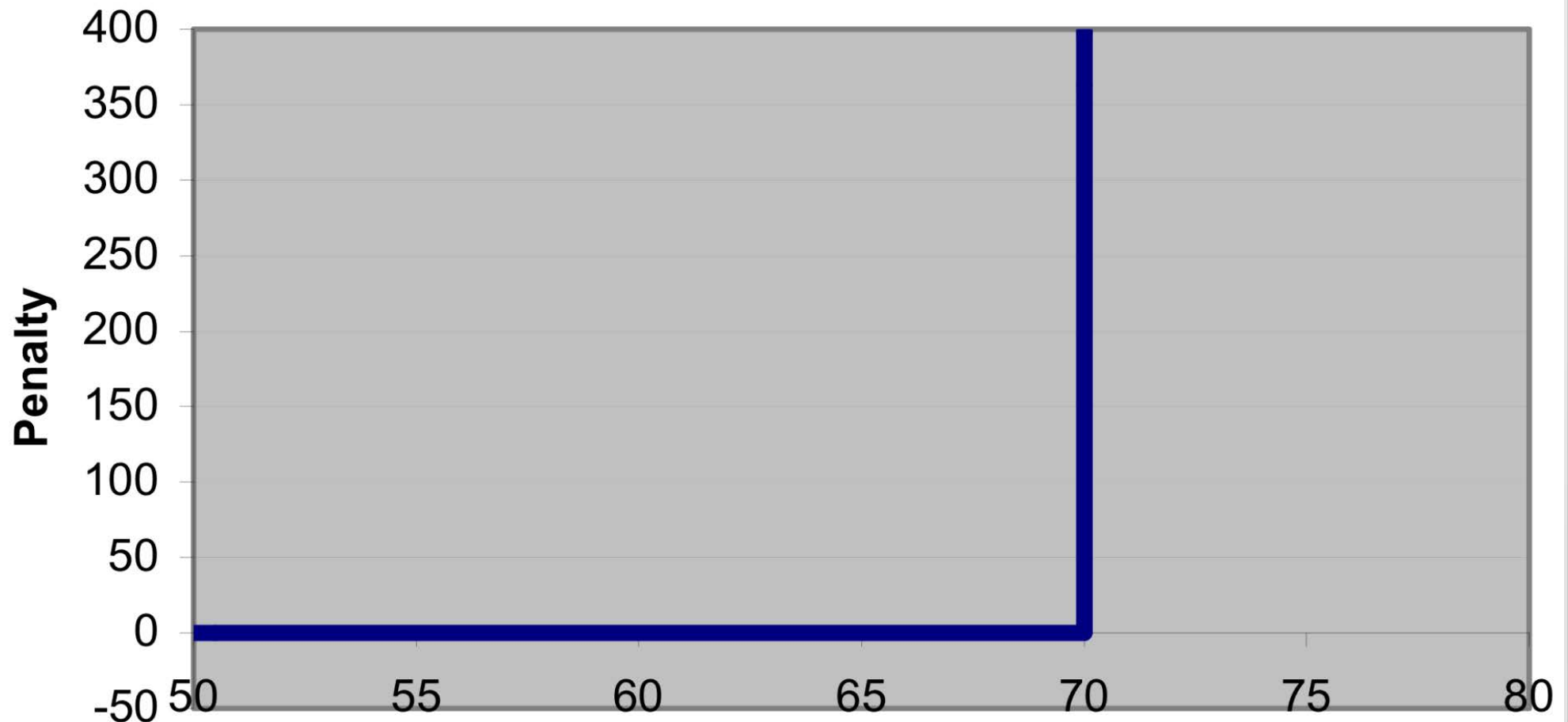
In this example, PTV2 needs to be listed higher in the layering order than PTV1. If not, its cost functions will be overridden by the cost functions of PTV1 since

Cf - Target EUD



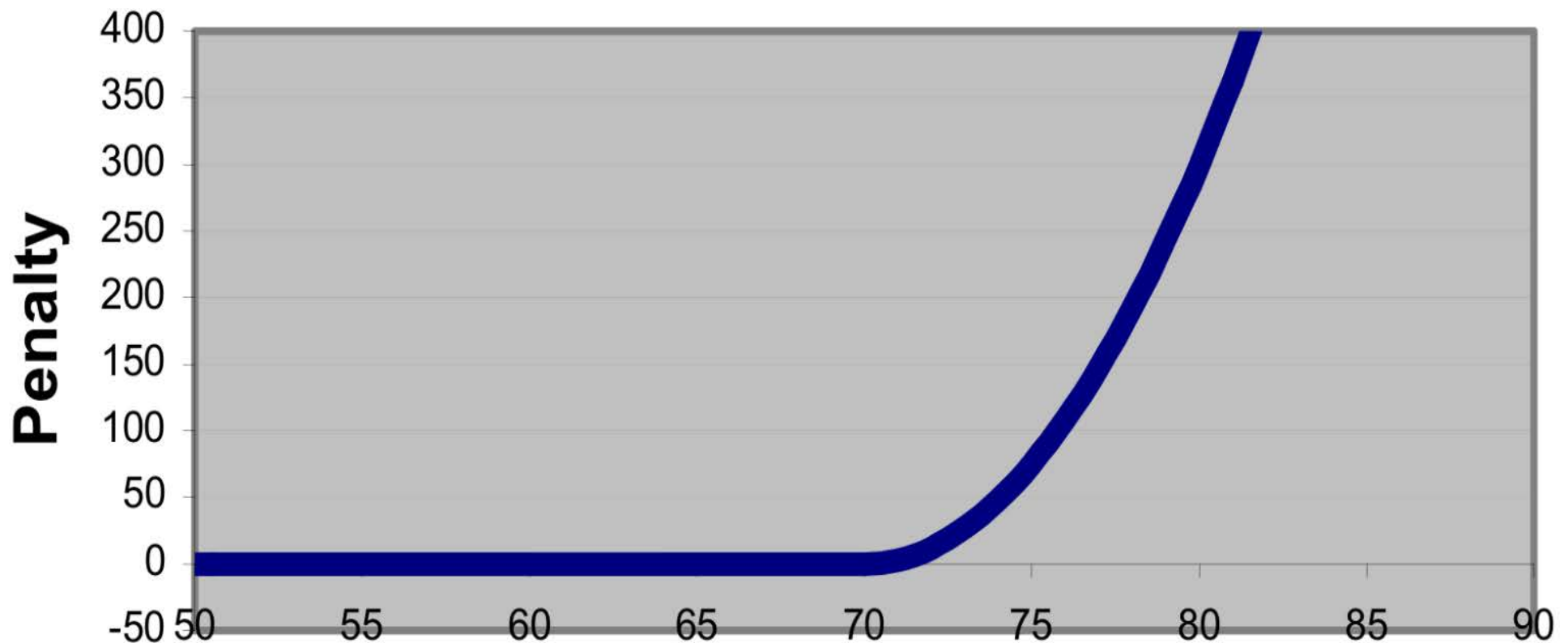
Cf - Maksimum Doz

Maximum Dose = 70 Gy

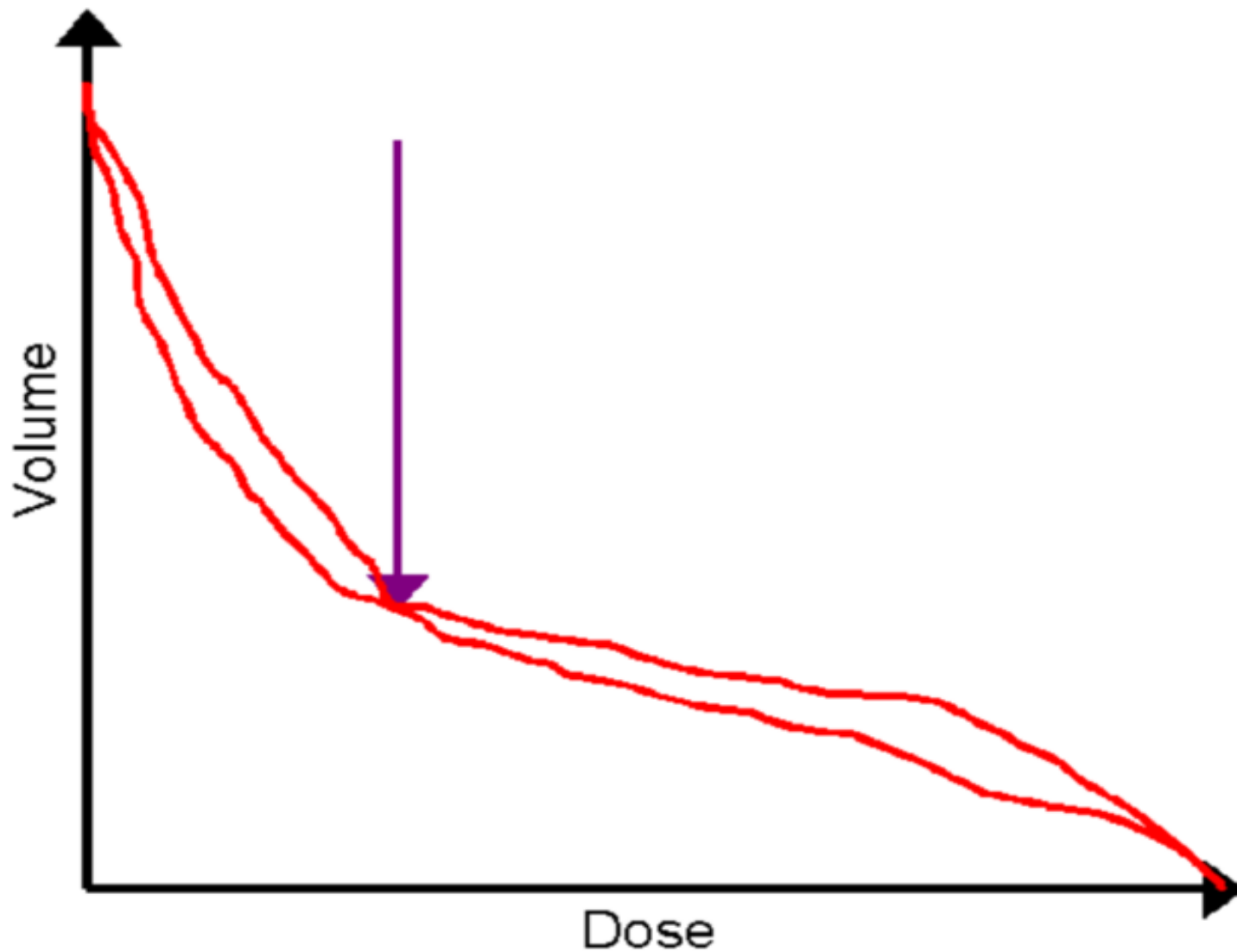


Cf - Quadratic OverDose

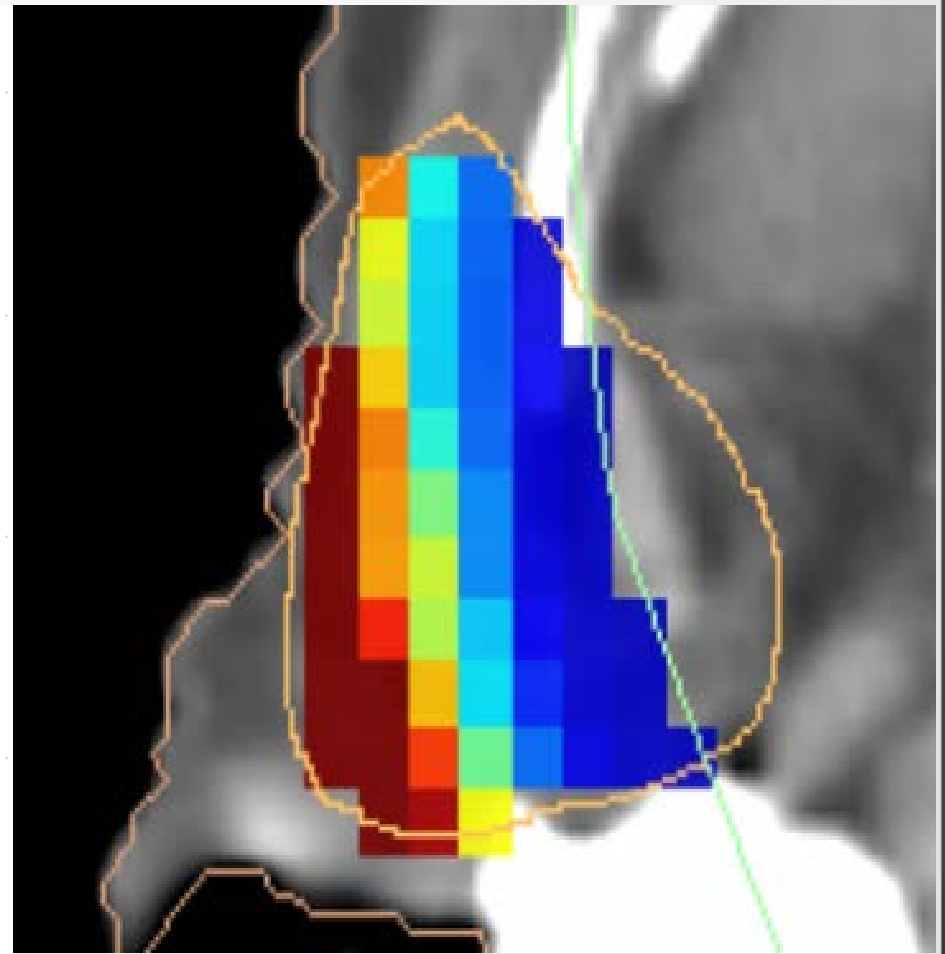
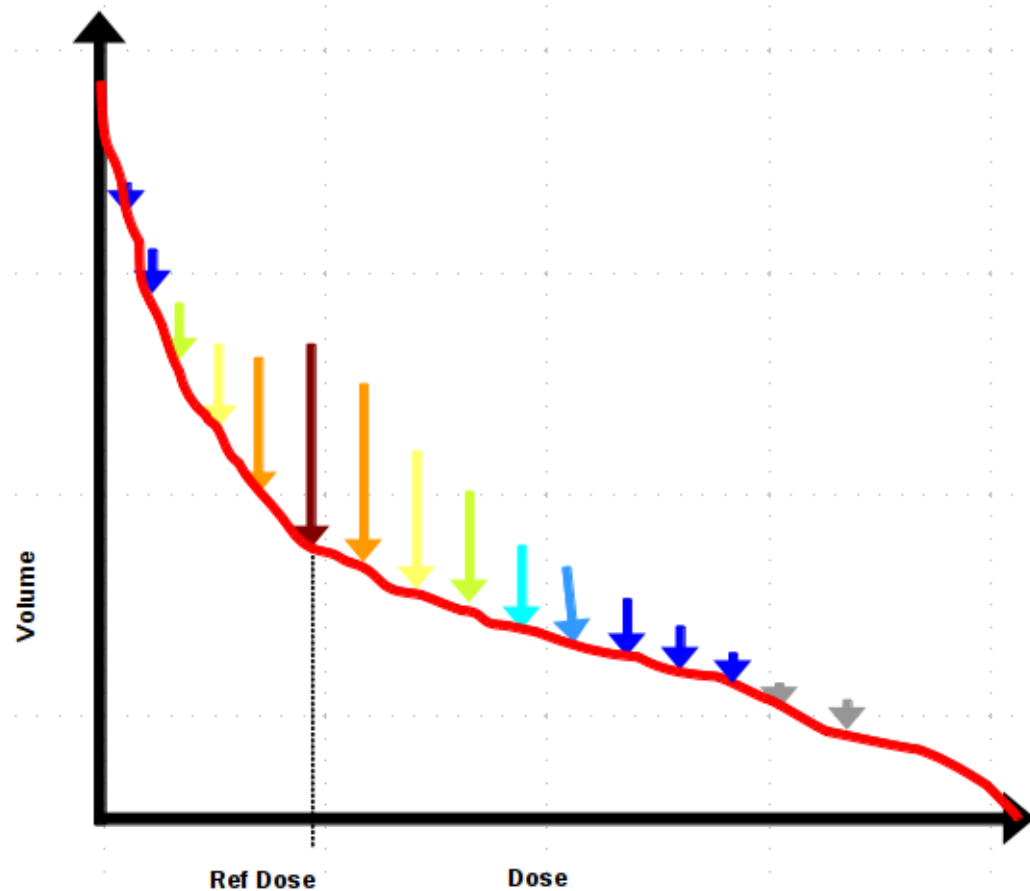
Quadratic Overdose
Max Dose = 70 Gy



