# Standardizing Female Sexual Structure Contours to Limit Radiation Therapy Toxicity

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## Introduction

Sexual function toxicity after completion of radiation therapy (RT) for pelvic area tumors is recognized as a quality-of-life measure.[1] Negative side effects are heavily considered during treatment planning for male pelvic cancers.[2] Clinicians contour erectile and other sexual functioning tissues to target RT for optimized male sexual health outcomes. However, little attention is given to female sexual functioning after treatment[3] and limited data exists to precisely define female sexual structures. We aim to standardize female sexual structure contouring and illustrate radiation impact on female erectile tissues over time. Further research can identify erectile-tissue specific dosimetric predictors of tissue damage and sexual dysfunction to assist in the development of targeted radiation procedures to prevent or mitigate radiation damage and improve quality of life after cancer treatment.

## Methods

We reviewed the current literature on female sexual anatomy and structures to define a standardized approach to female sexual structure contours. Then, using MIM software, we created a demonstration atlas of these structures using a RT simulation CT scan for a 55yo F with FIGO stage 2 Grade 3 endometrial cancer, fused to her diagnostic MRI to assist with contour delineation. Contours were created according to existing data and experienced clinician input.

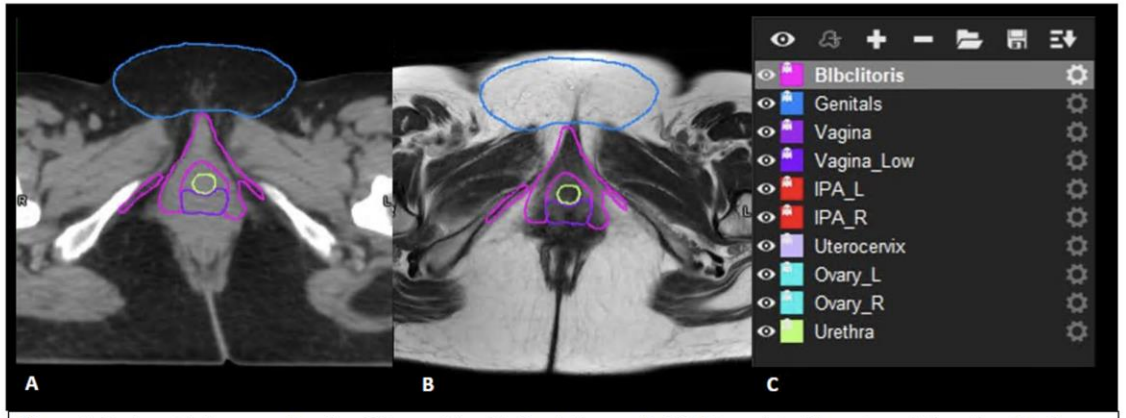


Figure 1. Endometrial cancer planning CT scan (a) with fused diagnostic MRI to assist with contour delineation (b). Key structures were contoured on the planning CT (c)
Note: not all structures are visible on this slice

## Results

The following contours were identified to be included in standardized female sexual structure contours: bulboclitoris, vagina, lower vagina, R and L IPAs, urethra, uterus, and R and L ovaries. Female sexual structures in the supine position are contoured in a RT planning non-contrast CT scan and represented in a fused diagnostic MRI. Guidelines were created with detailed elaboration of steps for future reproducibility.

## Conclusions

Sexual functioning after RT is recognized as a quality-of-life measure and must be normalized with equitable distribution of research and technology for female patients. Our contour atlas and guidelines are a first step to close the gap in targeted therapies with the goal of limited sexual toxicity for female patients.

## References

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