AbstractID: 1662 Title: Quality study of the x-ray imaging devices of Novalis® Body system

In order to enhance conformity of 3D treatment for radiosurgery, the Novalis® Body system is used in several institutions. The x-ray imaging system is frequently used to detect any organ or patient movement before and during the treatment session, and patient is adjusted to a correct position. There are many dosimetric studies already available for kVp x-rays, however, exposure measurement particularly on the Novalis® body system is none. In this study, exposure for the isocenter was measured with parallel type ion chamber in air. In addition, imaging window limitation blockage by gantry head movement to the kVp unit of this particular x-ray system is discussed. Also, resolution capability of the system was also tested using mesh test pattern. It was estimated that patient exposure is less than 95 mR per image, and about 56% full x-ray image is available in this experiment. In spite of the fact that this device is not designed for diagnostic purpose, resolution of the system was relatively lower and quality of the two x-ray tubes and image was not identical. Using high contrast resolution tool, it was not able to identify any mesh beyond 1.25 lp/mm, which is below the standard acceptance level. Also, there was significant mesh-like background pattern and it contributed to degradation of the image quality. Hence, improvement of image quality and set up of QA required for reducing superficial patient dose for future upgrade.