

# 3D and IMRT treatment delivery using the CyberKnife S7 System

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# Accuray Disclaimers and Disclosure

## **Disclosure**

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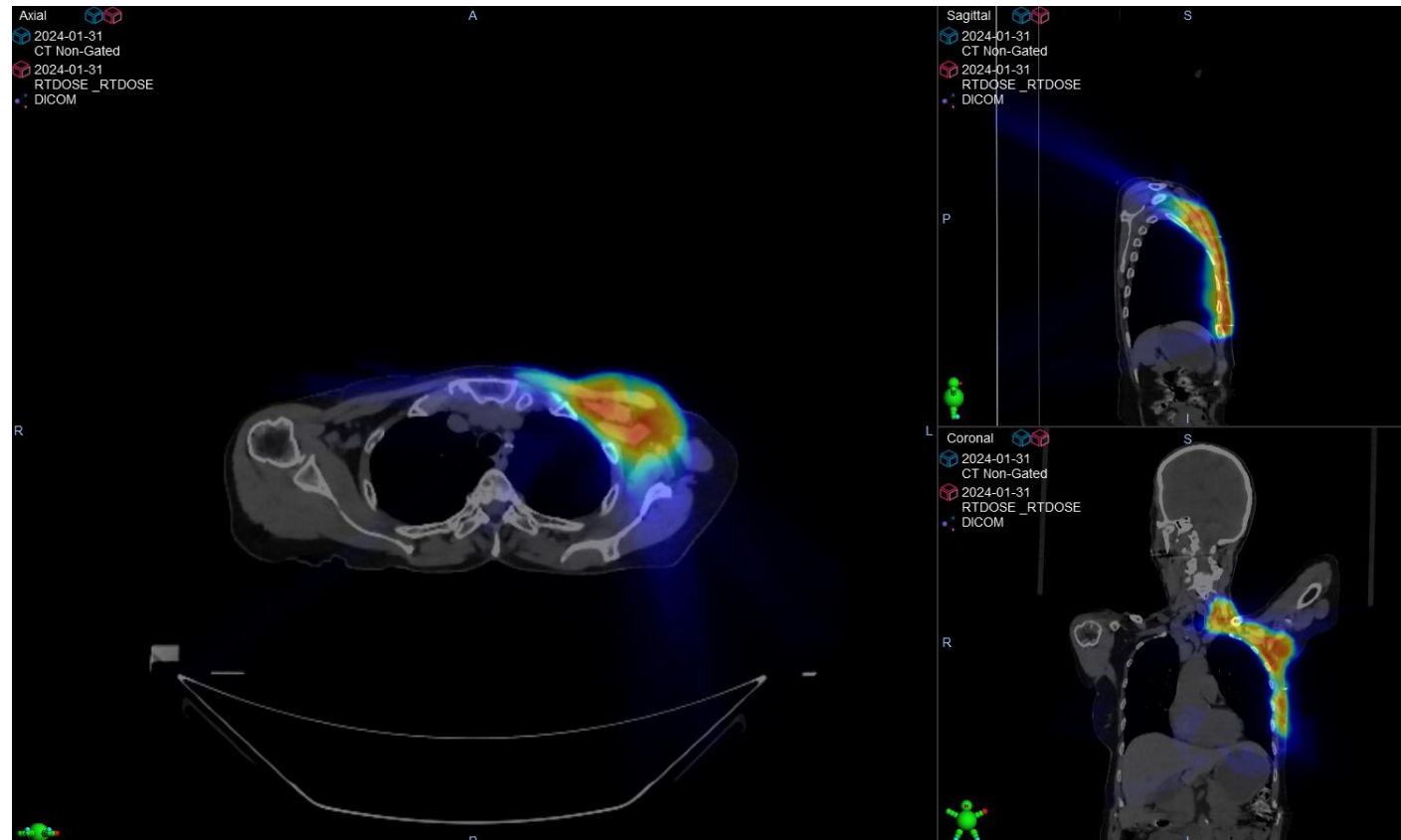
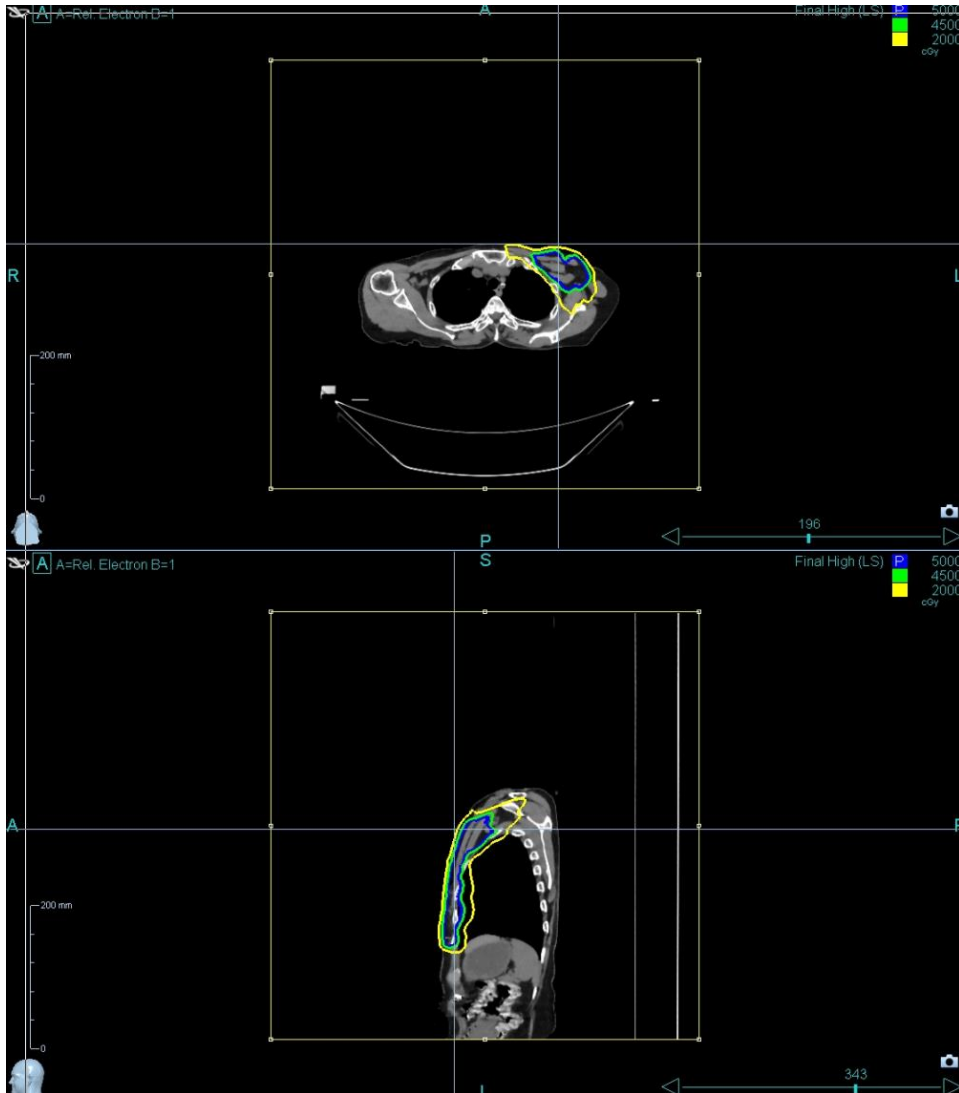
## **Medical Advice Disclaimer**

Accuray Incorporated as a medical device manufacturer cannot and does not recommend specific treatment approaches. Individual results may vary.

