As the world’s first portable, full-body, 32-slice CT (computed tomography) scanner, BodyTom® is a multi-departmental imaging solution capable of transforming any room in the hospital into an advanced imaging suite. The system boasts an impressive 85cm gantry and 60cm field of view, the largest field of view available in a portable CT scanner.

The battery-powered BodyTom with an innovative internal drive system can easily be transported from room to room and is compatible with PACS, EMR, planning systems, surgical and robotic navigation systems.

Uniquely designed to accommodate patients of all sizes, BodyTom provides point-of-care CT imaging wherever high-quality CT images are needed, including the operating room, intensive care unit, radiation oncology suites, and the emergency department. The combination of rapid scan time, flexible settings, and immediate image viewing makes the BodyTom a valuable tool to any facility needing versatile real-time portable imaging.

Intraoperative electron radiation therapy (IOERT) involves irradiation of an unresected tumour or a post-resection tumour bed. The dose distribution is calculated from a preoperative computed tomography (CT) study acquired using a CT simulator. However, differences between the actual IOERT field and that calculated from the preoperative study arise as a result of patient position, surgical access, tumour resection and the IOERT set-up. Intraoperative CT imaging may then enable a more accurate estimation of dose distribution. In this study, we evaluated three kilovoltage (kV) CT scanners with the ability to acquire intraoperative images. Our findings indicate that current IOERT plans may be improved using data based on actual anatomical conditions during radiation. The systems studied were two portable systems (“O-arm”, a cone-beam CT [CBCT] system, and “BodyTom”, a multislice CT [MSCT] system) and one CBCT integrated in a conventional linear accelerator (LINAC) (“TrueBeam”). TrueBeam and BodyTom showed good results, as the gamma pass rates of their dose distributions compared to the gold standard (dose distributions calculated from images acquired with a CT simulator) were above 97% in most cases. The O-arm yielded a lower percentage of voxels fulfilling gamma criteria owing to its reduced field of view (which left it prone to truncation artefacts). Our results show that the images acquired using a portable CT or even a LINAC with on-board kV CBCT could be used to estimate the dose of IOERT and improve the possibility to evaluate and register the treatment administered to the patient [1)].

1)
García-Vázquez V, Marinetto E, Guerra P, Valdivieso-Casique MF, Calvo FÁ, Alvarado-Vásquez E, Sole CV, Vosburgh KG, Desco M, Pascau J. Assessment of intraoperative 3D imaging alternatives for IOERT dose estimation. Z Med Phys. 2017 Sep;27(3):218-231. doi: 10.1016/j.zemedi.2016.07.002. Epub 2016 Aug 23. PubMed PMID: 27567405.