

Case Study

# Elekta Unity: The Power of Daily Adaptation in Rectal Cancer Treatment

**Institution**

University Medical Center  
Utrecht (UMC Utrecht)

**Location**

The Netherlands

**Medical Staff**

Dr. Martijn Intven



## Case history

Patient with a small clinical T2N1 rectal adenocarcinoma 6 cm from the anal verge.

### Past medical history

No documented medical history.

### Rationale for using Elekta Unity

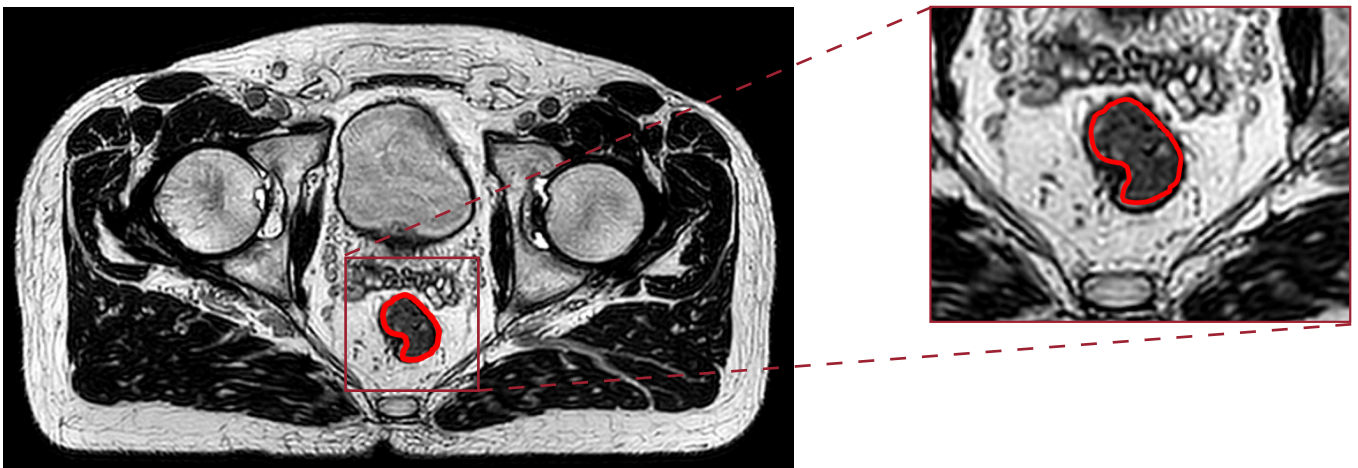
Clear visualization of the tumor and surrounding normal tissues enables optimal adaptation of the treatment field to daily anatomy changes in the pelvis, such as differences in rectal and bladder filling.



CT image



CBCT image



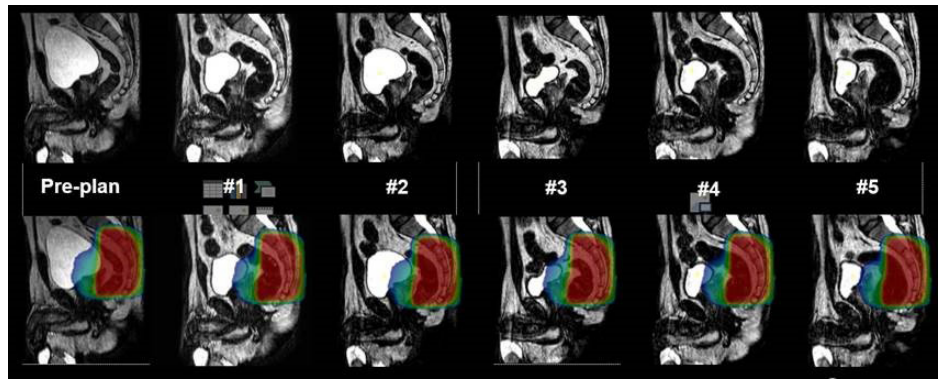
Difficult-to-visualize tumor and normal tissue on CT or CBCT; tumor and surrounding structures clearly visible on MR imaging.