## **Safety Statement**

Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and if treatment with an Accuray product is right for you, ask your doctor.

# Breast/ Chest wall / peripheral lymphatics



# Breast/ Chest wall / peripheral lymphatics

22 patients -- 50 Gy in 25 fractions

Treatment time 19 min

MLC beams 49

4d image guidance

Fiducial tracking

Conformality index 1.25

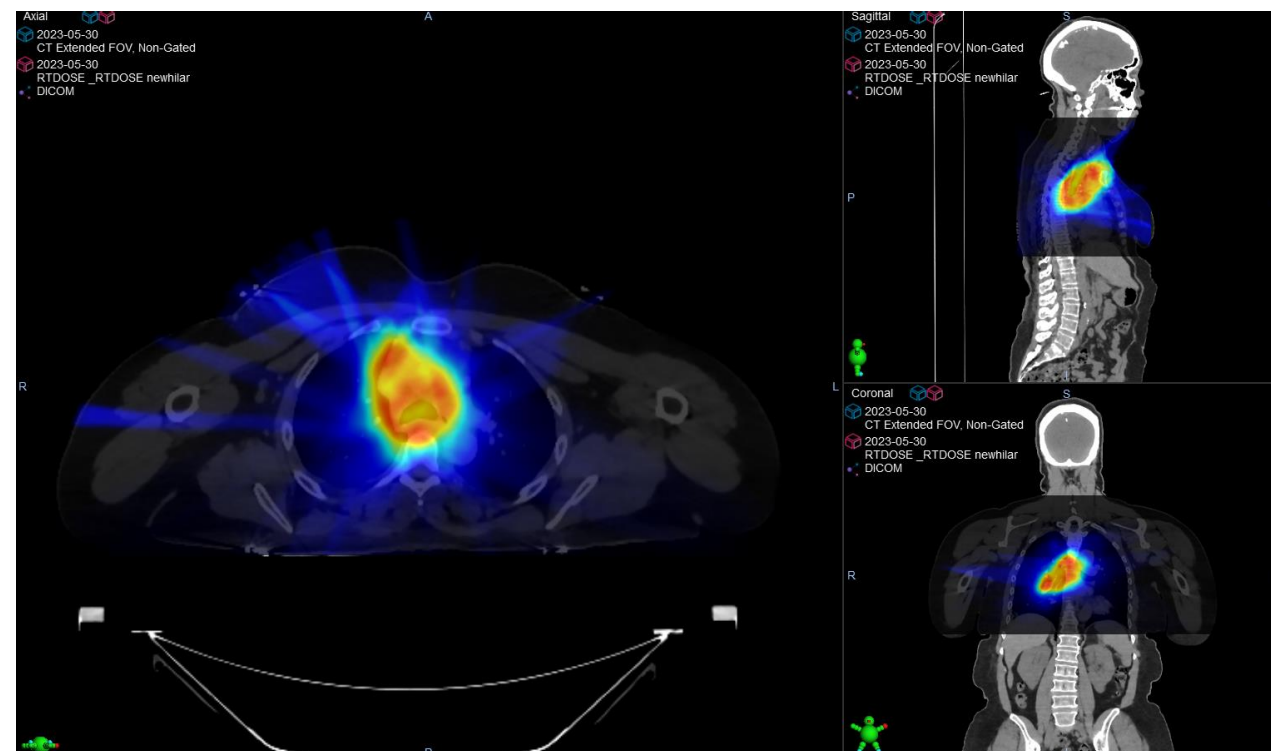
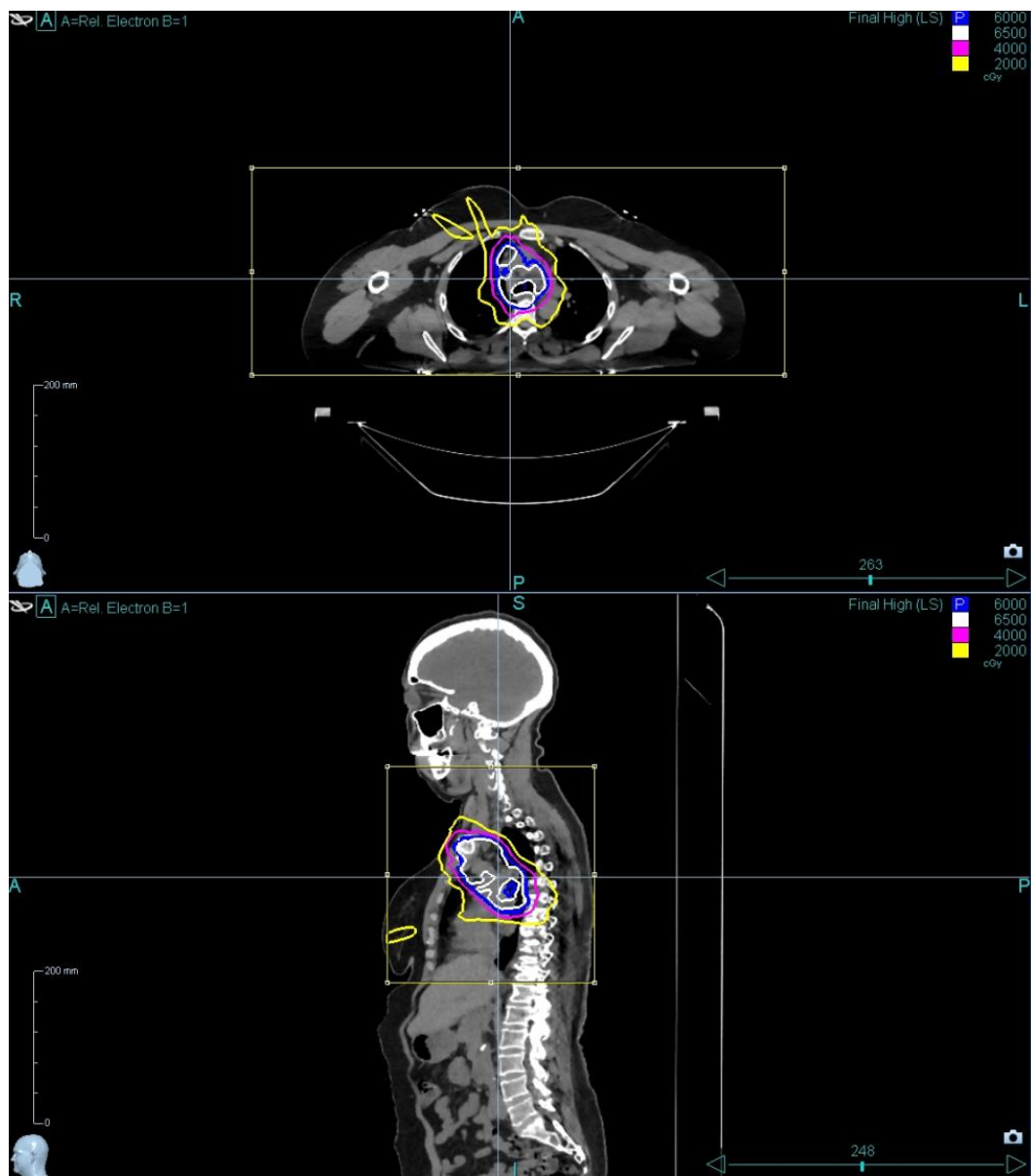
Homogeneity Index 1.3