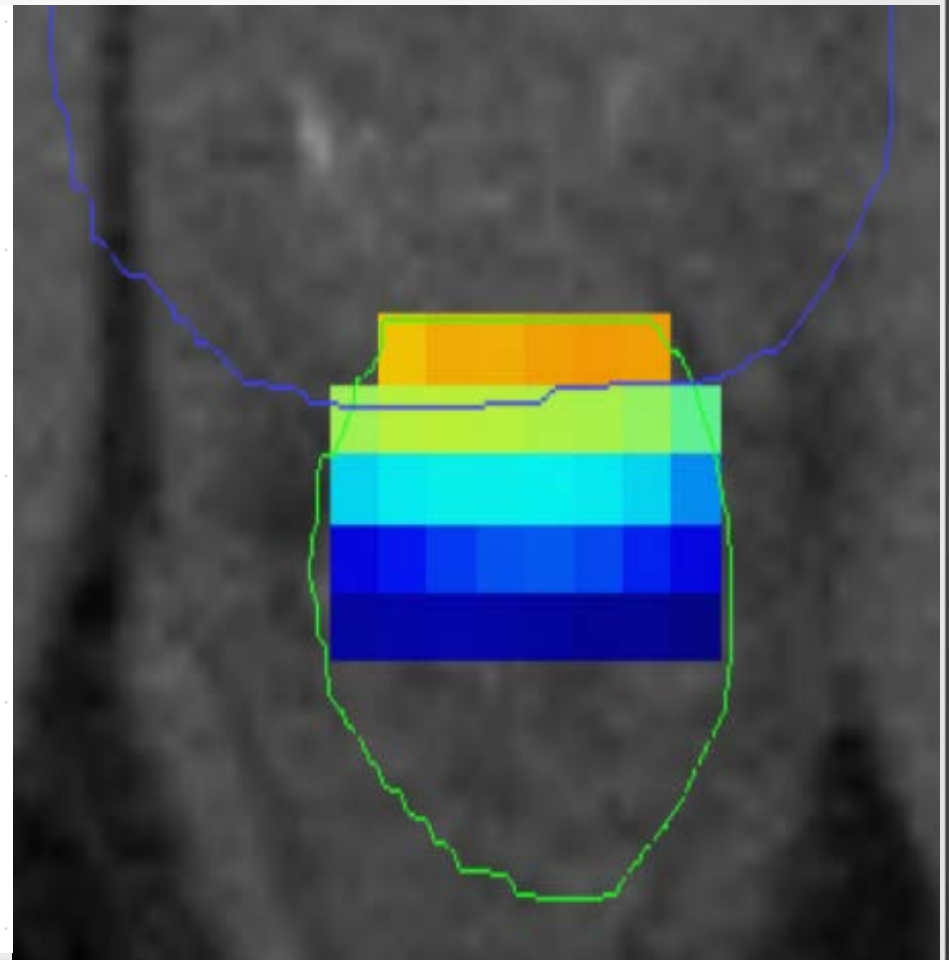
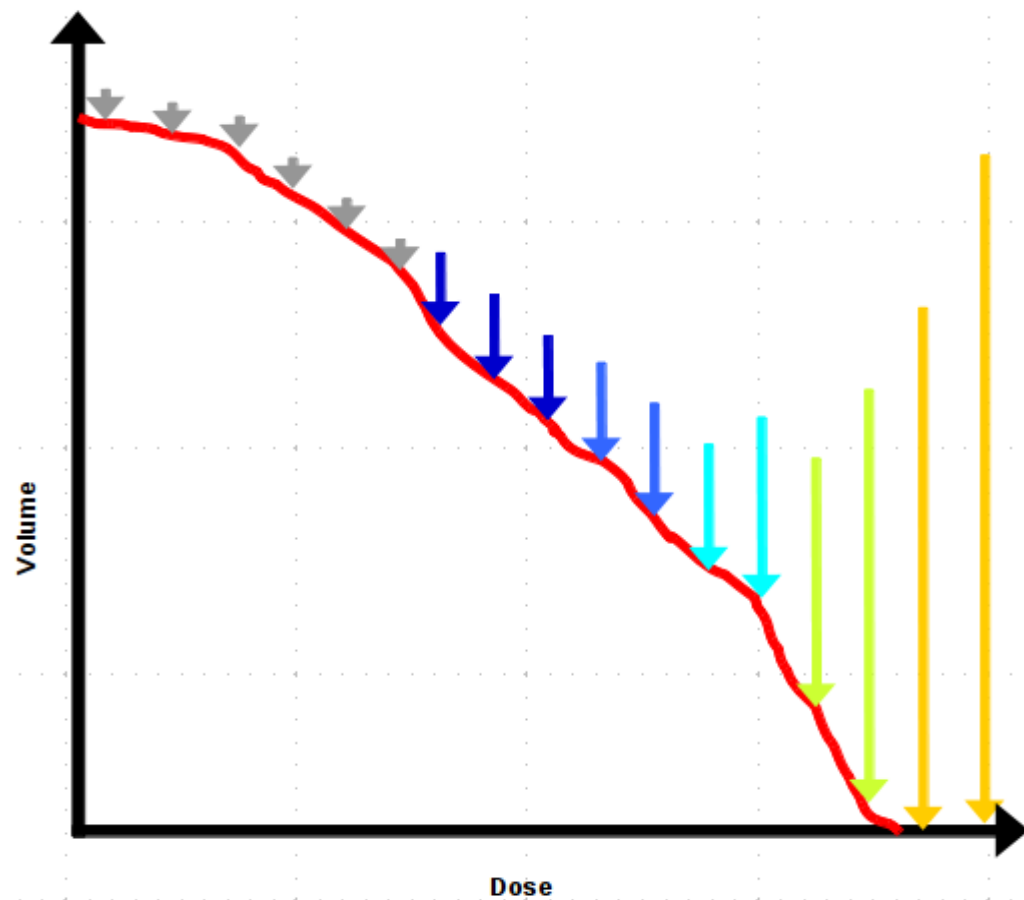
Cf - OverDose DVH