As one of the first rectal cancer treatments performed, standard margins (10 mm) were used around CTV mesorectum and elective lymph node regions to gain confidence.

The patient was treated in five fractions of 5 Gy, with a five-field IMRT delivery.

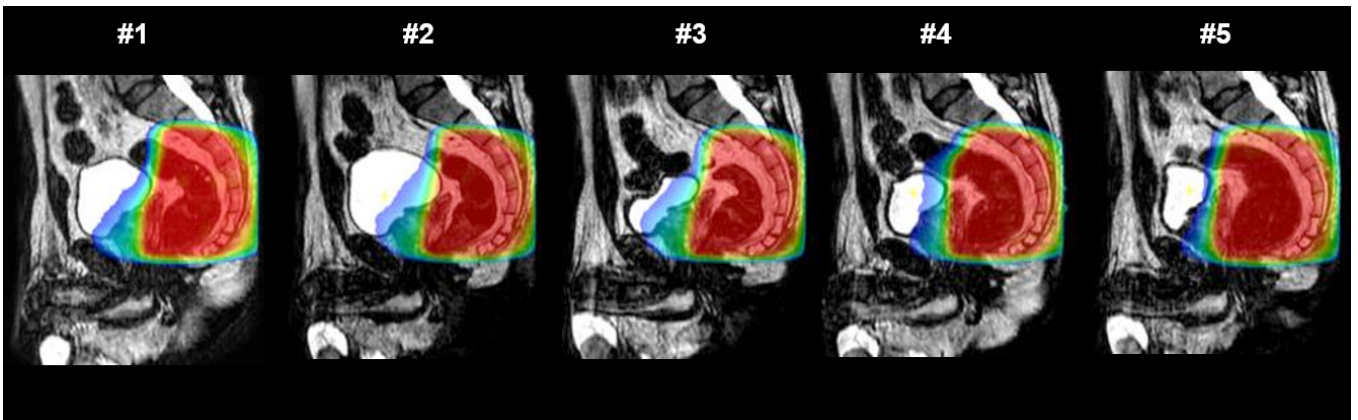
## Power of adaptation

The team evaluated what would have happened if the reference plan had been applied to each fraction.



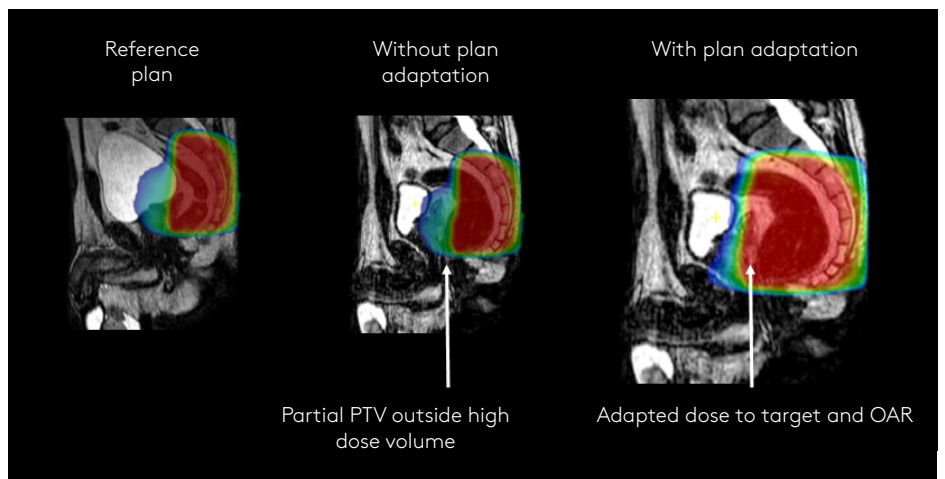
It's clear from the images above that fraction #5—the anterior wall of the rectum, which should have been irradiated—would have been missed.

With Elekta Unity, the team was able to adapt the plan delivered at every fraction. As seen below, due to this daily adaptation, the entire target volume was irradiated as planned.



## Results

Re-staging eight weeks after treatment showed a clinical complete response, and the patient entered a wait-and-see study.



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## Elekta Offices

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