Coverage PTV 90%

CTV 95%

Constraints meet Timmerman/ QUANTEC criteria

# Locally Advanced Lung Cancer



# Locally Advanced Lung Cancer

9 patients -- 60 Gy in 30 fractions

Treatment time 17 min

MLC beams 41

4d image guidance

Conformality index 1.70

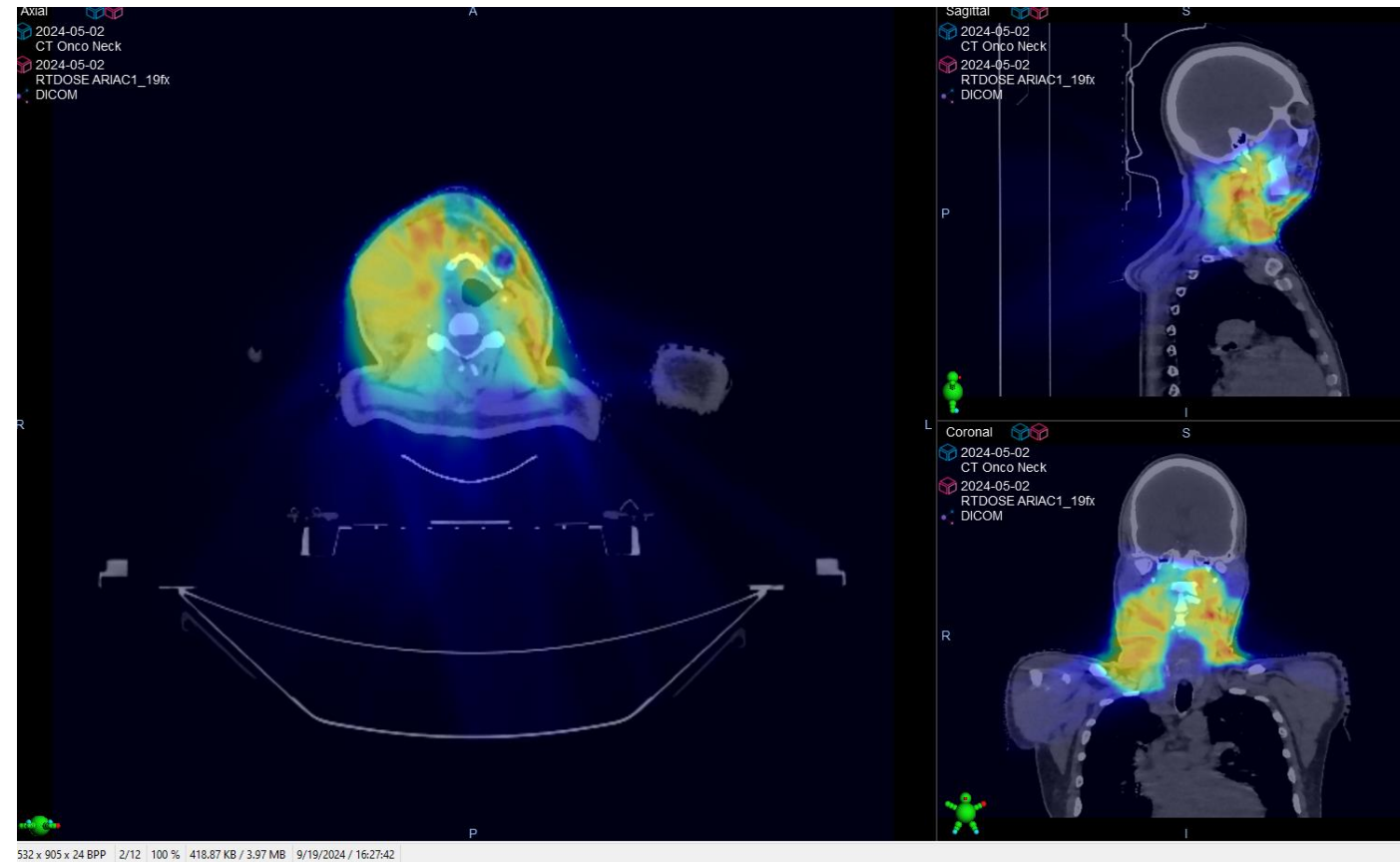
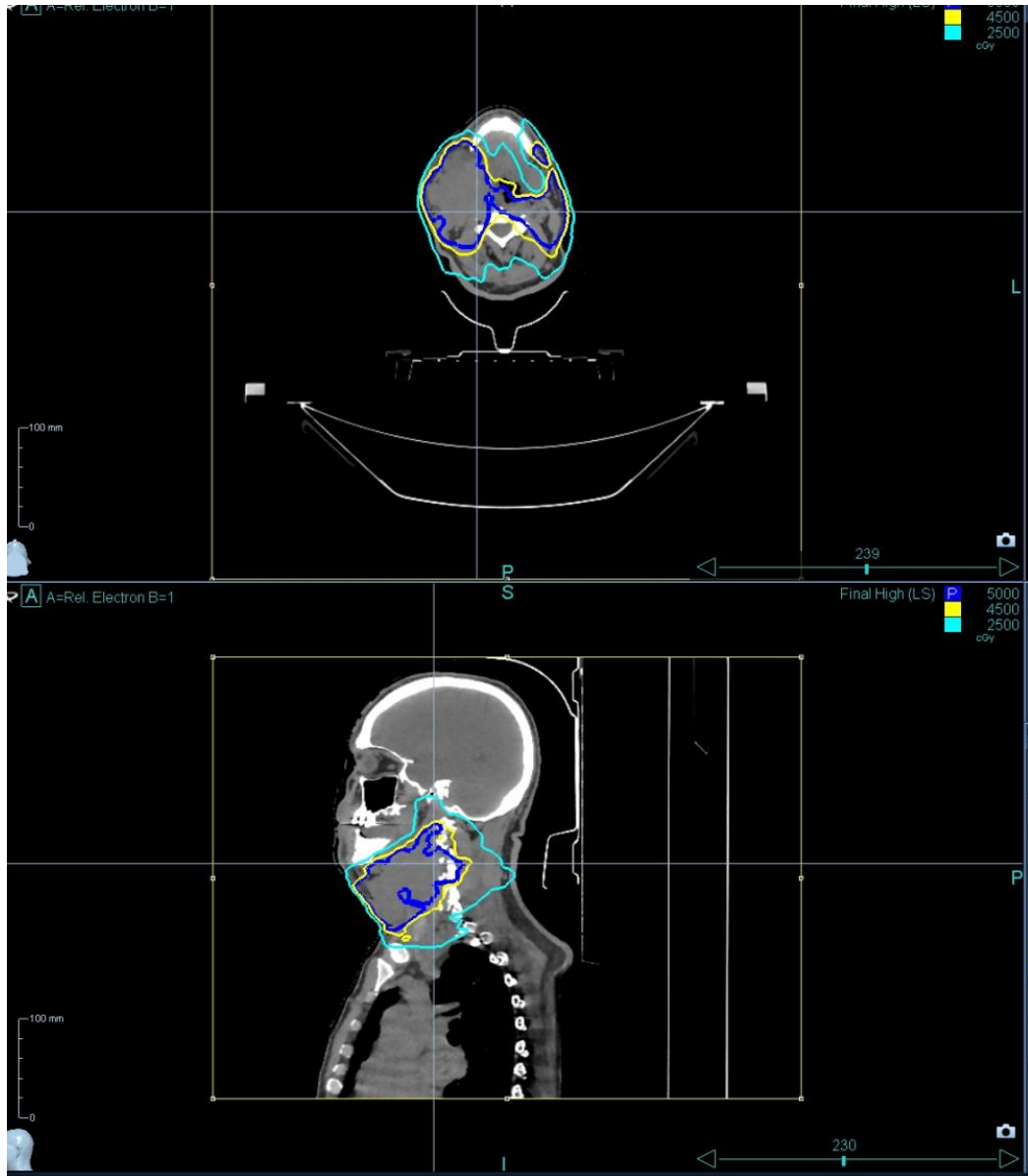
Homogeneity Index 1.3

