AbstractID: 7044 Title: Daily localization for prostate bed patients based on surgical clips

Purpose: Prostate cancer patients who undergo a radical prostatectomy and have high risk features are offered radiation therapy to the surgical bed. Modern planning and delivery techniques (like IMRT) that provide conformal dose coverage and steep dose fall-offs require daily localization, especially when tight margins are utilized. The goal of this study is to investigate the use of surgical clips in and around the prostate bed as alignment landmarks.

Materials and methods: During the simulation process the physicians contoured at least three different groups of clips as reference structures. The reference structures along with the isocenter were then electronically transferred to the alignment computer. CT-on-rails was then used for daily imaging and the clips were aligned with the reference structures. Each alignment was documented as a printout showing the pre-treatment scan, the reference structures, and the anatomical structures in the three main planes. Every printout was evaluated by the treating physician. A total of 45 patients have been treated using this technique. Ten random patient charts (total of 306 alignments) were selected and the number of the satisfactory alignments was counted.

Results: The physician approval rate was 100% for each of the ten patients coming from three different physicians. Furthermore, the physicians could not recall a misalignment that would violate the PTV margin used for planning (8 mm) over the total number of 45 patients (between 1300 and 1400 alignments).

Conclusions: The presented results suggest that the technique described here results in a very high physician approval rate. The fact that planning and alignments are performed with the same imaging modality leads to a high level of confidence in both therapists and physicians.