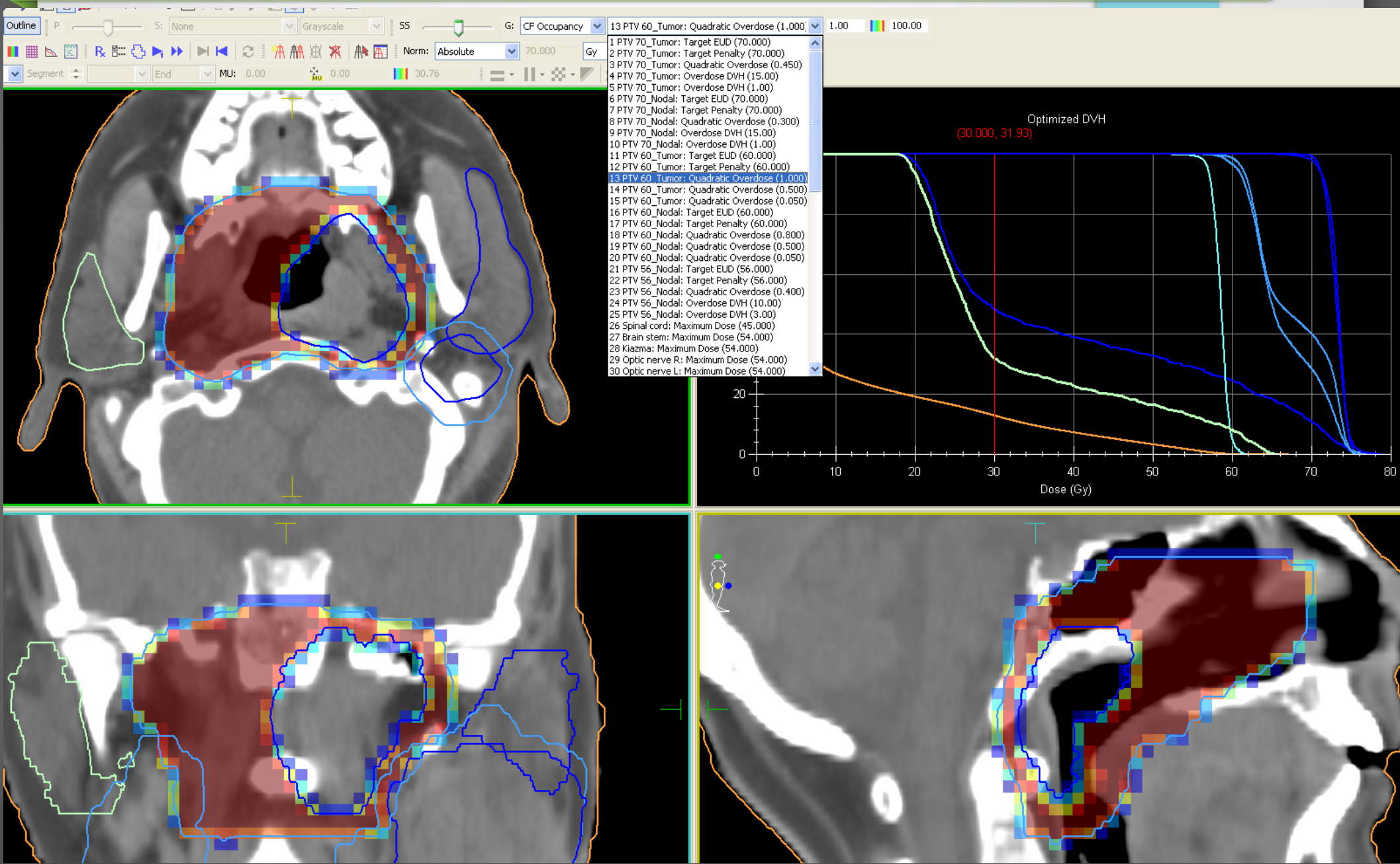
Cf - Parallel



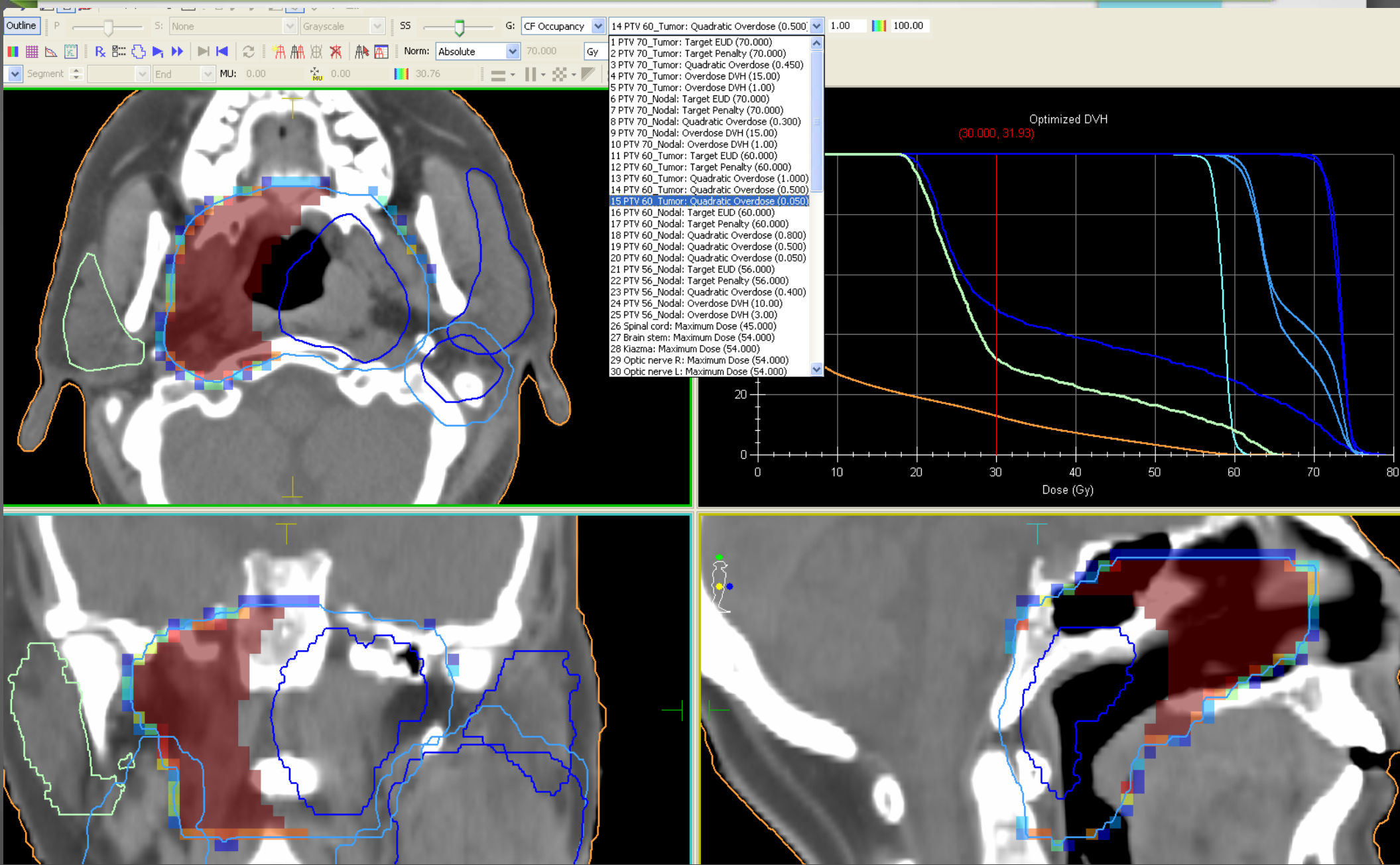
Cf - Serial



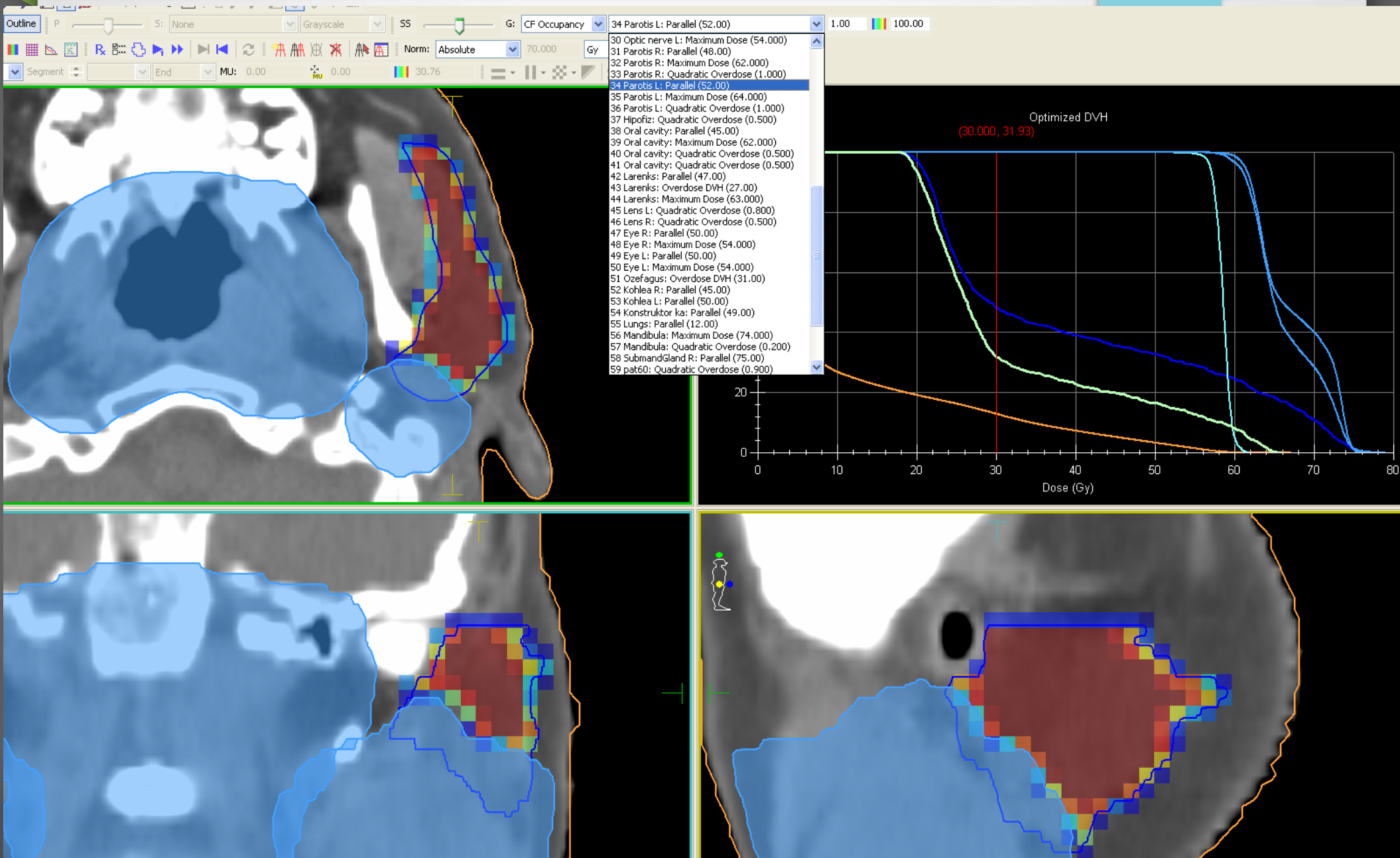
Shrink



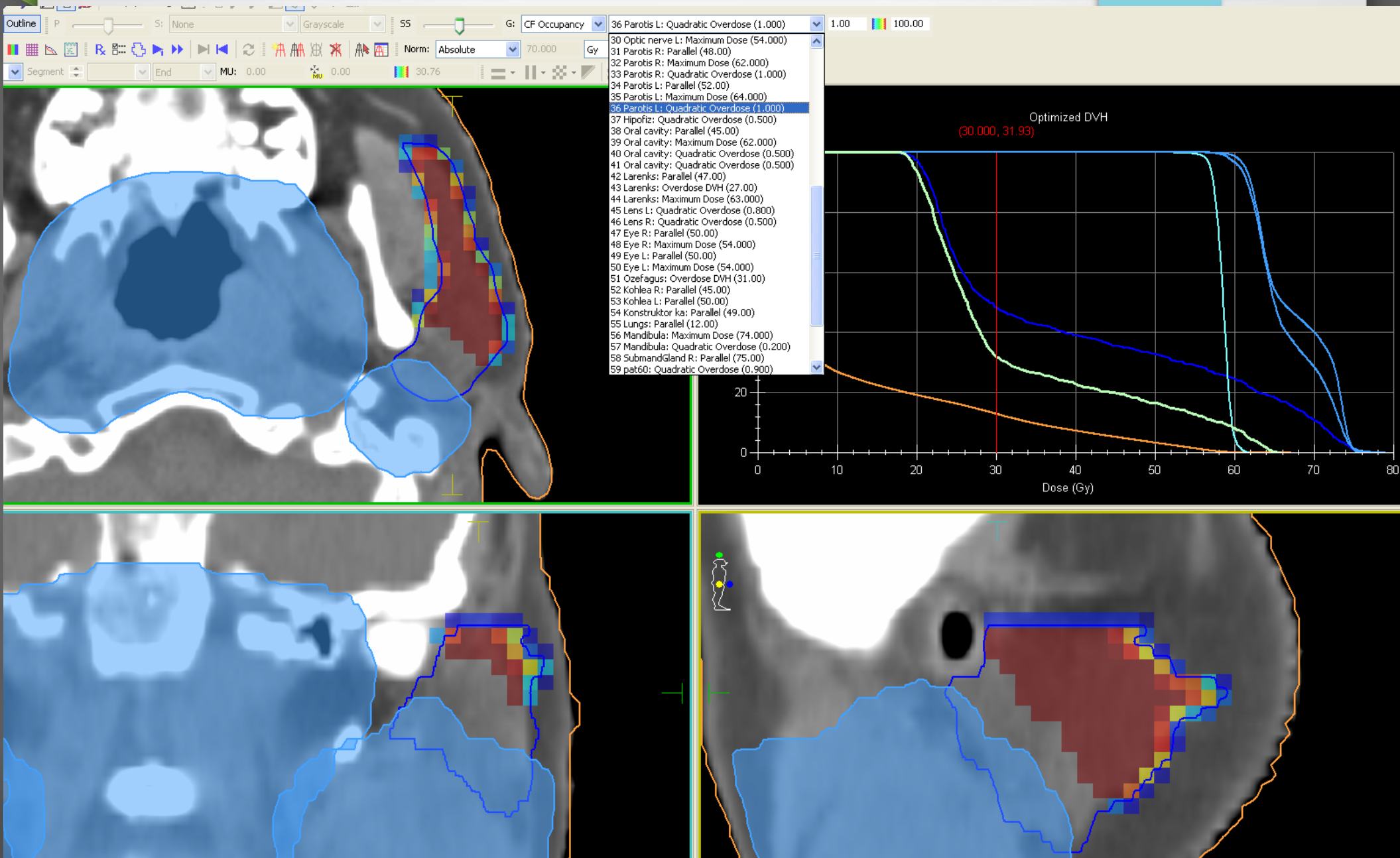
Shrink



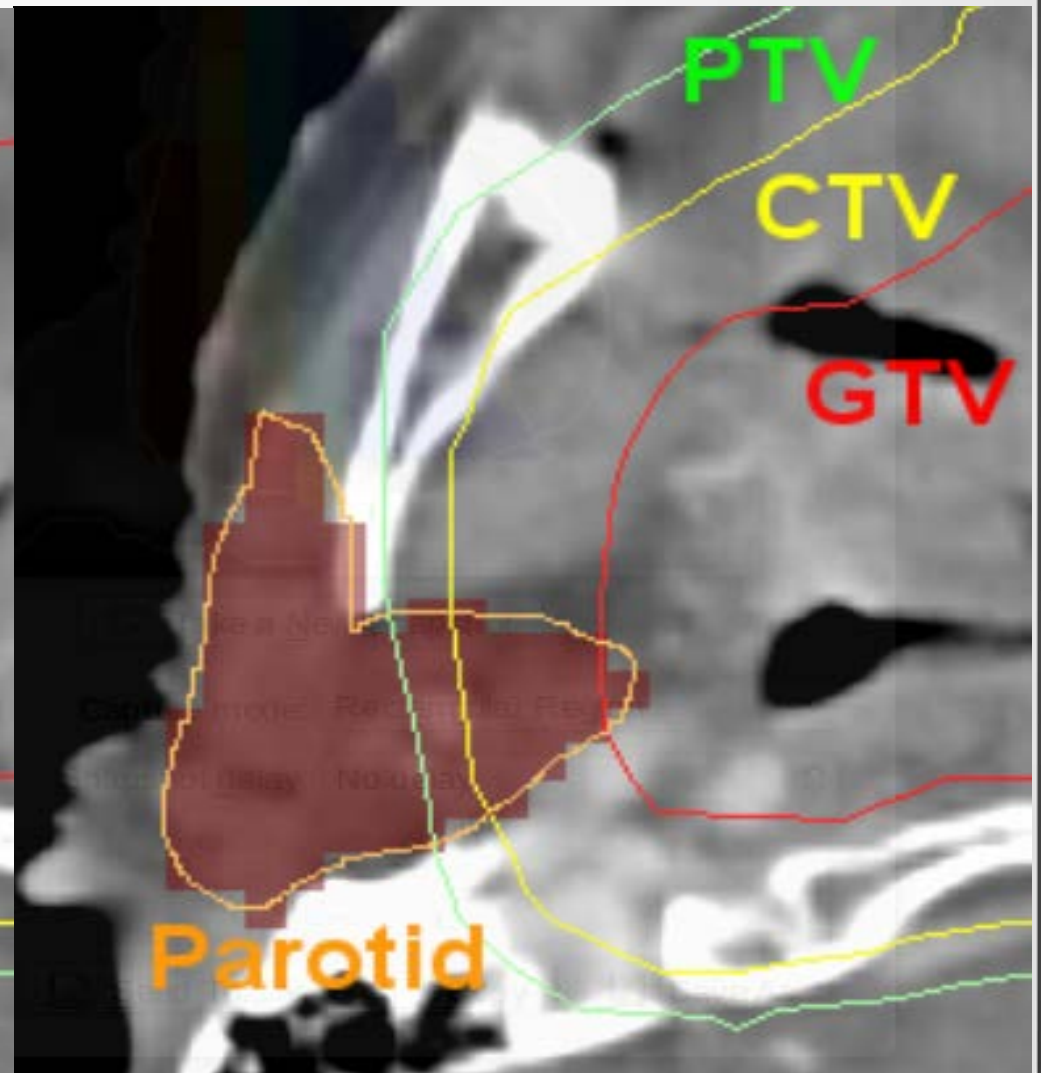
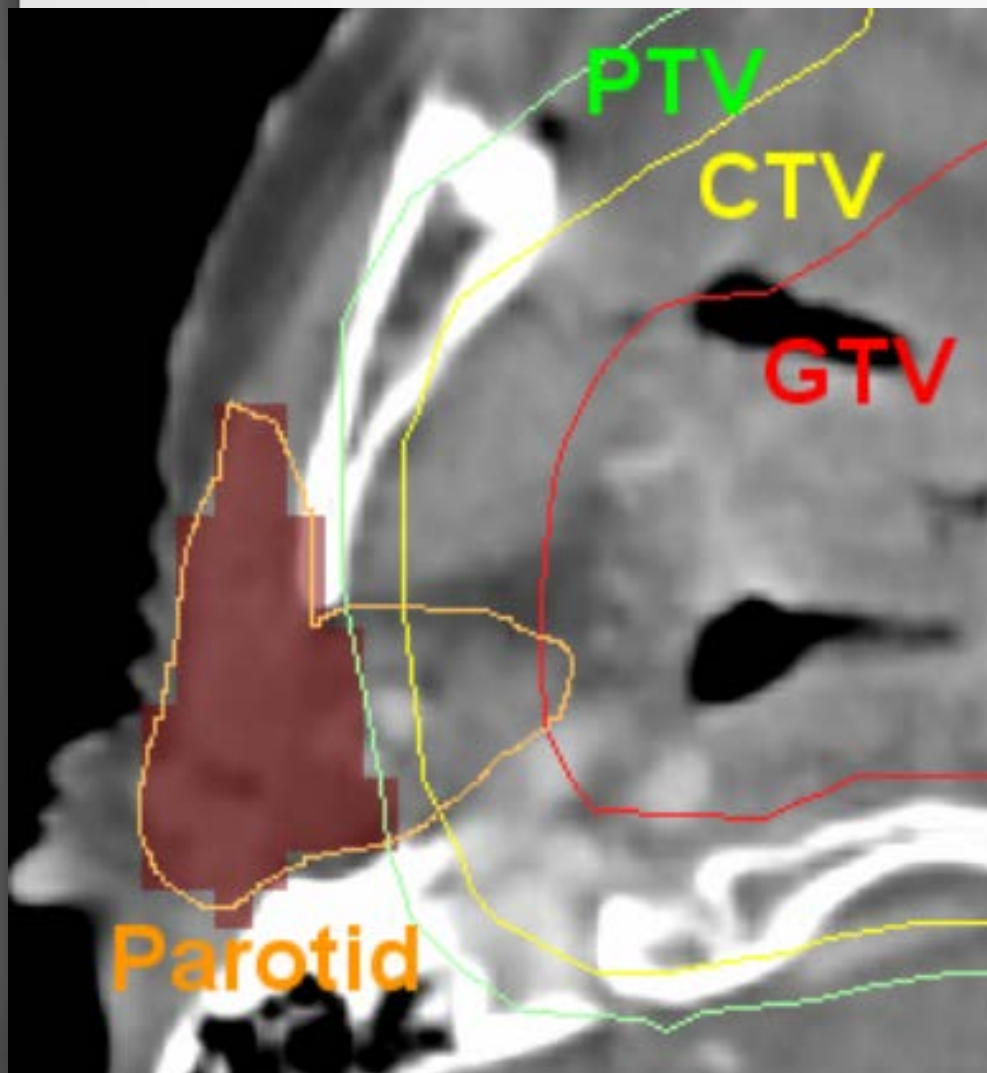
Shrink



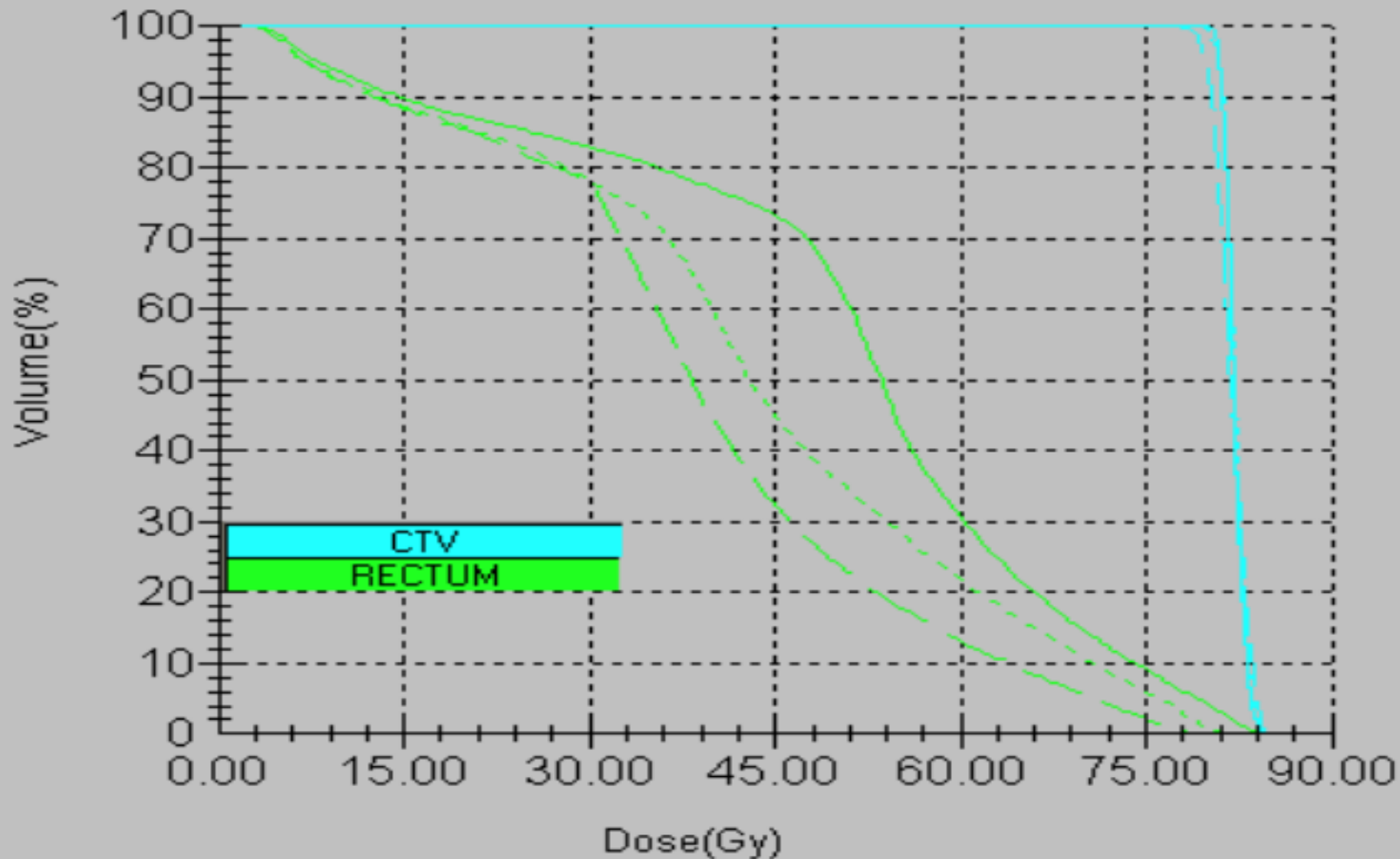
Shrink



Optimize over all voxels



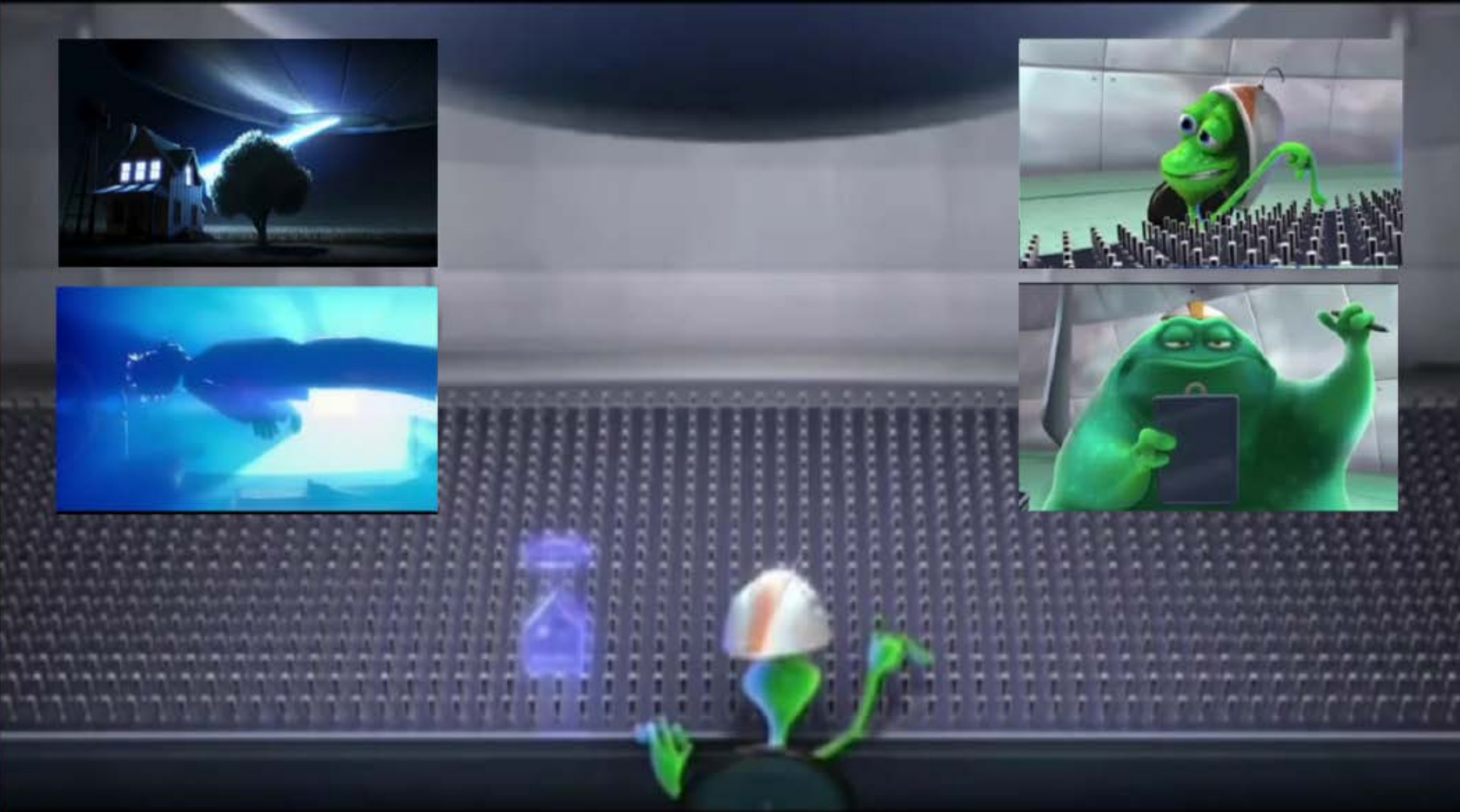
Multicriterial



Vmat – nelere karar verdik?