Coverage PTV 95%

CTV 98%

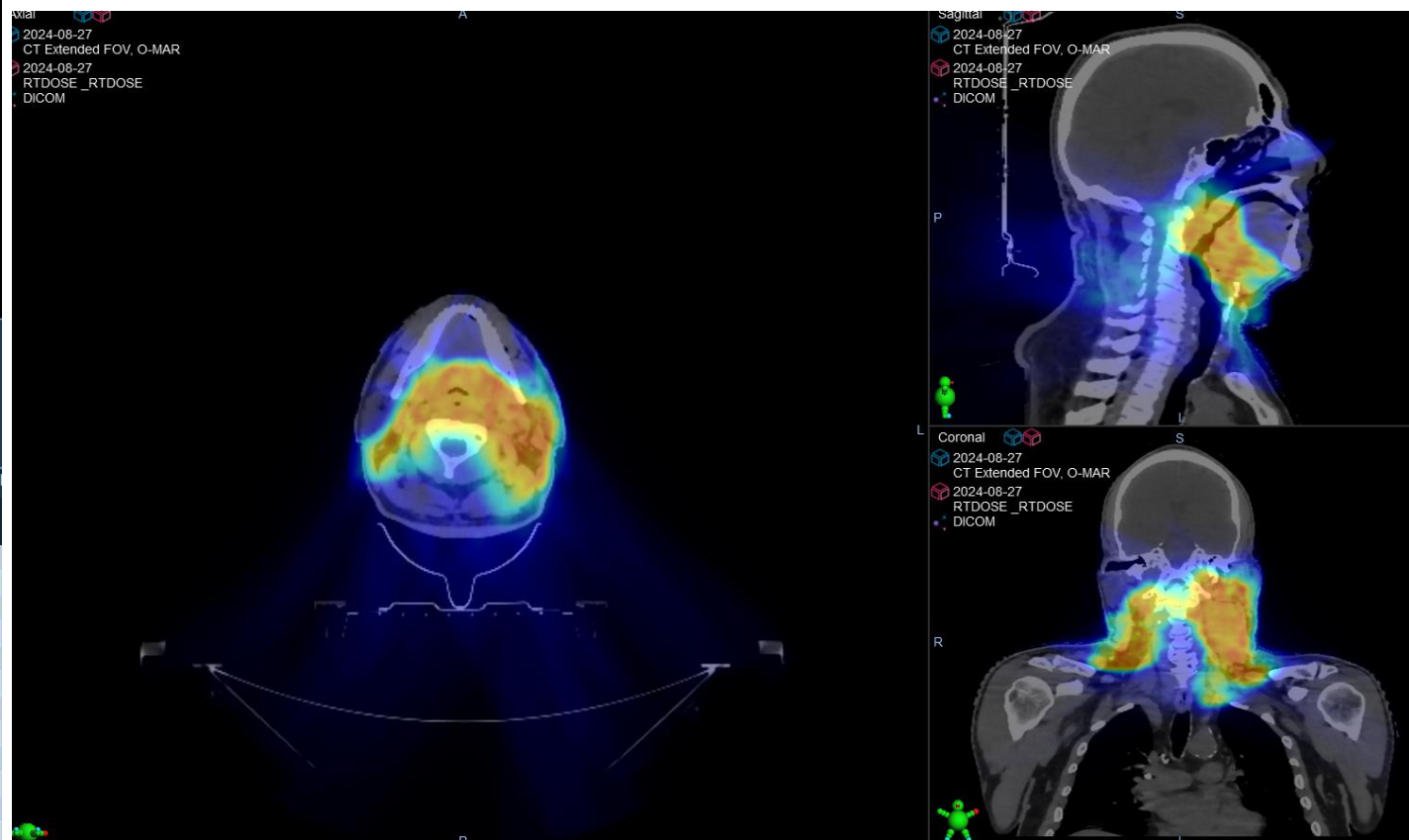
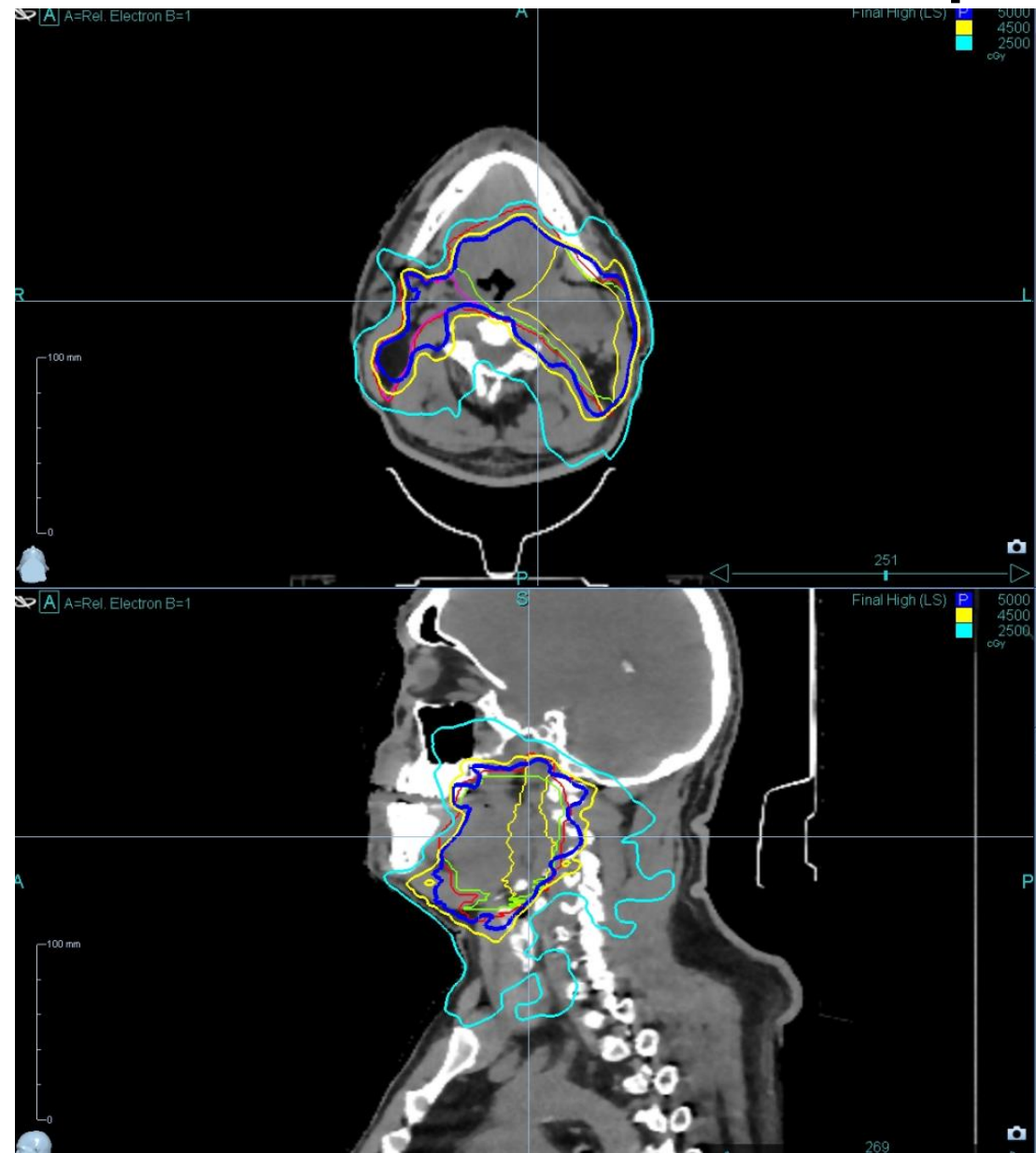
Constraints meet Timmerman/ QUANTEC criteria

