Elekta SRS Webinar (7-31-2020)

**Presenter:** David Ly, Global Clinical Marketing team at Elekta

This webinar covered three important use cases for Versa HD with Agility MLC: SBRT prostate, SBRT lung, and HDRS brain mets. The Monaco TPS was emphasized for its jaw tracking capability with Agility MLC (not MLC-L or MLC-I, though) and the fact that it comes with RTOG solution templates. Monaco provides automated personalized dose with maximum OAR sparing. Versa HD provides real-time, non-invasive, markerless soft tissue tracking for setup and delivery accuracy.

SBRT prostate treatments with Monaco and Versa HD take 90 seconds or less. SBRT Lung takes two minutes or less.

One feature that enables these outcomes is IntelliBeam. Unlike traditional MLC sequencing, next-generation MLC sequencing provides variable control point sizes to allow for differing levels of modulation. IntelliBeam supports up to 1024 control points and uses intelligent composite field sequencing to group beams with a common couch angle into one contiguous collection of control points which can be delivered with single-button Beam On.

The MLC interplay effect refers to the mismatch between MLC leaf motion and target motion in VMAT/DCAT plans. This mismatch “averages out” over many fractions, so it is negligible in conventional treatments, but not in stereotactic. DCAT is like VMAT without segments that dissect the target.

The presenter emphasized Monaco’s five-click SBRT lung planning. VMAT is supported, but so is DCAT. Elekta’s DCAT uses variable control points and dose rate, conformality and OAR sparing, and inverse planning. Both VMAT and DCAT are optimized using Monte Carlo.

Advanced online imaging capabilities are useful for SBRT lung. This includes anatomically correlated 4D IGRT without surrogates or markers.

High-definition dynamic radiosurgery (HDRS) works well for treating brain mets. Elekta provides SIGRT non-coplanar verification for frameless SRS/SBRT. As gaps between leaves are an issue in brain mets, IntelliBeam’s maximum leaf speed of 6.5 cm/s (compared to the traditional 2.5 cm/s) is useful here, as is the variable virtual leaf width that can be as small as 1 mm (the actual leaf width is 5 mm). The HexaPOD robotic couch has six degrees of freedom with submillimeter positioning, so it is ideal for small targets like brain mets, as well.

The webinar provided an overview of a study that was performed on the end-to-end accuracy of Versa HD with HDRS in SRS. Six sites provided a brain met plan. A QA plan was delivered using the 3D PseudoPatient phantom, which was filled with a certain gel. The gel material changed where radiation hit, and a CT image of the phantom after treatment was compared to the original CT image of the patient. All six sites passed submillimeter accuracy, with three sites passing half-millimeter accuracy. HDRS works well for single small, or multiple targets.