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Intraoperative radiation delivery concepts placed and monitored with handheld spect/us hybrid imaging techniques

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Intraoperative radiation therapy (Low dose and high dose nuclear and electronic brachytherapy) is a potential therapy option for local tumours, and oligometastatic cancer treatment. The main benefits are that it can deliver the cell-killing radiation (beta or gamma rays) through small incisions - after surgical treatment or removal - and that it spares healthy tissue of radiation exposure. Radiation protection issues, and accurate dose measurement and quality assurance are the main issues to be resolved. Imaging for placement and therapy verification are essential tools allowing the therapist to accurately determine the tumour location, to place the therapy catheter, and subsequently to quantify and measure the dose delivered and maybe even get a confirmation on the cell killing effects. The talk will give a short overview of some of the current technologies used (Re-188, Y-90, Ir-192, miniature X-ray tubes) and the shortfalls and possible solutions of these therapy approaches particularly when combined with functional (SPECT) and anatomical imaging (US) hybrids and combinations with MRI imaging.

Biography

Michael Friebe has been involved in diagnostic imaging and image guided therapeutic products and services, as founder / innovator / CEO investor, and scientist. Dr. Friebe currently is a Board Member of two startup R&D companies, as well as investment partner of a medical technology startup-fund. Dr. Friebe is an affiliated professor with the chair for Computer Aided Medical Procedures (CAMP) at TU München, and full professor of Image Guided Therapies at the Otto-von-Guericke-University in Magdeburg, Germany. He is listed inventor of more than 60 patent applications and the author of numerous papers.

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