# Oropharynx Cancer



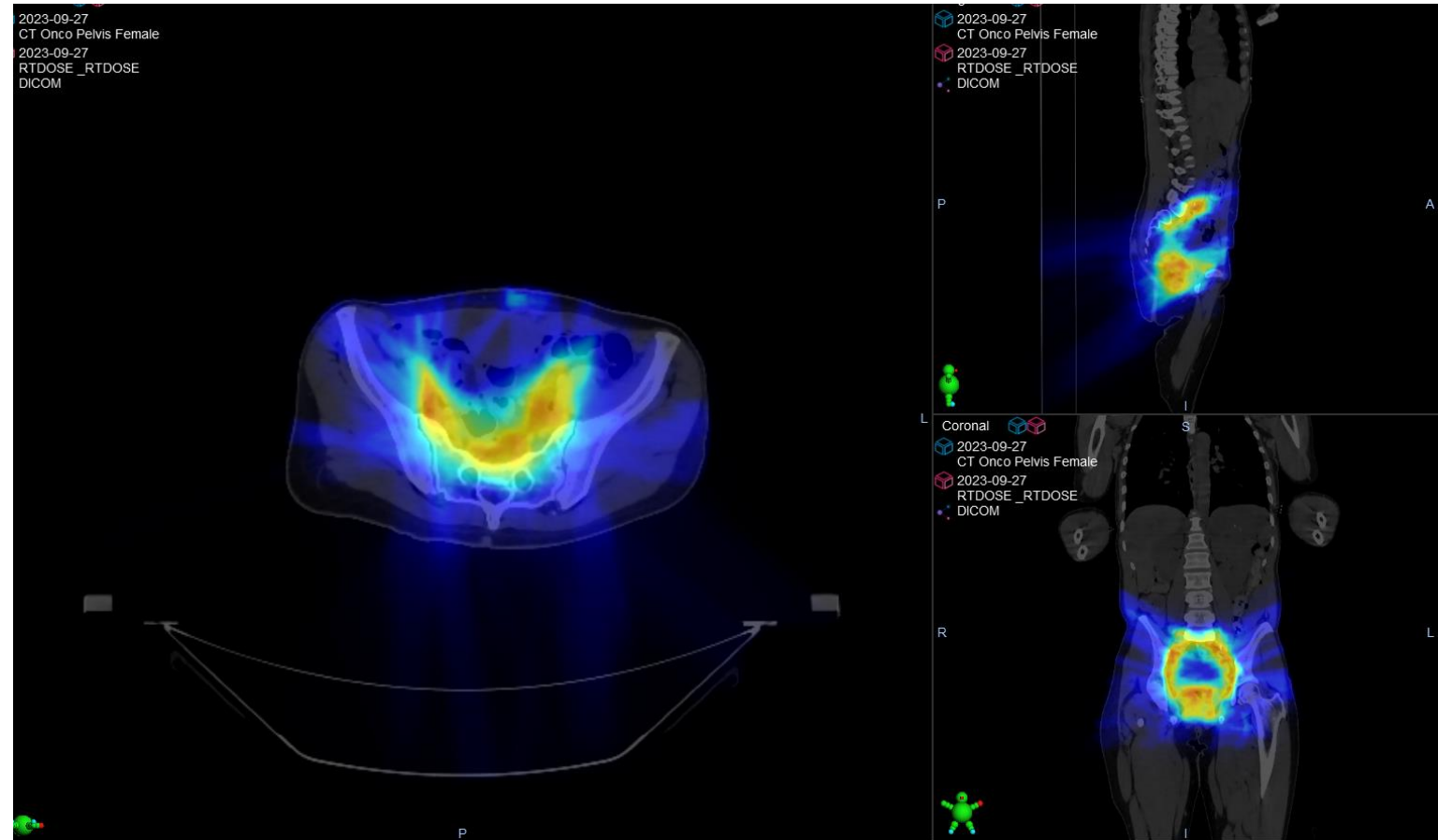
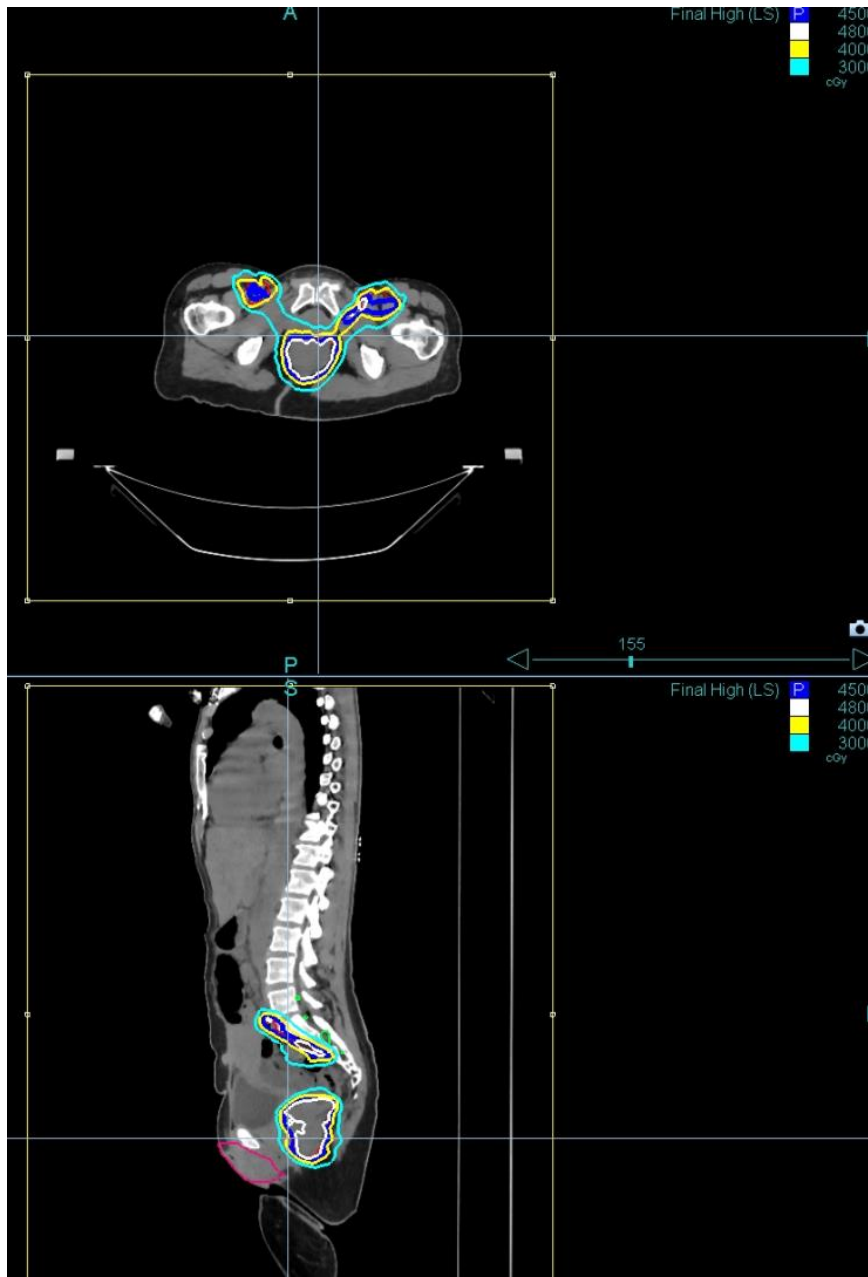
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# Oropharynx Cancer

