Predictors of Prostate Bed Contouring Variability: An International Contouring Challenge

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INTRODUCTION

Inter-observer contouring variability is the most significant contributor to treatment planning uncertainty.

Groups including the RTOG, EORTC, FROGG/TROG, and GUROC have published contouring guidelines/atlas.

Despite multiple guidelines, considerable variation in prostate bed delineation exists.

The predictors of this variation in the RO community are not well characterized.

We conducted a large international online contouring challenge to study inter-observer variation in segmentation.

OBJECTIVES

1. Examine inter-observer variation by conducting the largest international prostate bed contouring challenge.
2. Compare possible predictors of variation: geography, experience, caseload, guideline use, and practice setting.

MATERIALS AND METHODS

Contouring Challenge Design

- Developed online contouring gateway.
- ROs invited to participate by email.
- Online pre-survey completed.

Contour on standardized case:
- CTV Prostate bed (fossa)
- OARS: Rectum, bladder, penile bulb, femurs

Post-Contouring Analysis

- Data migration and verification.
- STAPLE consensus contours calculated.
- Comparison using Dice Similarity Coefficients.

RESULTS

80 participants registered, 36 completed contours (45%) between Oct 2011 – Jan 2012.

CONCLUSIONS

- This largest conducted international prostate bed contouring challenge confirms significant contouring variation exists in the RO community.
- Consolidation of multiple atlases and guidelines is needed for clearer definitions.
- Generating a community STAPLE atlas and defining the natural variability in the population may have future applications in quality assurance.