- arc açısı
- 1,2 veya 3 arc
- colimatör açısı
- masa açısı
- CP sayısı
- mlc gap
- smooth
- cf çeşitleri
t.eud / t.pen / q.und /
q.over / serial /
parallel /overDVH /
undDVH / max
- cf dozu / kriterleri
- cf shrink
- cf multicriterial

Pixar - Lifted



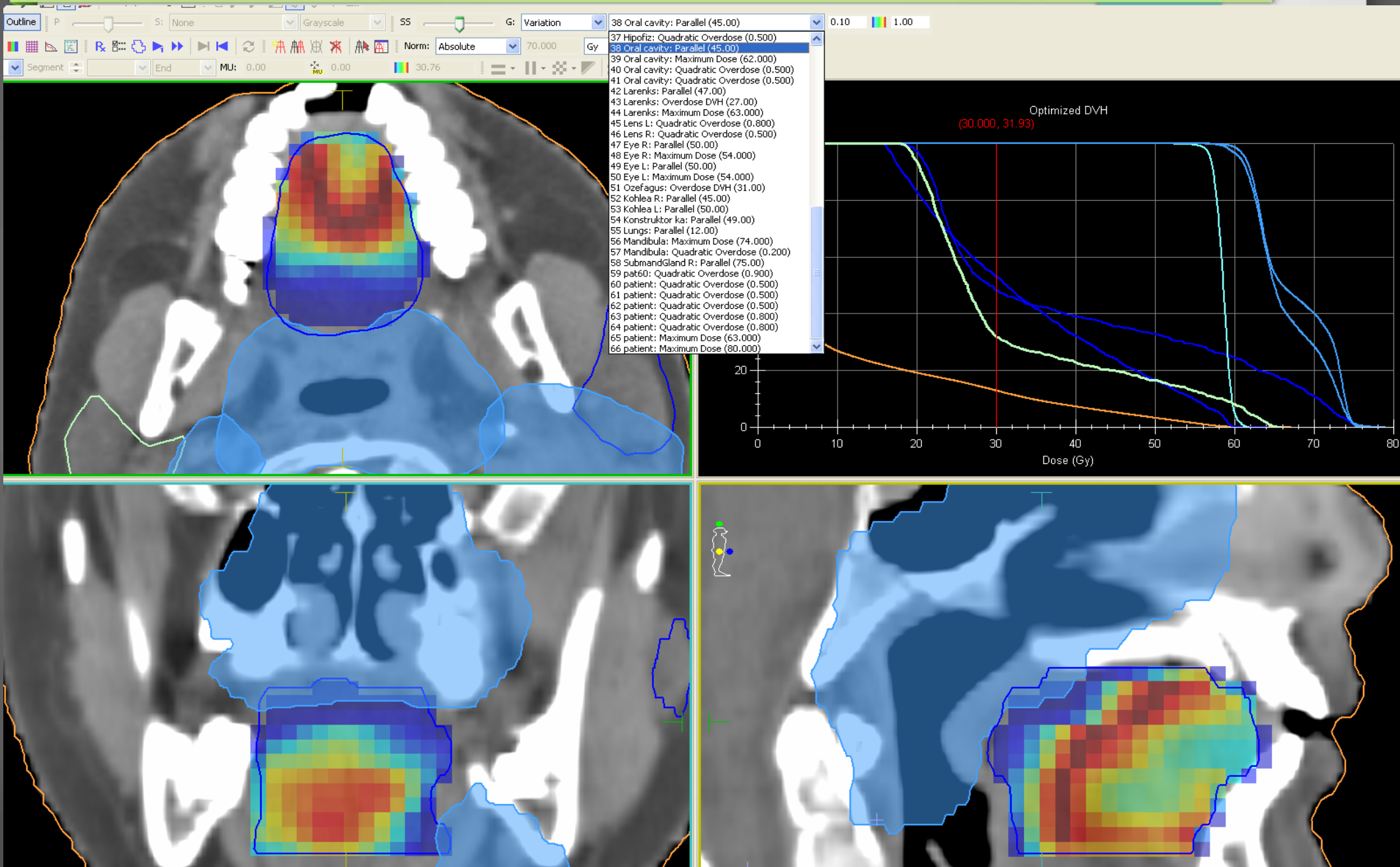
Prescription List

Prescription

Constraints Sensitivities

Structure	Cost Function	Enabled	Status	Manual	Weight	Reference Dose (Gy)	Multicriterial	Isoconstraint	Isoeffect	Relative Impact
PTV 70_Tumor	Target EUD	☒	On	☒	8.00			70.000	72.657	
	Target Penalty	☒	On	☒	8.00			70.000	70.451	
	Quadratic Overdose	☒	On	☒	5.00	74.000	☐	0.450	0.458	+++
	Overdose DVH	☒	On	☒	5.00	75.000	☐	15.00	12.75	+++
	Overdose DVH	☒	On	☒	0.15	78.000	☐	1.00	0.35	+
PTV 70_Nodal	Target EUD	☒	On	☒	8.00			70.000	72.755	
	Target Penalty	☒	On	☒	8.00			70.000	70.263	
	Quadratic Overdose	☒	On	☒	5.00	74.000	☐	0.300	0.302	+++
	Overdose DVH	☒	On	☒	3.00	75.000	☐	15.00	13.80	+++
	Overdose DVH	☒	On	☒	3.00	78.000	☐	1.00	0.04	++
PTV 60_Tumor	Target EUD	☒	On	☒	8.00			60.000	62.110	
	Target Penalty	☒	On	☒	8.00			60.000	60.085	
	Quadratic Overdose	☒	On	☒	1.00	69.000	☐	1.000	0.984	++
	Quadratic Overdose	☒	On	☒	3.00	65.000	☐	0.500	0.463	+++
	Quadratic Overdose	☒	On	☒	1.00	69.500	☐	0.050	0.001	++
PTV 60_Nodal	Target EUD	☒	On	☒	8.00			60.000	62.775	
	Target Penalty	☒	On	☒	8.00			60.000	60.656	
	Quadratic Overdose	☒	On	☒	1.00	69.000	☐	0.800	0.647	++
	Quadratic Overdose	☒	On	☒	3.00	65.000	☐	0.500	0.211	++
	Quadratic Overdose	☒	On	☒	1.00	69.500	☐	0.050	0.000	++
PTV 56_Nodal	Target EUD	☒	On	☒	8.00			56.000	58.004	
	Target Penalty	☒	On	☒	8.00			56.000	56.810	
	Quadratic Overdose	☒	On	☒	5.00	60.000	☐	0.400	0.131	+++
	Overdose DVH	☒	On	☒	15.00	61.000	☐	10.00	3.03	+++
	Overdose DVH	☒	On	☒	5.00	63.000	☐	3.00	0.04	++
Spinal cord	Maximum Dose	☒	On	☒	1.00			45.000	45.132	++
Brain stem	Maximum Dose	☒	On	☒	1.00			54.000	55.202	++
Kiasma	Maximum Dose	☒	On	☒	1.00			54.000	50.013	++
Optic nerve R	Maximum Dose	☒	On	☒	1.00			54.000	53.683	++
Optic nerve L	Maximum Dose	☒	On	☒	1.00			54.000	55.732	++
Parotis R	Parallel	☒	On	☒	0.07	26.000	☐	48.00	52.81	+
	Maximum Dose	☒	On	☒	0.01			62.000	61.856	
	Quadratic Overdose	☒	On	☒	1.00	30.000	☐	1.000	0.517	++
Parotis L	Parallel	☒	On	☒	150.00	26.000	☐	52.00	55.25	++++
	Maximum Dose	☒	On	☒	10.00			64.000	65.300	

Cf - Variation



Sensitivity

Prescription

Constraints Sensitivities

Structure	Cost Function	Isoconstraint	Isoeffect	Relative Impact	PTV 70	PTV 60	PTV RP54	PTV SAG ...	PTV SOL L...	Point Sensitivity
PTV 70	Target EUD	72.000	71.883							
	Target Penalty	70.000	70.244							
	Quadratic Overdose	0.500	0.000		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	12.00	4.78		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	3.00	0.59	+++	0.598	0.291	0.100	0.100	0.100	
PTV 60	Target EUD	62.000	62.065							
	Target Penalty	60.000	59.625							
	Quadratic Overdose	0.500	0.386		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose	0.500	0.196	++	0.100	0.100	0.100	0.000	0.100	
PTV RP54	Target EUD	56.000	58.918							
	Target Penalty	54.000	56.852							
	Quadratic Overdose	0.800	1.429	++	0.100	0.100	0.353	0.100	0.100	
	Quadratic Overdose	0.500	0.285	+	0.000	0.000	0.140	0.100	0.000	
PTV SAG L...	Target EUD	56.000	55.269							
	Target Penalty	54.000	54.628							
	Quadratic Overdose	0.500	0.200		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose	0.500	0.379		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	15.00	4.34	+++	0.102	0.185	0.822	0.654	0.113	
PTV SOL L...	Target EUD	56.000	55.297							
	Target Penalty	54.000	54.497							
	Quadratic Overdose	0.500	0.473	+	0.100	0.100	0.100	0.000	0.100	
	Quadratic Overdose	0.500	0.209		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	15.00	3.34	+++	0.107	0.159	0.328	0.104	0.480	
CORD	Maximum Dose	45.000	44.453	++	0.000	0.000	0.000	0.000	0.000	
brainstem	Maximum Dose	54.000	54.879	+	0.100	0.000	0.000	0.000	0.000	
optik kiazma	Maximum Dose	54.000	50.417		0.000	0.000	0.000	0.000	0.000	
sag optik s	Maximum Dose	54.000	56.119		0.000	0.000	0.000	0.000	0.000	
sol optik s	Maximum Dose	54.000	43.401		0.000	0.000	0.000	0.000	0.000	
SAG PARO...	Parallel	45.00	27.68		0.000	0.000	0.000	0.000	0.000	
	Parallel	37.00	14.57	+++	0.139	0.189	0.228	0.251	0.100	
	Overdose DVH	46.00	30.55	++++	1.442	2.000	2.000	2.000	0.333	
	Quadratic Overdose	0.100	0.209	+++	0.551	1.133	2.000	2.000	0.326	
	Parallel	50.00	34.67		0.000	0.000	0.000	0.000	0.000	
SOL PARO...	Parallel	35.00	22.25	+++	0.217	0.231	0.100	0.100	0.131	
	Overdose DVH	49.00	37.17	++++	2.000	2.000	1.495	0.325	2.000	
	Quadratic Overdose	0.500		Raising this constraint by 1 % changes the isoeffect to PTV 70 by 2.00 Gy					0.135	0.872
sag lens	Quadratic Overdose	1.000	0.374		0.000	0.000	0.000	0.000	0.000	
sol lens	Quadratic Overdose	1.000	0.000		0.000	0.000	0.000	0.000	0.000	
sag goz	Parallel	50.00	8.08		0.000	0.000	0.000	0.000	0.000	

Sensitivity

Prescription

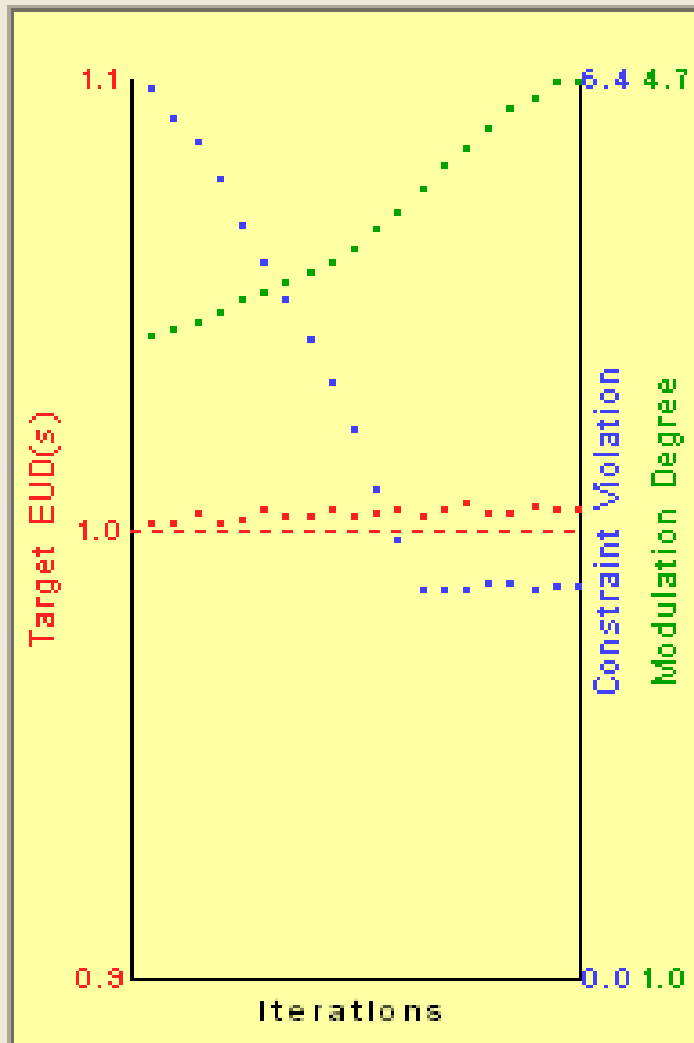
Constraints Sensitivities

Structure	Cost Function	Isoconstraint	Isoeffect	Relative Impact	PTV 70	PTV 60	PTV RP54	PTV SAG ...	PTV SOL L...	Point Sensitivity
PTV 70	Target EUD	72.000	71.883							
	Target Penalty	70.000	70.244							
	Quadratic Overdose	0.500	0.000		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	12.00	4.78		0.000	0.000	0.000	0.000	0.000	
	Overdose DVH	3.00	0.59	+++	0.598	0.291	0.100	0.100	0.100	
PTV 60	Target EUD	62.000	62.065							
	Target Penalty	60.000	59.625							
	Quadratic Overdose	0.500	0.386		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose	0.500	0.196	++	0.100	0.100	0.100	0.000	0.100	
PTV RP54	Target EUD	56.000	58.918							
	Target Penalty	54.000	56.852							
	Quadratic Overdose	0.800	1.429	++	0.100	0.100	0.353	0.100	0.100	
	Quadratic Overdose	0.500	0.285	+	0.000	0.000	0.140	0.100	0.000	
PTV SAG L...	Target EUD	56.000	55.269							
	Target Penalty	54.000	54.628							
	Quadratic Overdose	0.500	0.200		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose									
PTV SOL L...	Overdose DVH	50.00	34.67			0.000		0.000		0.000
	Target EUD	35.00	22.25	+++		0.217		0.231		0.100
	Target Penalty									
	Quadratic Overdose	49.00	37.17	++++		2.000		2.000		1.495
	Quadratic Overdose									
CORD	Overdose DVH	0.500								
	Maximum Dose									
	Maximum Dose	1.000	0.374			0.000		0.000		0.000
	Maximum Dose									
	Maximum Dose	1.000	0.000			0.000		0.000		0.000
SAG PARO...	Maximum Dose									
	Parallel	45.00	27.68		0.000	0.000	0.000	0.000	0.000	
	Parallel	37.00	14.57	+++	0.139	0.189	0.228	0.251	0.100	
	Overdose DVH	46.00	30.55	++++	1.442	2.000	2.000	2.000	0.333	
	Quadratic Overdose	0.100	0.209	+++	0.551	1.133	2.000	2.000	0.326	
SOL PARO...	Parallel	50.00	34.67		0.000	0.000	0.000	0.000	0.000	
	Parallel	35.00	22.25	+++	0.217	0.231	0.100	0.100	0.131	
	Overdose DVH	49.00	37.17	++++	2.000	2.000	1.495	0.325	2.000	
	Quadratic Overdose	0.500						0.135	0.872	
sag lens	Quadratic Overdose	1.000	0.374		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose	1.000	0.000		0.000	0.000	0.000	0.000	0.000	
	Quadratic Overdose	1.000	0.000		0.000	0.000	0.000	0.000	0.000	
sag goz	Parallel	50.00	8.08		0.000	0.000	0.000	0.000	0.000	

Raising this constraint by 1 % changes the isoeffect to PTV 70 by 2.00 Gy

Raising this constraint by 1 % changes the isoeffect to PTV 70 by 2.00 Gy

Progressmetre ve Konsol



Optimization Console

File Edit View

☒ Auto Update ☒ Auto Scroll ☒ Always On Top

Print..

Time	Message
11/19/2013 9:05:32 PM	59 ON/Manual L:0.01000 O:-0.98075 IC:0.50 IE:0.07
11/19/2013 9:05:32 PM	60 ON/Manual L:1.00000 O:-0.67367 IC:0.50 IE:0.29
11/19/2013 9:05:32 PM	61 ON/Manual L:0.01998 O:-0.70670 IC:0.50 IE:0.27
11/19/2013 9:05:32 PM	62 ON/Manual L:0.01016 O:0.74169 IC:0.80 IE:1.06
11/19/2013 9:05:32 PM	63 ON/Manual L:0.01000 O:5.46773 IC:0.80 IE:2.03
11/19/2013 9:05:32 PM	64 ON/Manual L:11.20829 O:-0.98593 IC:63.00 IE:61.74
11/19/2013 9:05:32 PM	65 ON/Manual L:0.01000 O:-0.94558 IC:80.00 IE:77.48
11/19/2013 9:05:32 PM	-----
11/19/2013 9:05:32 PM	This plan requires a modulation degree of 5.48652
11/19/2013 9:05:32 PM	(relative to unmodulated, 3D conformal treatment of the same case)
11/19/2013 9:05:32 PM	NOTICE: to lower the modulation degree and thereby the MU for the final
11/19/2013 9:05:32 PM	plan, accept more organ dose or less homogeneous target dose.
11/19/2013 9:05:32 PM	-----

Message Filter: Clear All Filters

Ready

Isodose Control

Progress Meter

Plan Kabul Kriterleri

1. Sinir Yapıları

- . Medulla max. 45Gy
- . BeyinSapı, Optik Sinir, Kiazma max. 54Gy

2. Hedef Yapılar

- .V95 = prescription dose
- .V110 < %20, V115<%1

3. Salgı bezleri

- Parotis mean 26Gy
- 30Gy < %50 (minor deviation < %60)