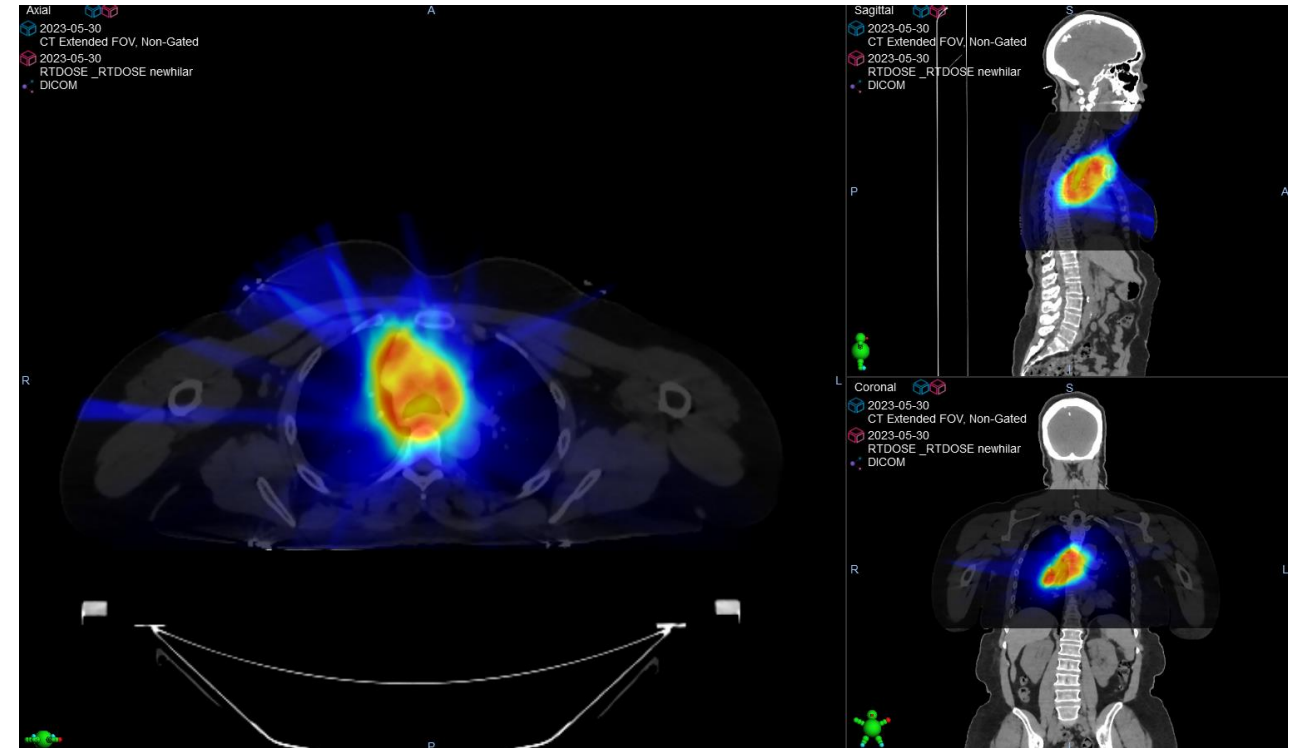




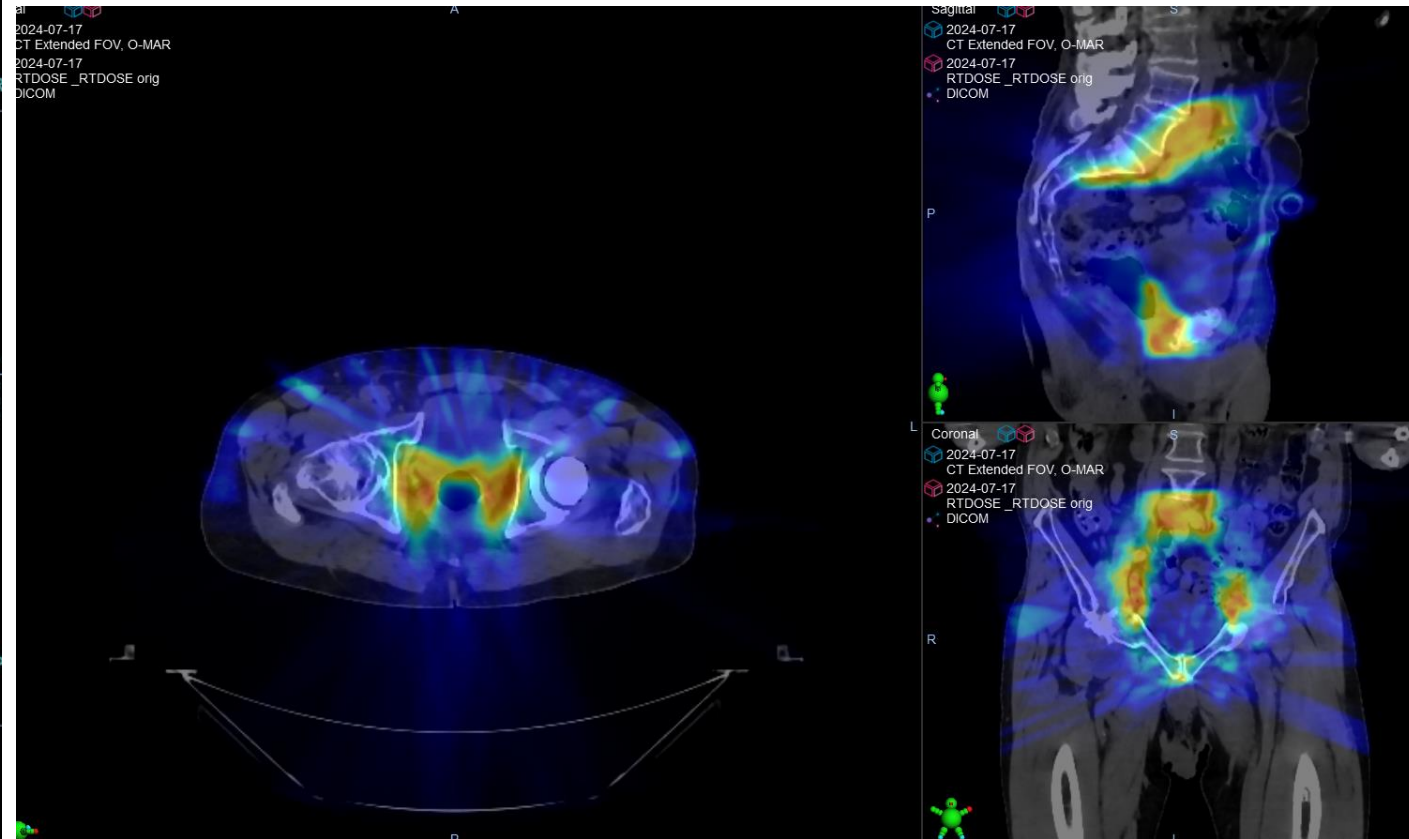
