**INTRODUCTION**

The aim is to evaluate inter observer variability in the proper identification of centrally located lung tumors and to evaluate the clinical applications of an anatomy visualization tool.

*Central3D* is an in-house software which uses available treatment planning contours to allow clinicians to visualize the GTV and OARs in an interactive 3D environment.

*Central3D* can be used by clinicians to:
- Measure minimum distance between two structures.
- Create surface projection maps.
- Display overlap of planning target volume (PTV) on a structure.
- Display isodoses of interests.

**METHODS**

Four radiation oncologists blindly classified 20 lung tumors treated by CyberKnife as:
- Peripheral vs central.
- Central vs ultra-central.
- D$_{\text{min}}$ from the GTV to the proximal bronchial tree (PBT).

**RESULTS**

Central/peripheral classification
- 3/20 discordant cases
- $\kappa = 0.81$

Central/ultra-central classification
- 5/20 discordant cases
- $\kappa = 0.58$

Mean (±SD) absolute difference in D$_{\text{min}}$ measures between clinicians and *Central3D* was 0.7 ± 0.8 cm (max = 3.9 cm).

Evaluation bias were induced by
- The rigid plane viewing used by clinicians (axial, sagittal, coronal view) which restricts proper 3D distance evaluation.
- Discordant identification of complex anatomy structure such as lobar bronchi bifurcation.

All cases of disagreement were reviewed using *Central3D* and consensus was obtained.

**CONCLUSION**

Classification of centrally located lung tumors is subject to inter observer variability.

*Central3D* can be a useful tool to assist clinicians in characterizing central lesions.

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