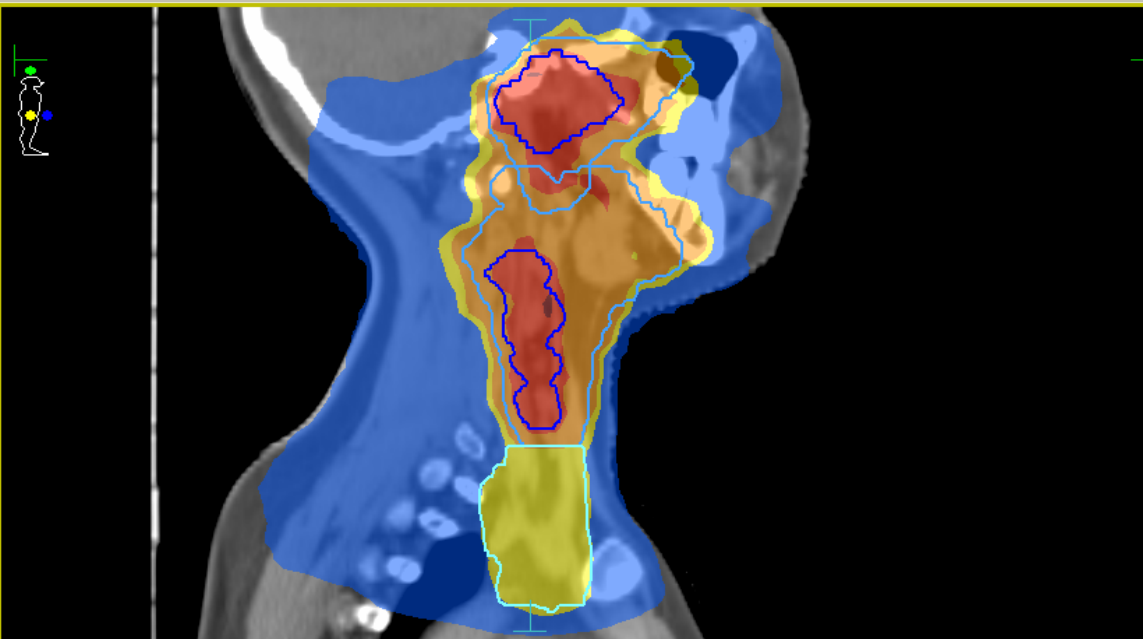
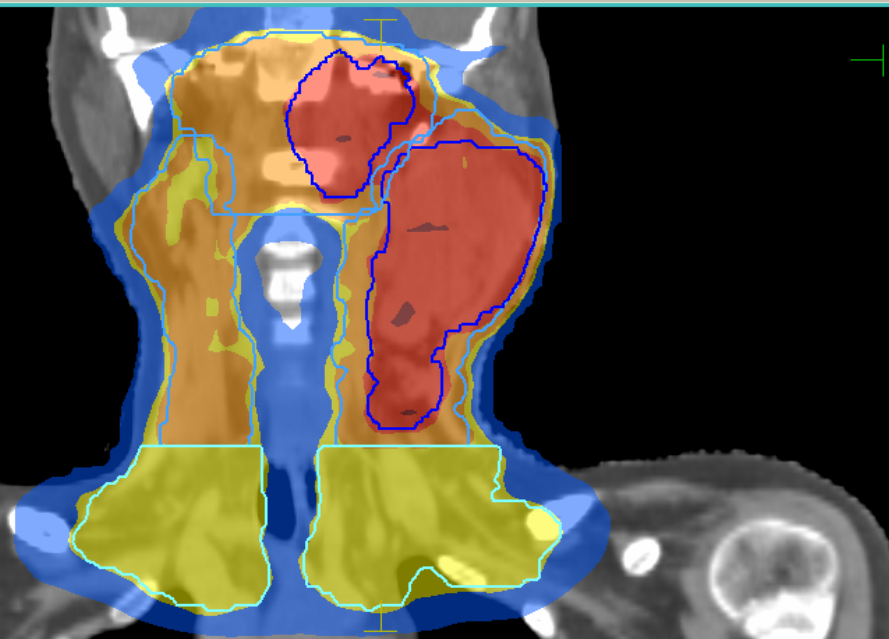
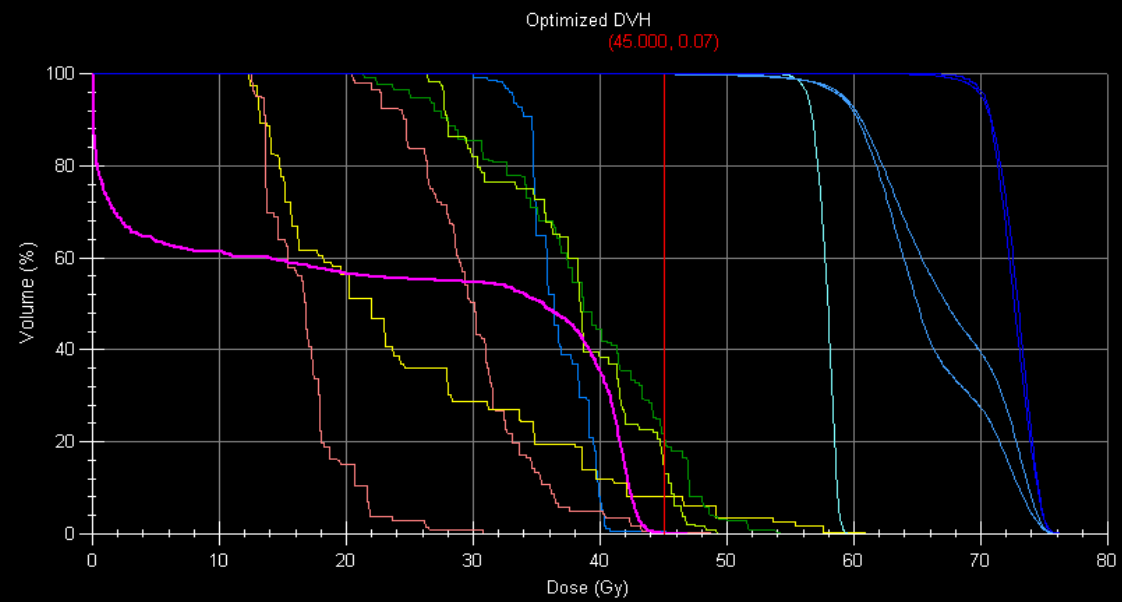
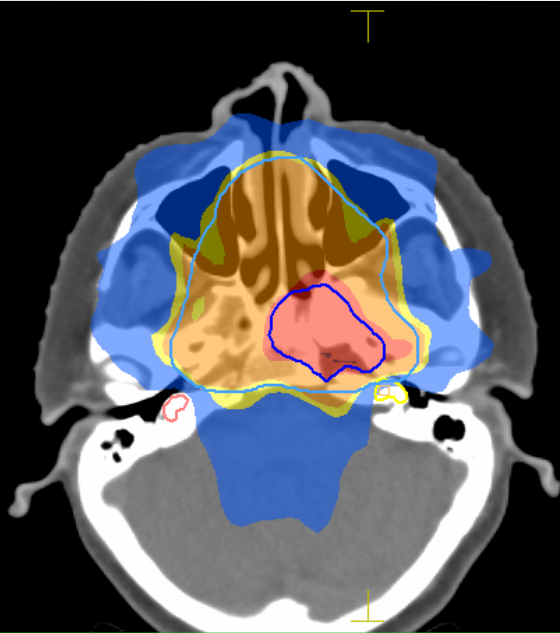
4. Diğerleri

Plan Kabul Kriterleri

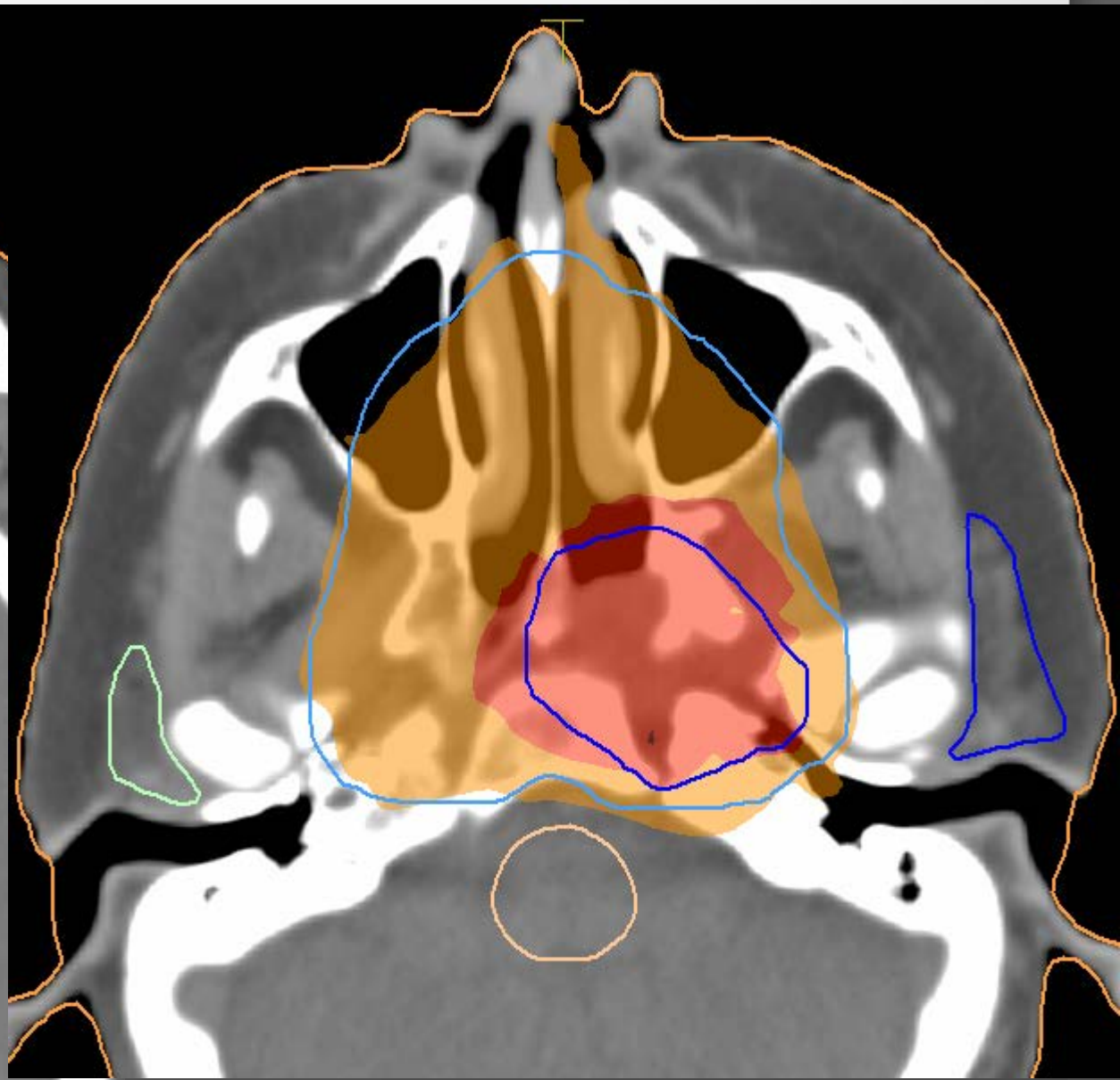
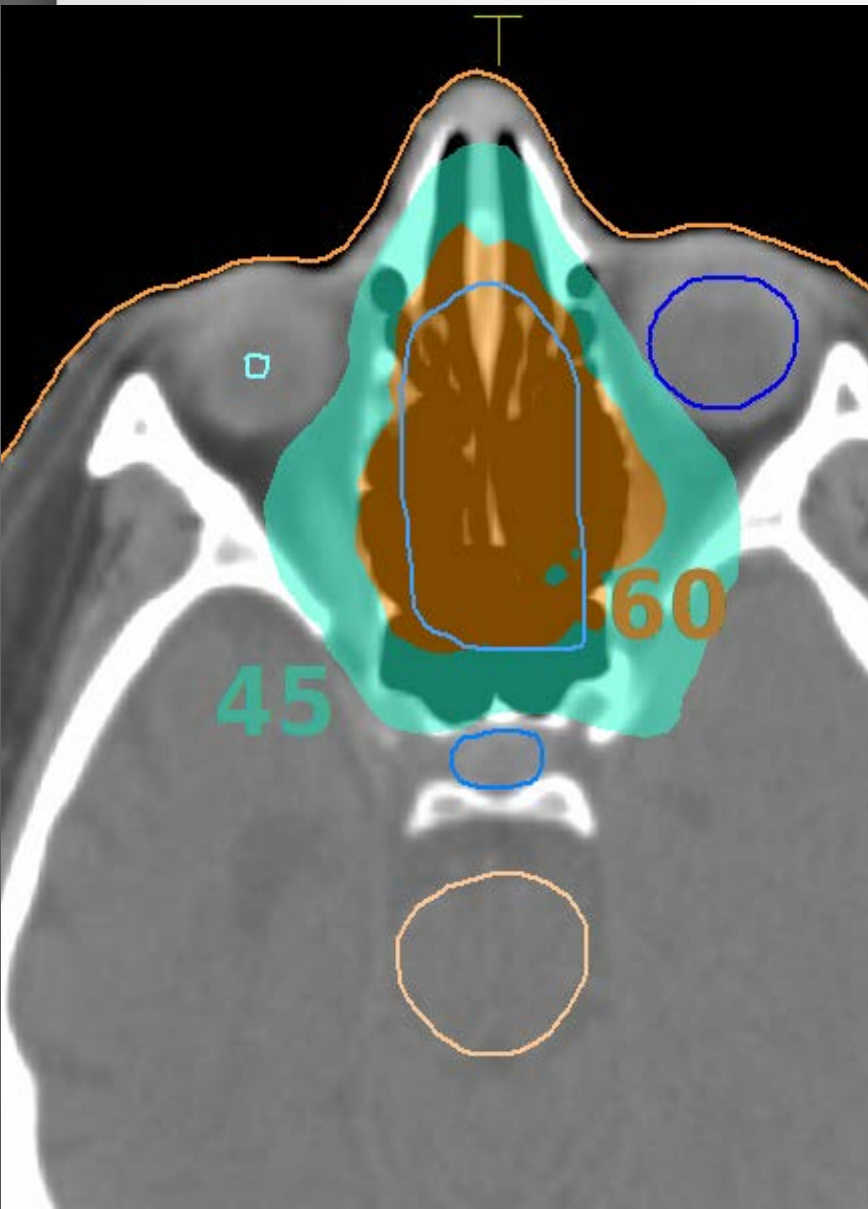
Statistics | Display

Structure	Max....	Mean Dose (Gy)	Cold Ref. (Gy)	Volume < (%)	Hot Ref. (Gy)	Volume > (%)
PTV 70_Tumor	78.200	72.984	70.000	0.59	77.000	0.18
PTV 70_Nodal	76.919	73.004	70.000	1.31	77.000	0.00
PTV 60_Tumor	78.276	66.481	60.000	4.03		
PTV 60_Nodal	76.919	67.831	60.000	1.40		
PTV 56_Nodal	63.855	58.781	56.000	1.68	61.600	1.34
Spinal cord	45			50	< 1cc	
Brain stem	54			60	< %1	
Kiazma	54			60	< %1	
Optic nerve R	54			60	< %1	
Optic nerve L	54			60	< %1	
Parotis R		26		30	< %50	
Parotis L		26		30	< %50	
Hipofiz						
Oral cavity	60	30				
Larenks	63	44		50	< %27	
Lens L	7					
Lens R	7					
Eye R	54	35				
Eye L	54	35				
Ozefagus				45	< %33	
Kohlea R		45				
Kohlea L		45				
Konstruktor ka		50				
Lungs						
Mandibula	70			70	< 1cc	
SubmandGland R		35				