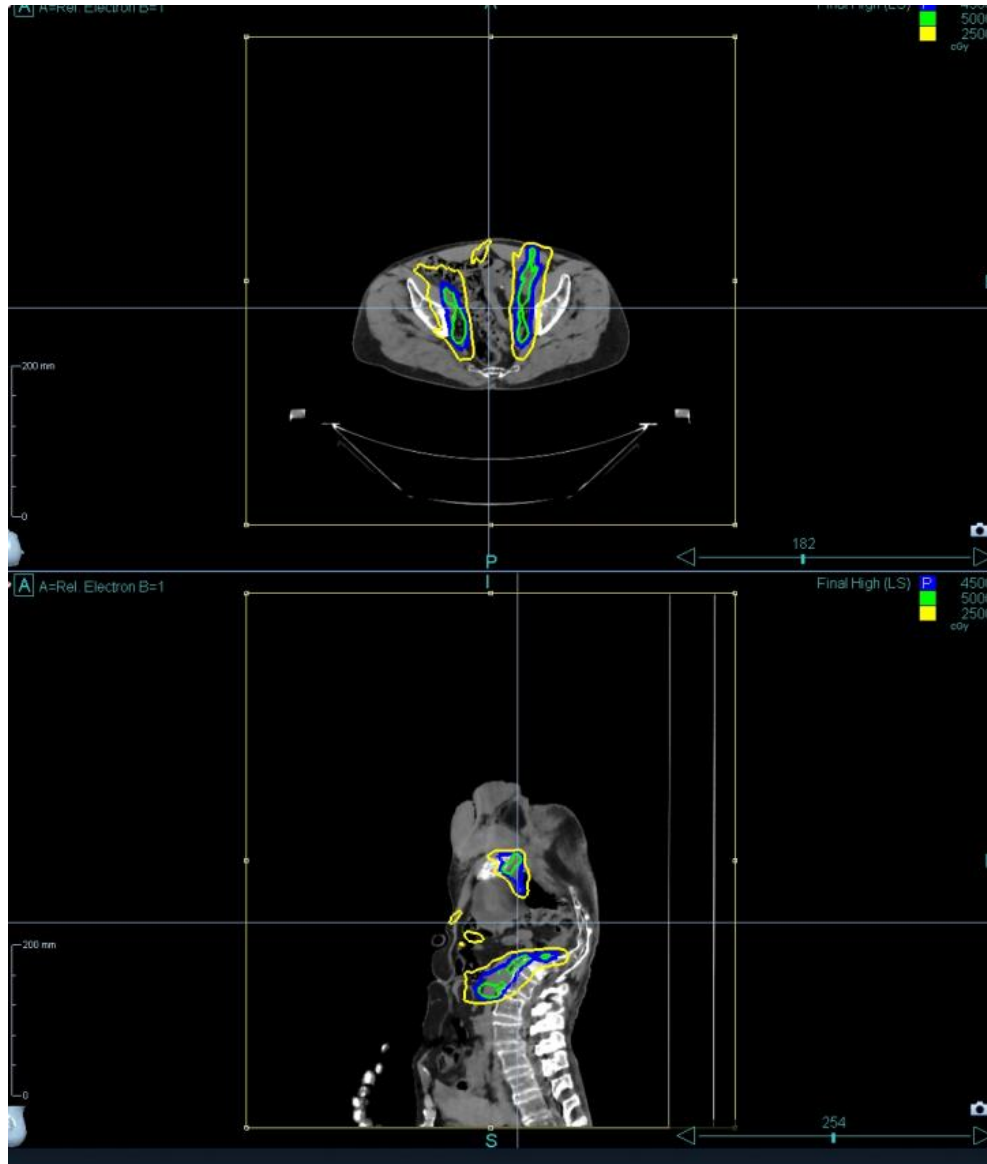
# Rectal / anal cancer



