REDUCING TREATMENT TIME IN SINGLE-TARGET STEREOTACTIC RADIOSURGERY WITH VARIAN IDENTIFY

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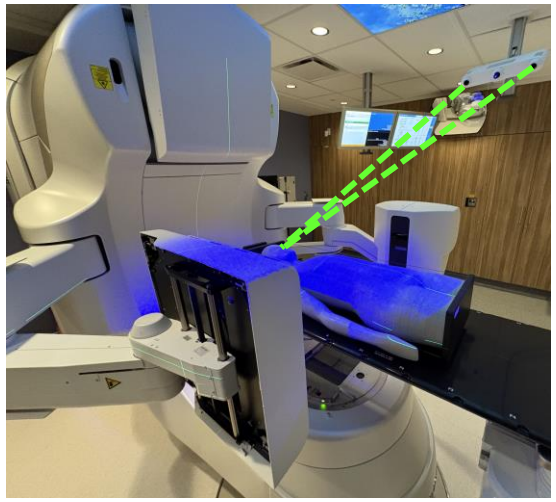
Introduction

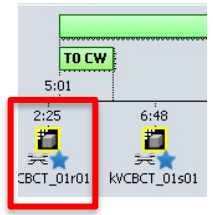
- CBCT between arcs prolongs linac-based SRS treatment (~15-25 mins).
- Increase throughput if we can drop CBCTs safely.
- Single-target SRS suitable for reduced imaging with Identify?
- Identify = stereoscopic surface guidance system.

Single Identify pod observing face

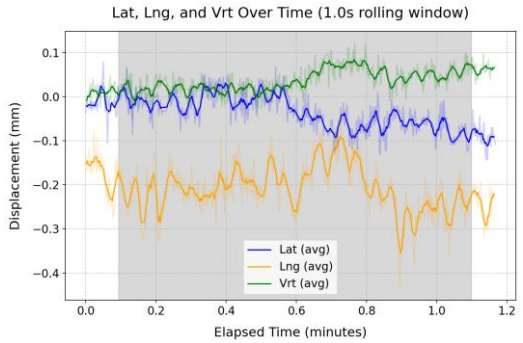


Methods

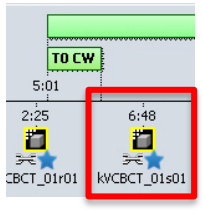
Pre-arc CBCT, take reference surface



Record IDENTIFY positioning during arc

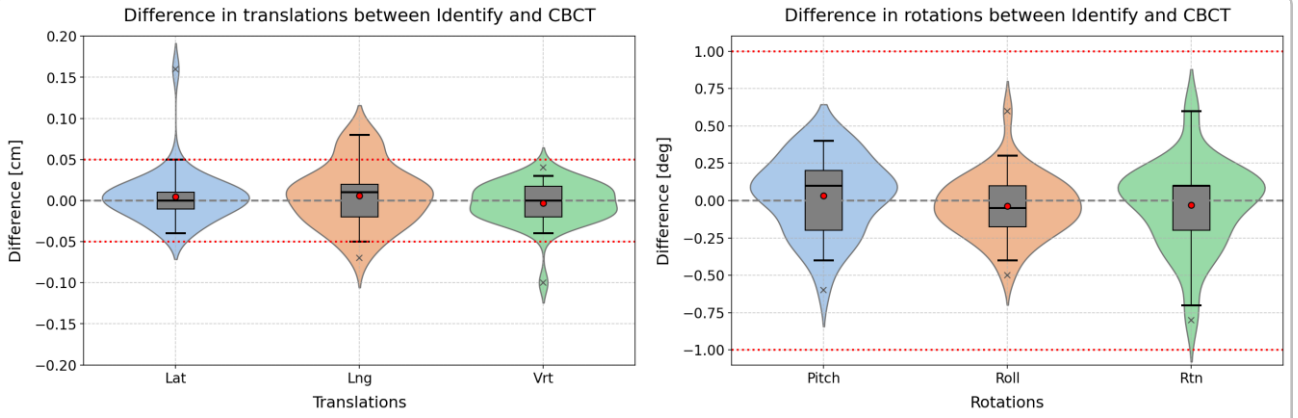


Post-arc CBCT, compare to Identify means



*18 SRS patients (any met count), 38 arcs

Results



Boxes cover 25th-75th percentile, whiskers 99% of data range. Black line is median, red dot is mean. Dashed red lines are proposed tolerances for Identify.

Discussion

- Commissioning results show sub-mm and sub-degree accuracy (applied shifts, table rotations, camera obstructions, skin tone).
- Patient measurements show good agreement between CBCT and Identify, often within 0.01-0.02 cm and 0.1 deg.
- Proposed Identify tolerances of 0.05 cm and 1.0 deg are suitable for single-target SRS.
- Use of Identify allows dropping of inter-arc CBCTs for single-target SRS, time savings of 15-25 mins per patient.
- Patient and RT experience has improved with shorter treatment times and accurate intra-beam monitoring.

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ISRS International Stereotactic Radiosurgery Society