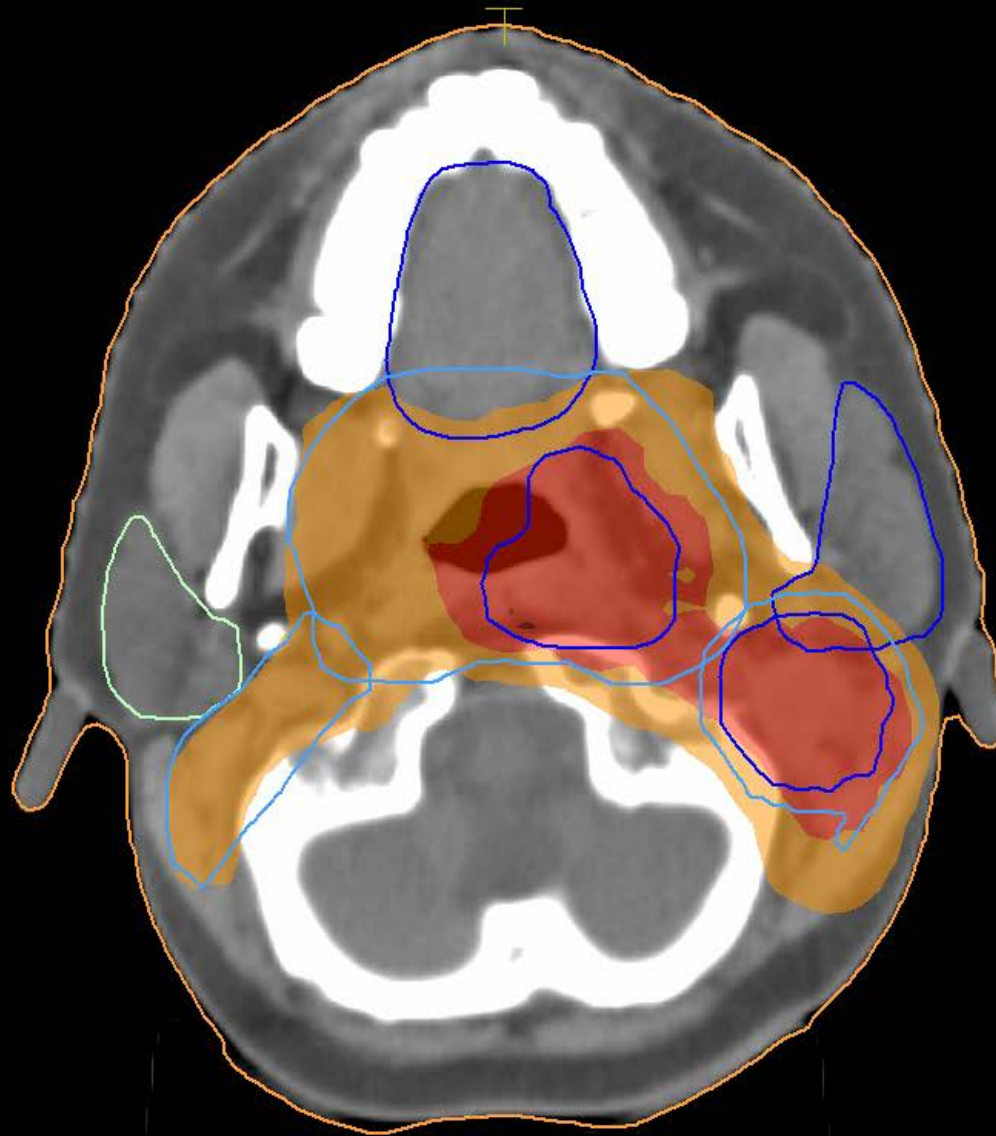
Stage 1



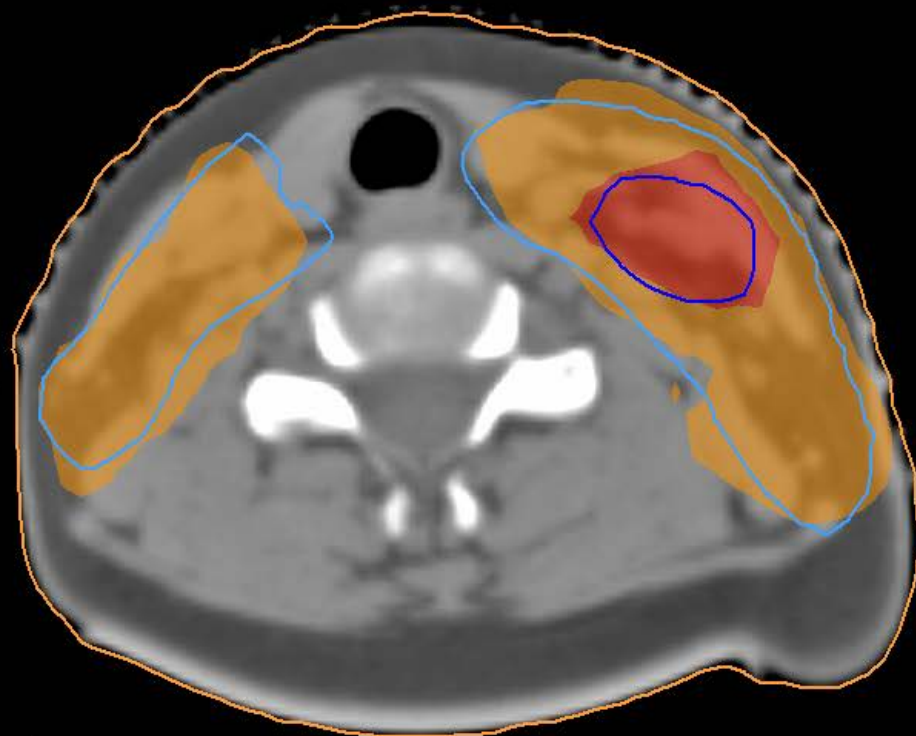
Stage 2



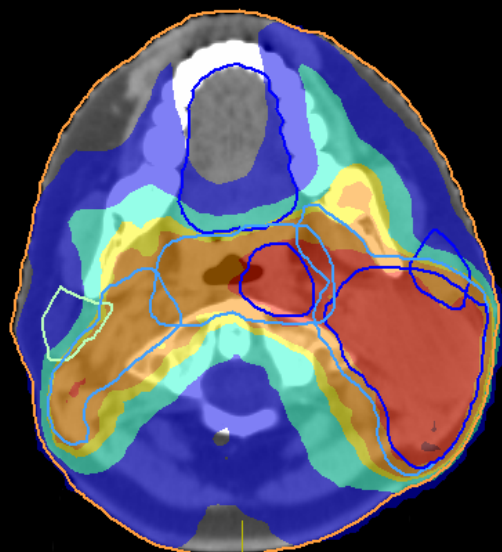
Stage 2



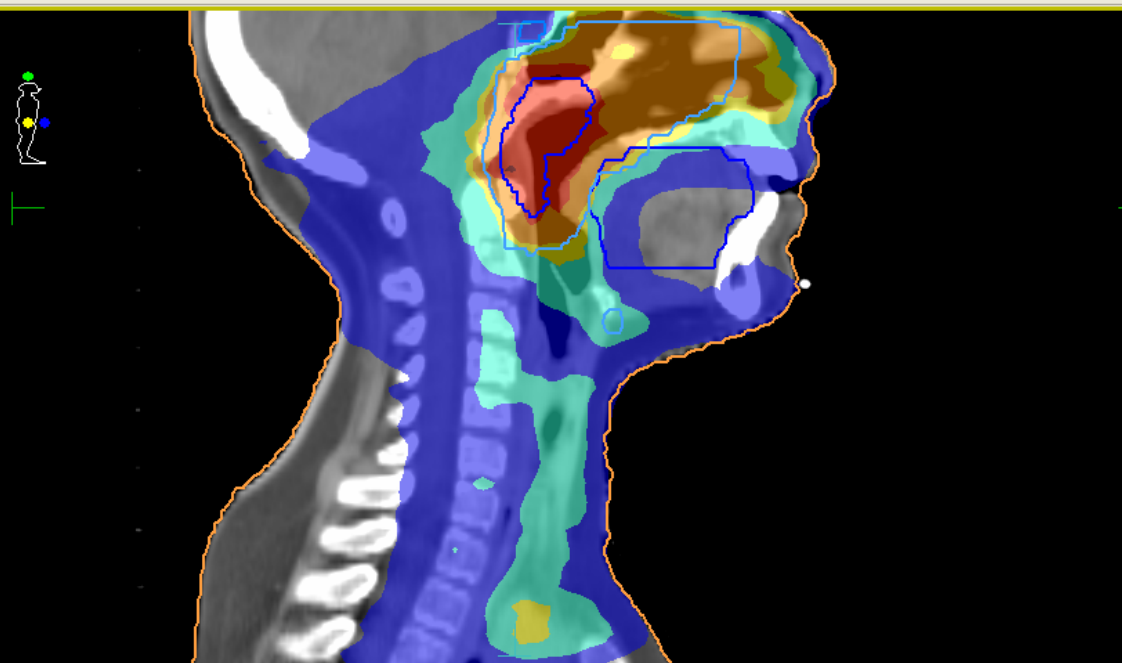
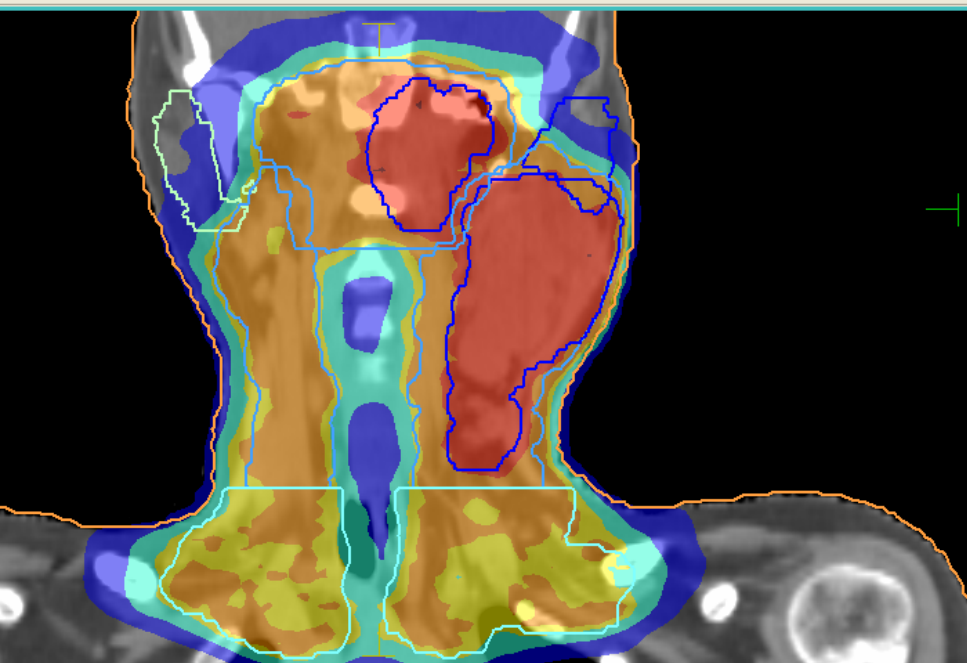
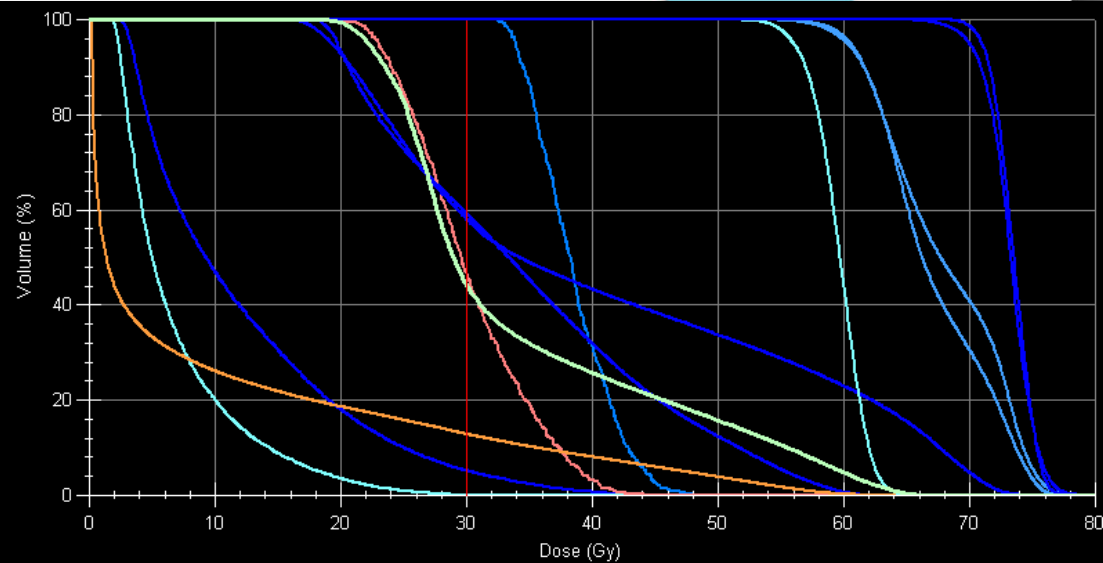
Stage 2



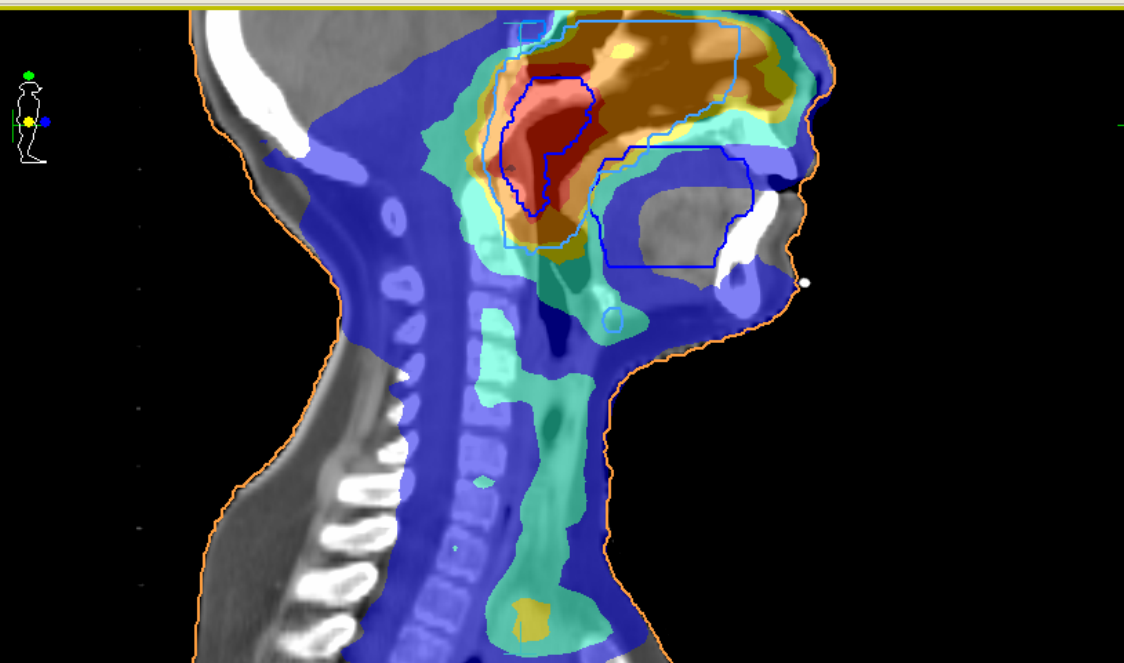
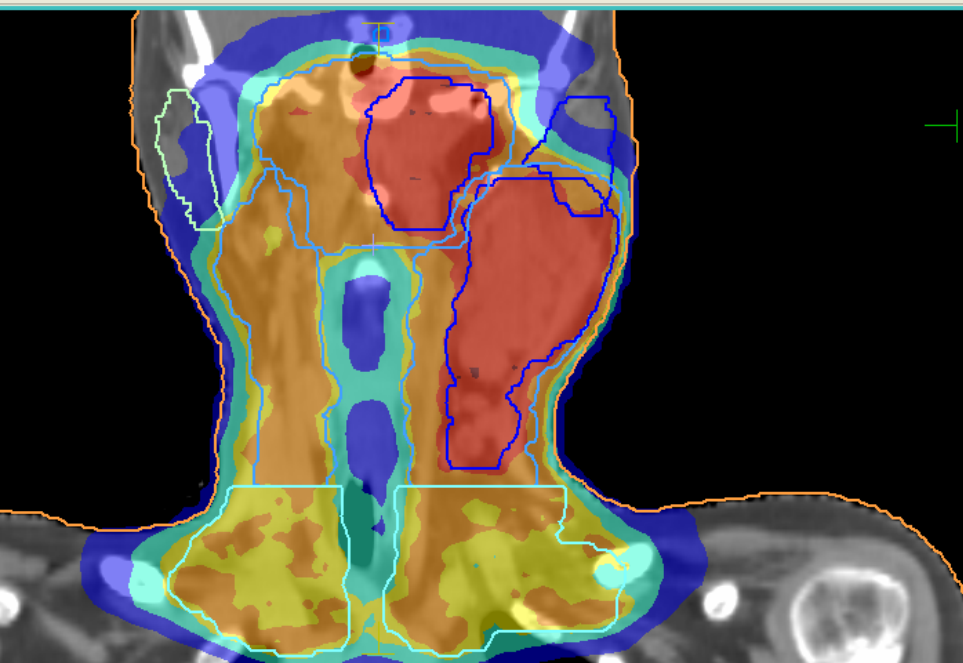
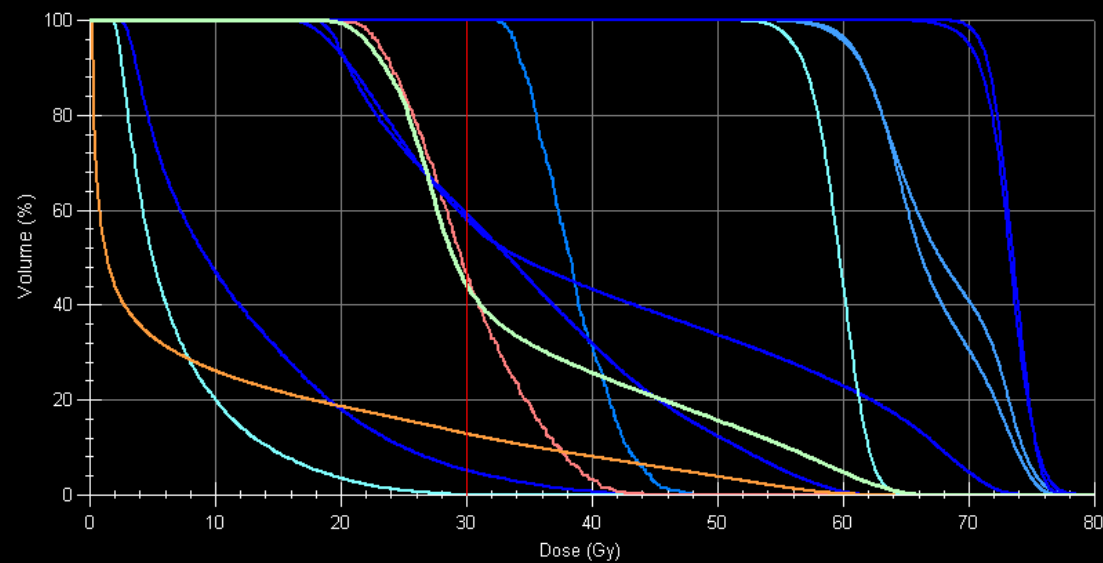
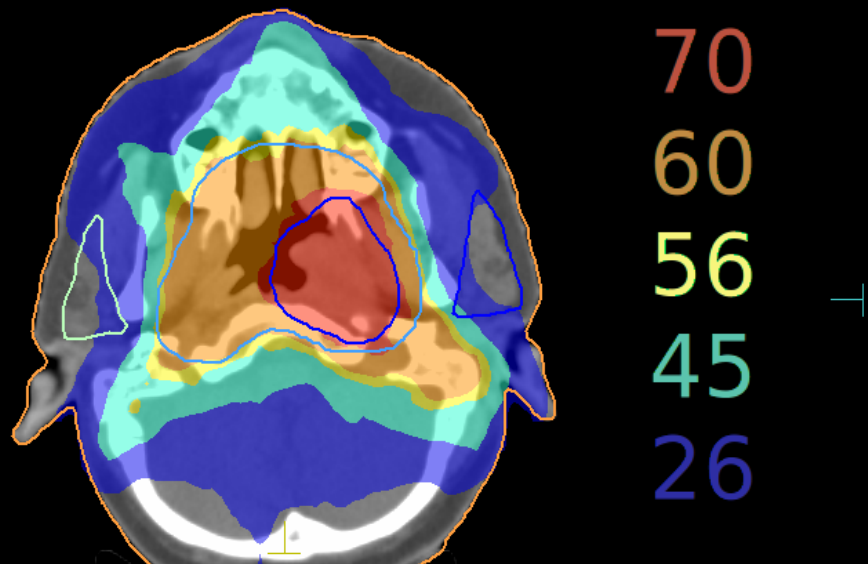
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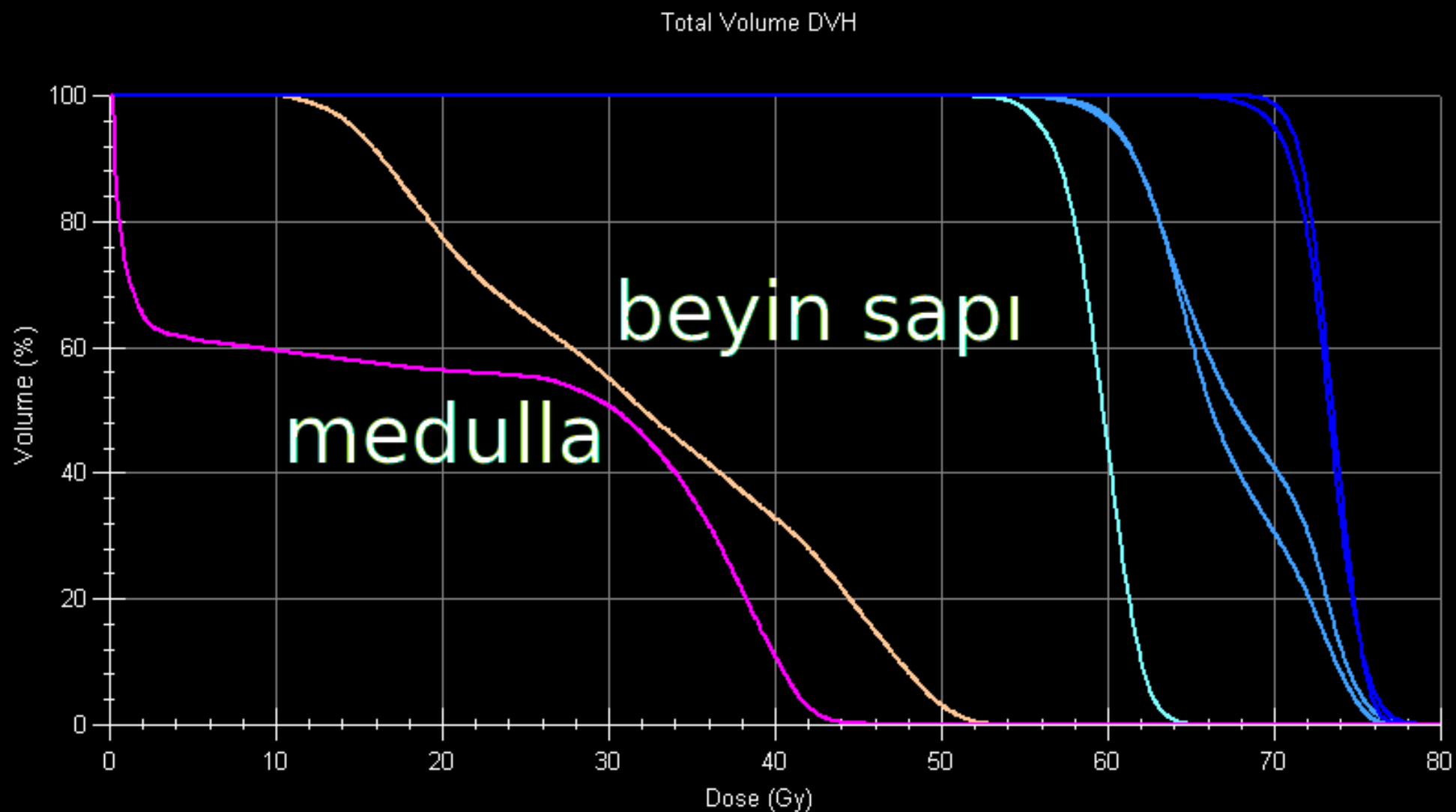
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56
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26