# Locally Advanced Lung Cancer



# Prostate bed



# Prostate Bed

33 patients -- 70 Gy in 35 fractions

Treatment time 38 min

MLC beams 133

4d image guidance

Conformality index 1.15

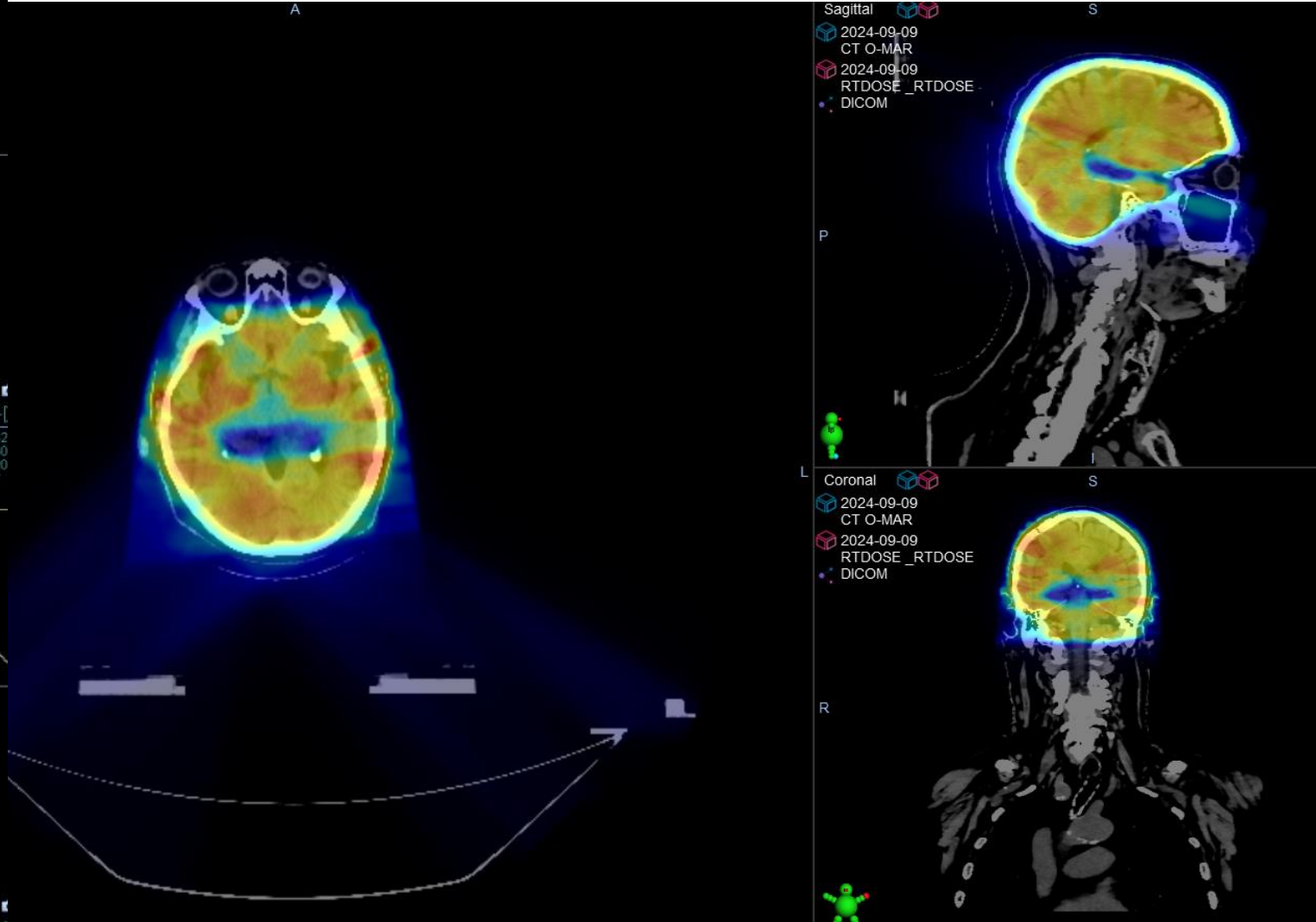
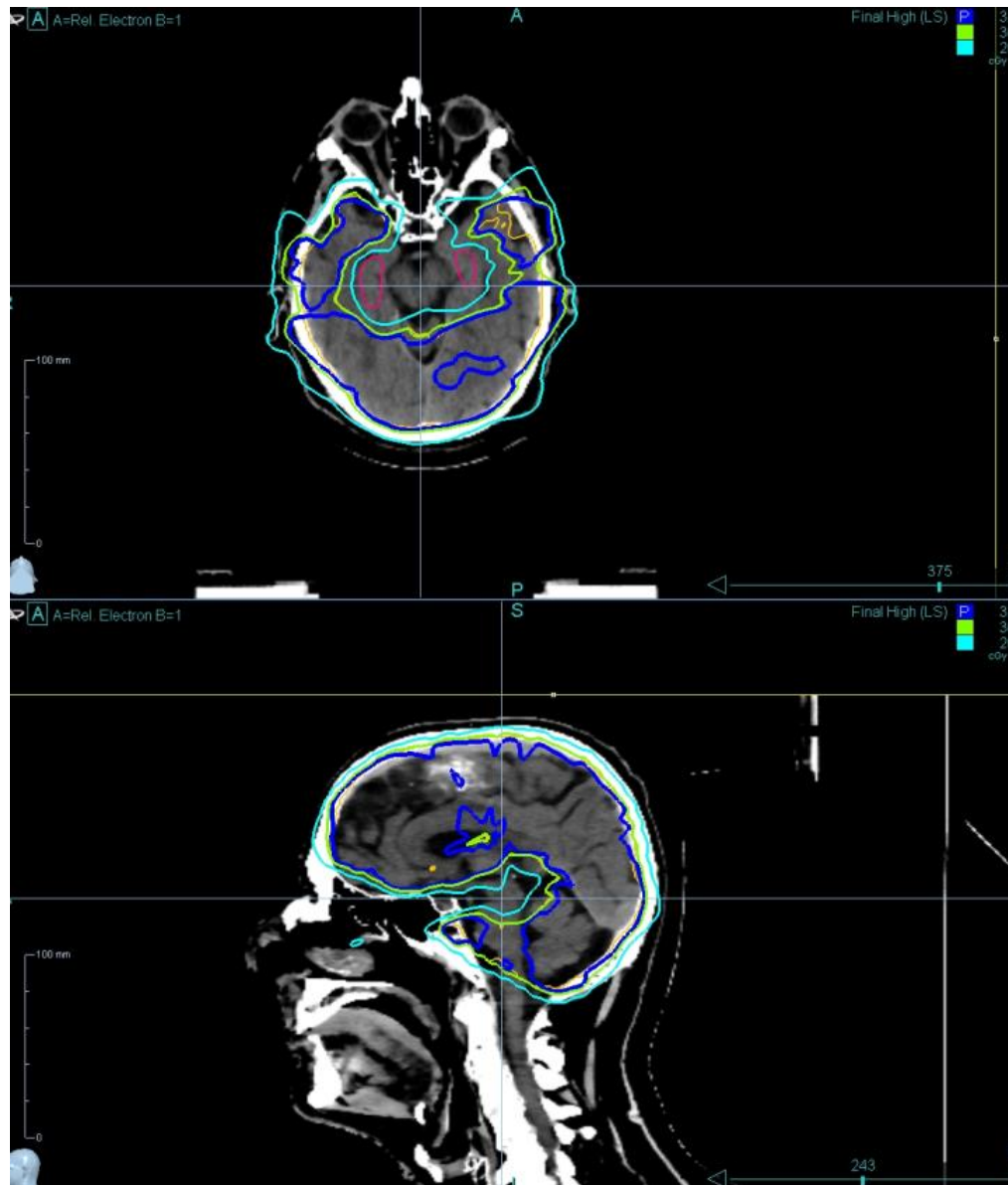
Homogeneity Index 1.35

Coverage PTV 90%

CTV 95%

Constraints meet Timmerman/ QUANTEC criteria

# Minimizing Dose to the Hippocampus



# Minimizing Dose to the Hippocampus

6 patients -- 30 Gy in 12 fractions

Treatment time 19 min

MLC beams 38

Conformality index 1.13

Homogeneity Index 1.29

Coverage CTV 90%

Constraints meet Timmerman/ QUANTEC criteria

# OBSERVATIONS

- It is possible to use the CyberKnife System for 3D and IMRT delivery
- Compared to traditional linear accelerators
  - Longer treatment time
  - Higher Homogeneity Index
  - Lower Conformality Index

# OBSERVATIONS

- Similar Acute Side effects
- Late Complications appear to be more limited- i.e.
  - Less Hematuria for prostate
  - Improved Breast Cosmesis
  - Less Dose to Heart/ Lung for Breast cancer

MORE LONG TERM OBSERVATION/ DATA COLLECTION