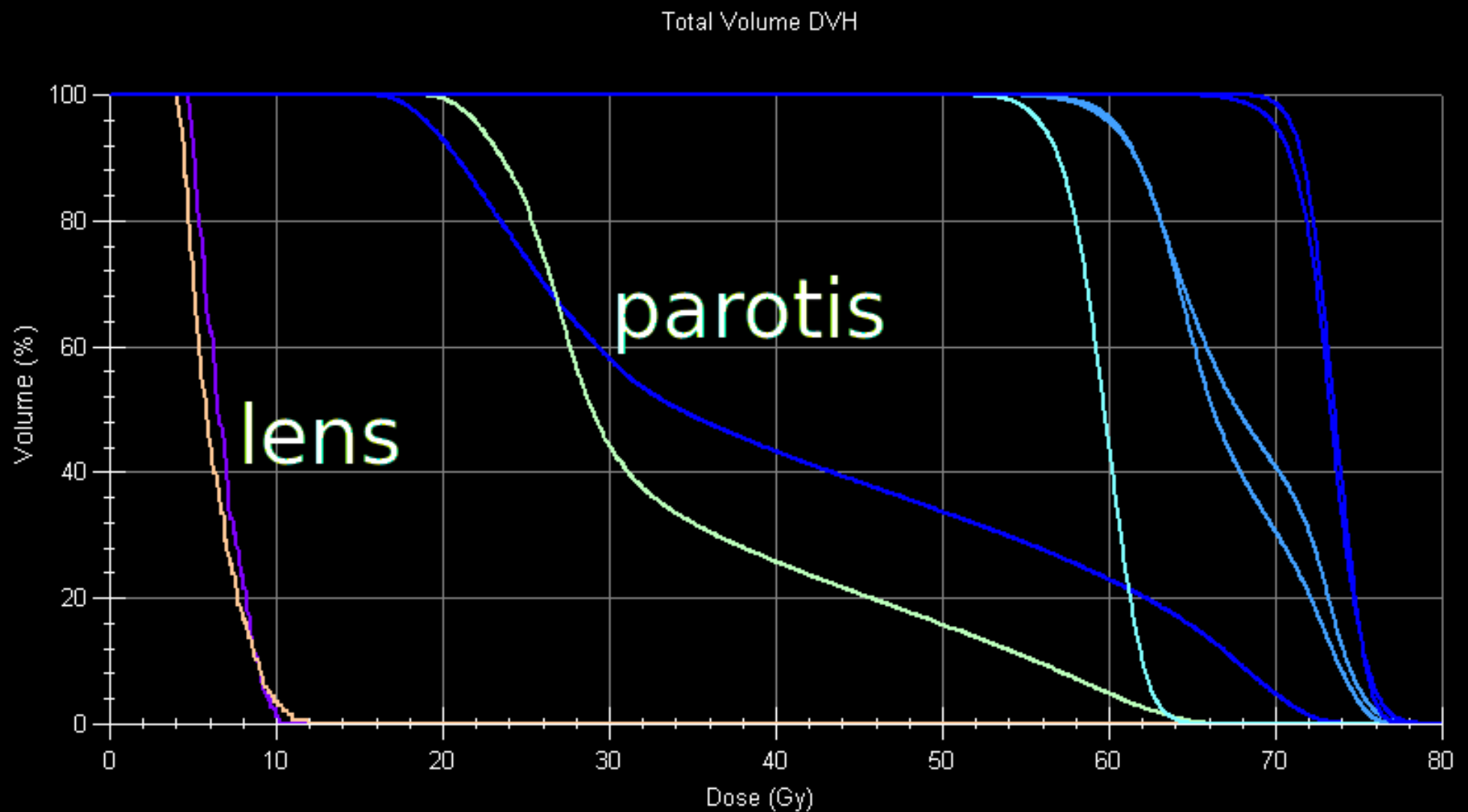
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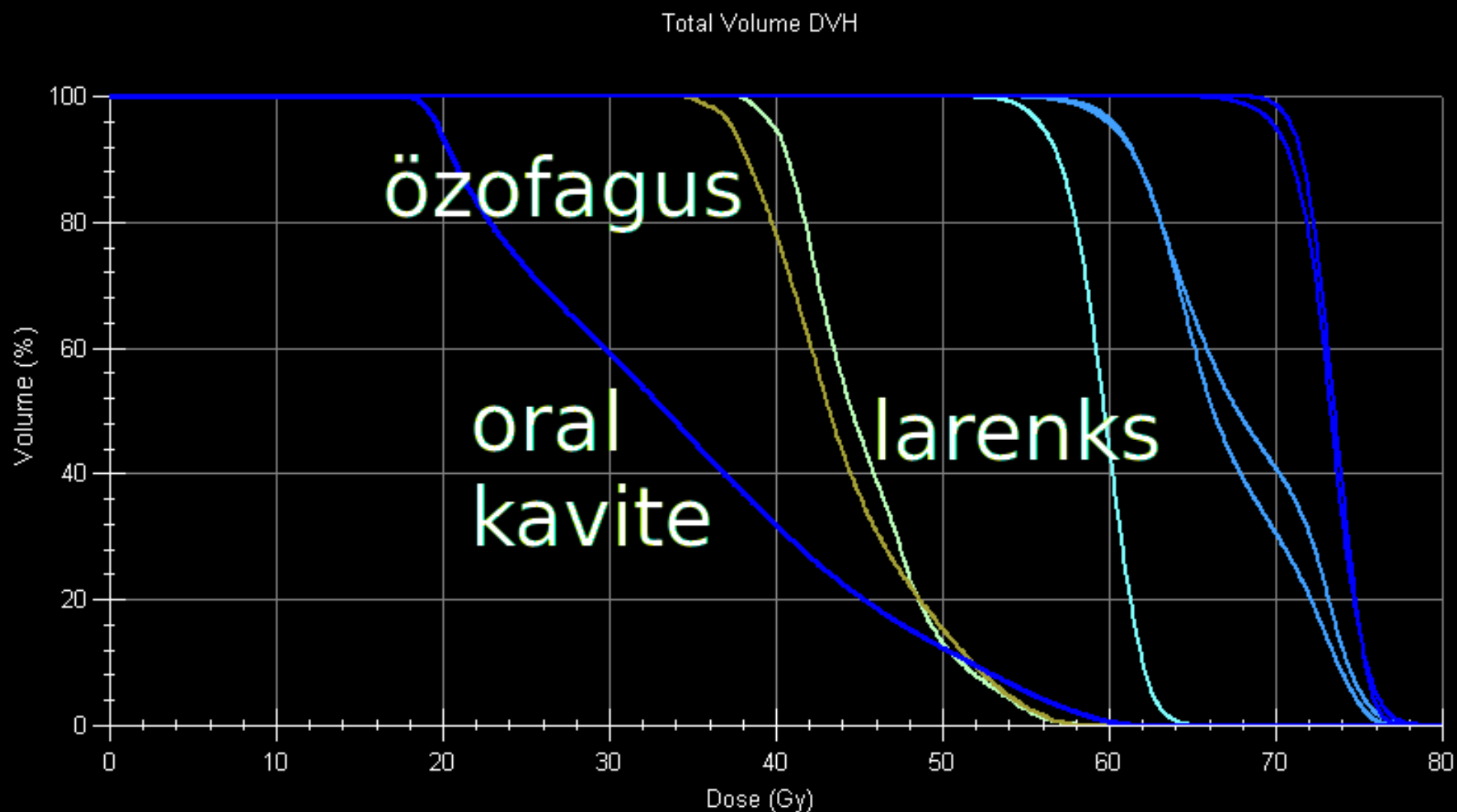
DVH



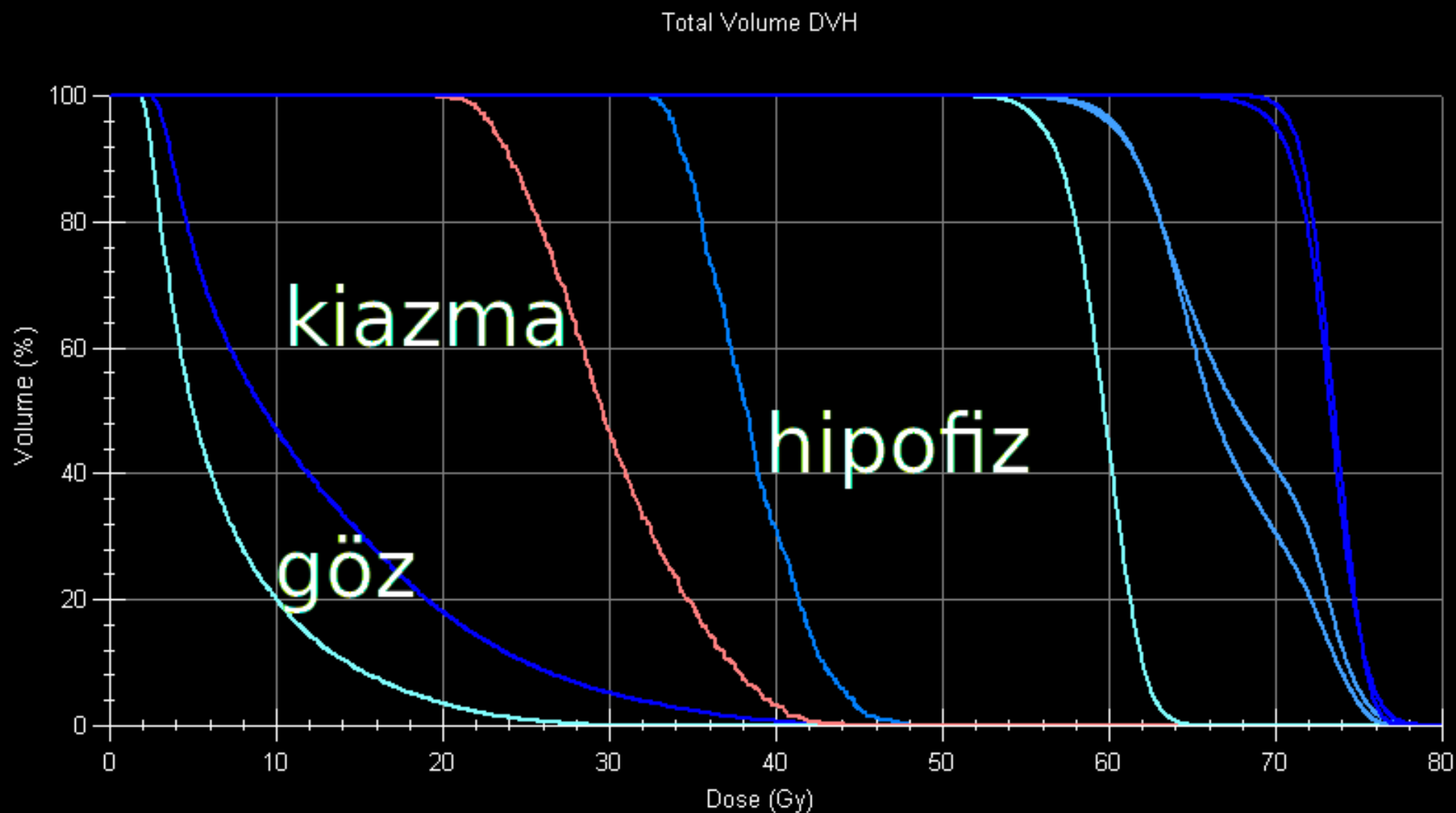
DVH



DVH



DVH



Kritik Organ Dozları

DVH Statistics (Total Volume)								
Statistics Display								
Structure	Max....	Mea...	Cold R...	Volu...	Hot Re...	Volum...	Heterog...	Conf...
PTV 70_Tumor	79.785	73.478	70.000	1.40	77.000	0.39	1.09	0.99
PTV 70_Nodal	80.861	73.188	70.000	5.00	77.000	1.43	1.12	0.95
PTV 60_Tumor	79.785	67.092	60.000	4.31			1.29	0.96
PTV 60_Nodal	80.861	67.985	60.000	3.57			1.29	0.96
PTV 56_Nodal	66.676	59.568	56.000	4.95	61.600	15.34	1.15	0.95
Spinal cord	47.452	21.227			45.000	0.19	164.50	0.00
Brain stem	54.742	31.948			54.000	0.02	3.46	0.00
Kiazma	44.072	30.179			54.000	0.00	1.70	0.00
Optic nerve R	46.197	29.499			54.000	0.00	2.42	0.00
Optic nerve L	55.808	39.166					2.33	0.02
Parotis R	67.298	34.258			30.000	44.31	2.70	0.03
Parotis L	75.197	40.538			30.000	58.06	3.63	0.17
Hipofiz	47.898	38.475					1.31	1.00
Oral cavity	62.859	34.558					2.80	0.00
Larenks	58.563	45.300			50.000	13.19	1.34	0.00
Lens L	10.191	6.755					1.91	1.00
Lens R	11.878	6.244					2.28	1.00
Eye R	31.588	6.882					7.84	0.00
Eye L	47.463	12.124					9.09	0.00
Ozefagus	58.364	44.129			45.000	36.77	1.44	1.00
Kohlea R	55.393	46.943					1.37	0.70
Kohlea L	66.256	53.091					1.42	0.71
Konstruktor ka	76.455	54.119					1.89	0.61
Lungs	64.077	5.928			20.000	8.52	81.71	0.15
Mandibula	74.344	44.860			70.000	0.08	2.82	0.00
SubmandGland R	69.002	60.808			35.000	100.00	1.17	0.00
pat60	80.861	65.290					1.35	1.00
patient(Unsp.Tiss.)	69.974	9.395					273.76	0.00
Brain	73.381	8.783			65.000	0.08	75.31	

Print

OK

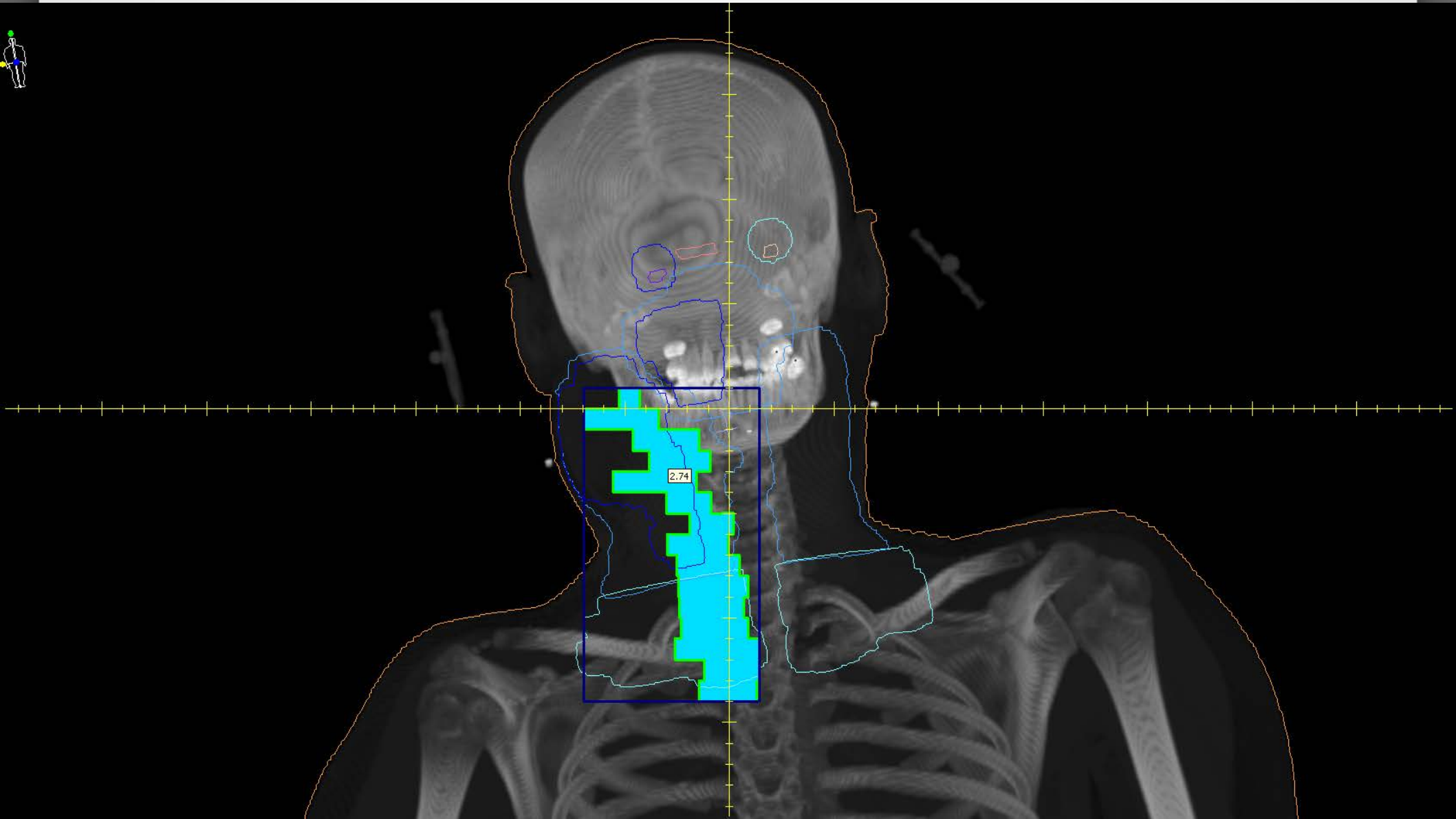
Konsol

Optimization Console	
File Edit View	
☒ Auto Update ☒ Auto Scroll ☒ Always On Top	
Print..	
Time	Message
11/20/2013 12:44:56 AM	# Dose uncertainty of MC calculation: #
11/20/2013 12:44:56 AM	# For the entire treatment plan: 1.00 per cent #
11/20/2013 12:44:56 AM	# For each segment (control point): 9.18 per cent #
11/20/2013 12:44:56 AM	# #
11/20/2013 12:44:56 AM	#####
11/20/2013 12:44:56 AM	#
11/20/2013 12:44:56 AM	Target Objectives before Sequencing: 1.02315
11/20/2013 12:44:56 AM	Target Objectives after Sequencing: 0.99790
11/20/2013 12:44:56 AM	Loss (per cent): 2.47
11/20/2013 12:44:56 AM	-----
11/20/2013 12:45:03 AM	Computing constraint sensitivities... done!
11/20/2013 12:45:03 AM	OptAgent: * converged * (including segment shapes)
11/20/2013 12:46:20 AM	Rescale: 100.00 % of 70.000 Gy to cover 95.00 % of PTV 70_Nodal
11/20/2013 12:46:38 AM	Rescale: 100.00 % of 70.000 Gy to cover 95.00 % of PTV 70_Nodal
Message Filter:	
Ready	

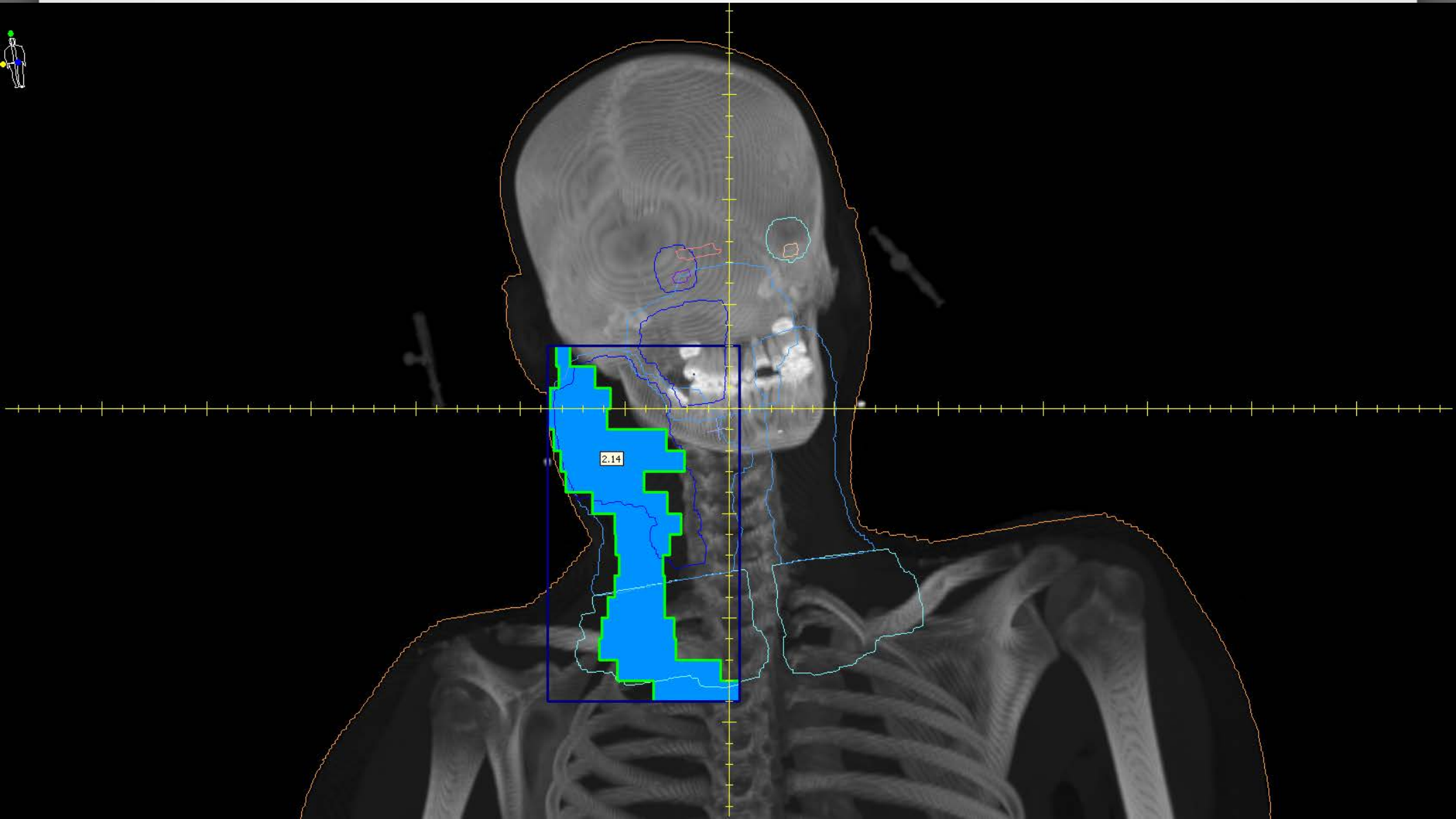
Final plan statistics:

Number of segments	364
Number of monitorunits (# MU)	1129.08 MU
Estimated total delivery time	463.28 seconds
Minimum # MU for ideal delivery	1042.86 MU
Estimated MU efficiency	92 %

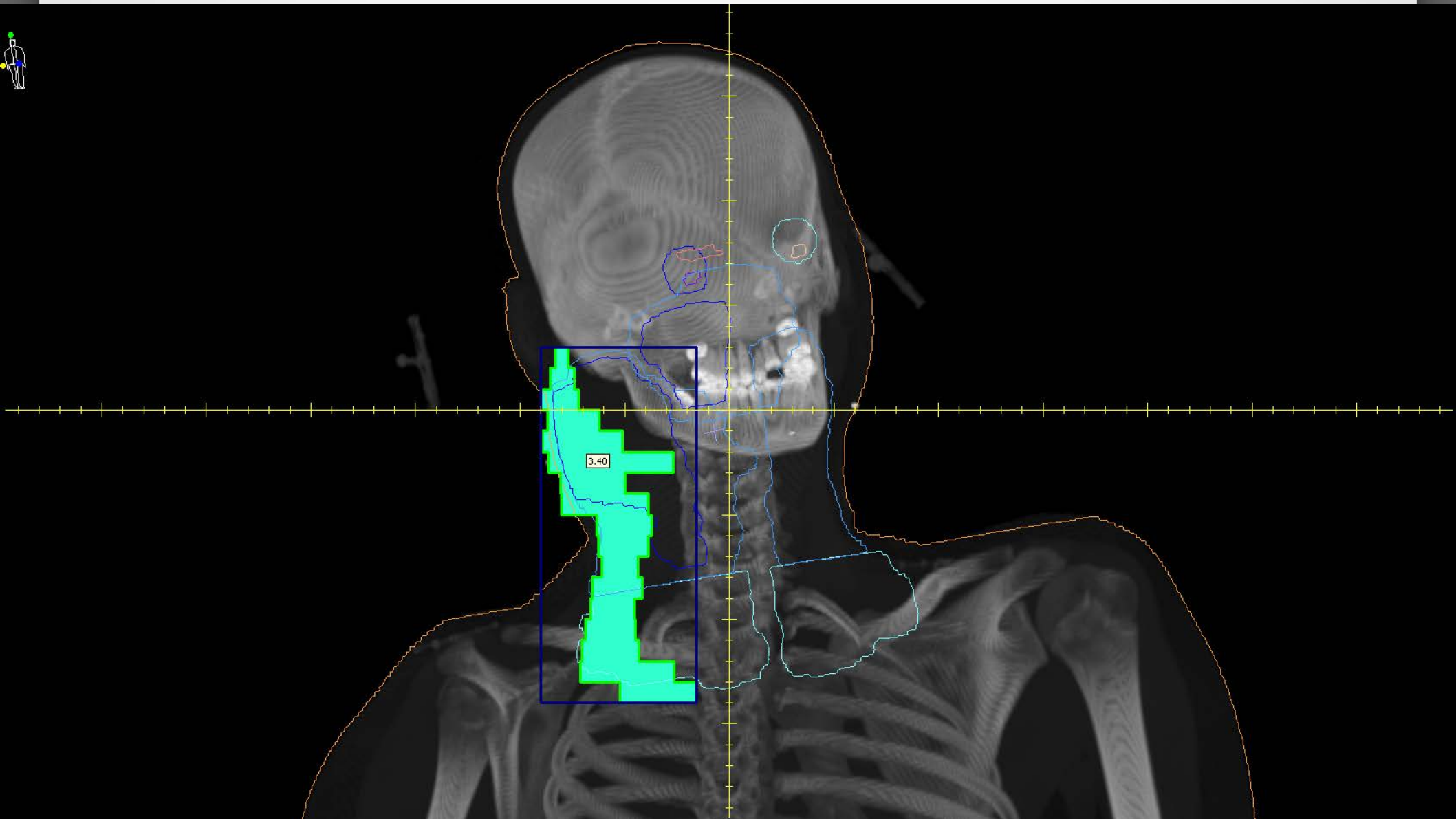
Segment 1 (2.7mu)



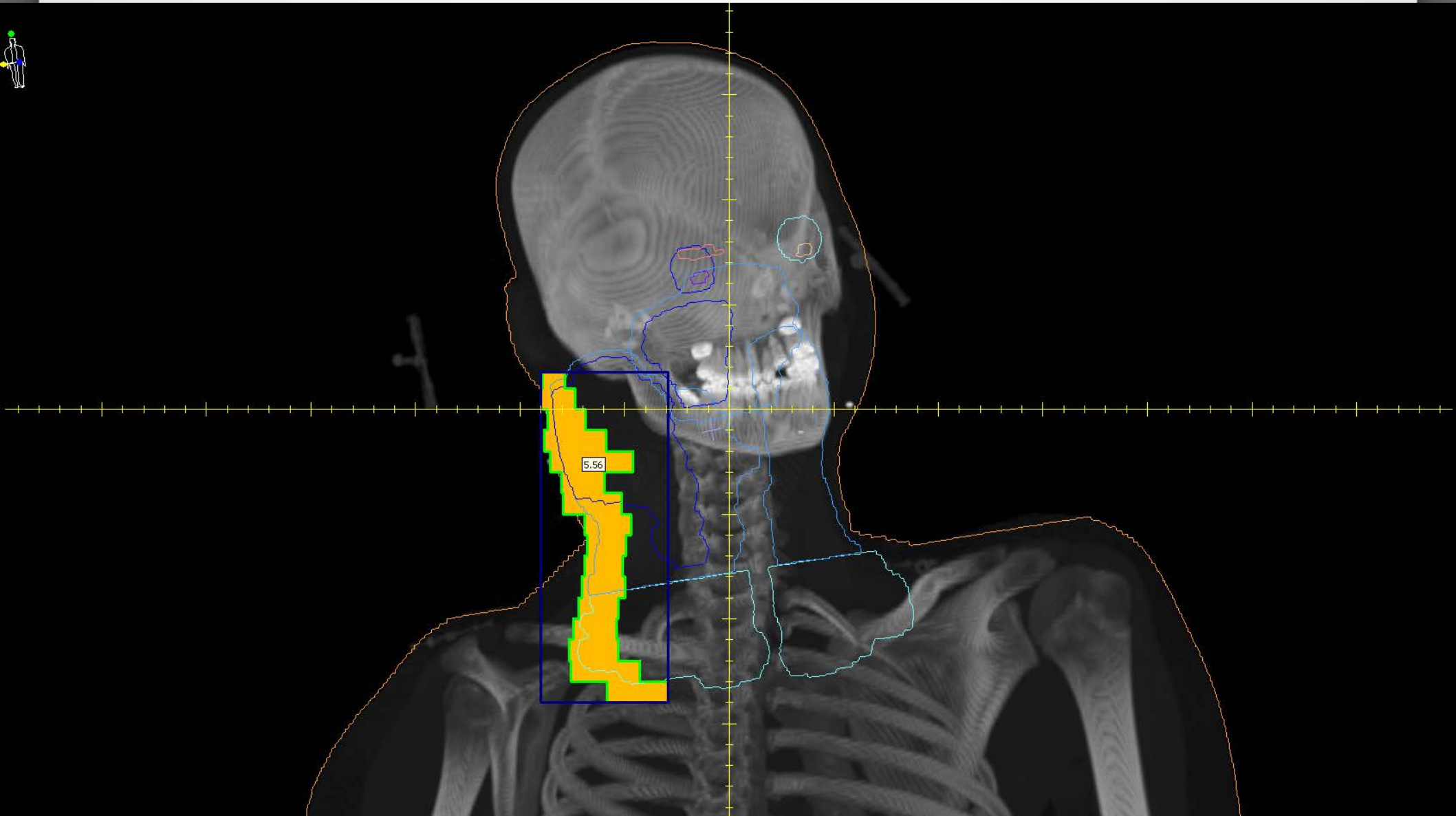
Segment 2 (2.1mu)



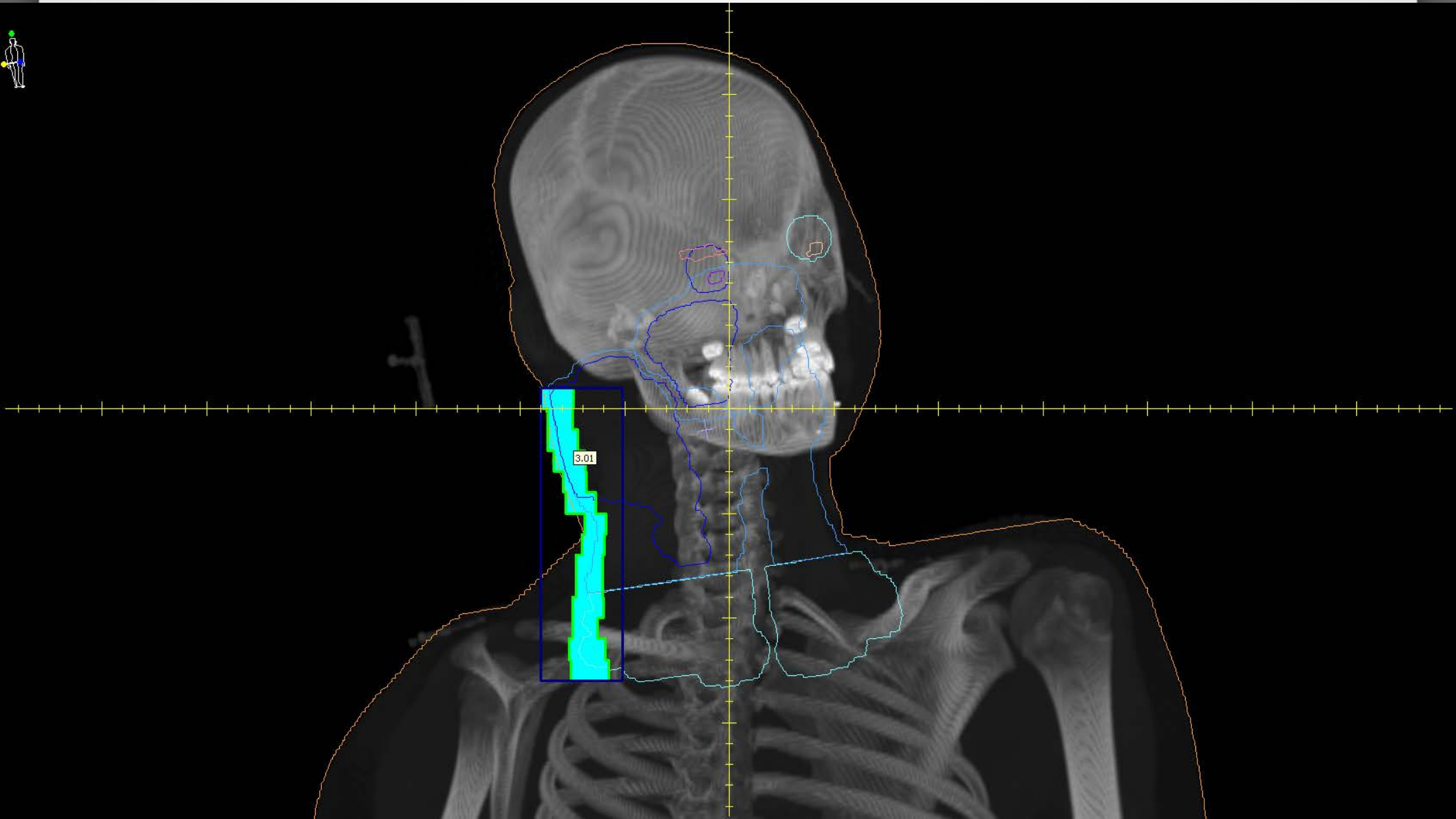
Segment 3 (3.4mu)



Segment 4 (5.6mu)



Segment 5 (3.0mu)



3D-QA Delta4



Kalite Kontrol

- Hasta bazlı Kalite Kontrol
 - Delta4
- IGRT
 - Haftalık CBCT
 - Günlük port
- Tedavi Süresi
 - 3 - 15 dakika

Teşekkür Ederim

emin.tavlayan