



ACMIT

Austrian Center for Medical Innovation and Technology

Main location	Wiener Neustadt, Lower Austria
Other locations	-
Thematic field	R&D for work-flow improvement in medical processes

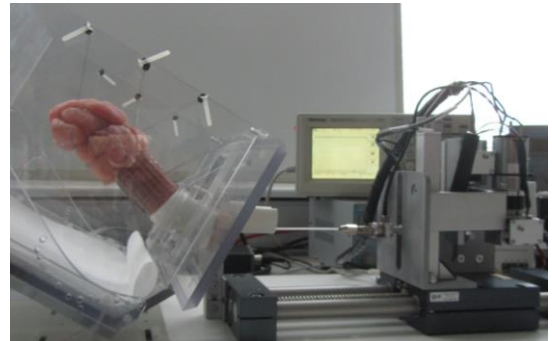
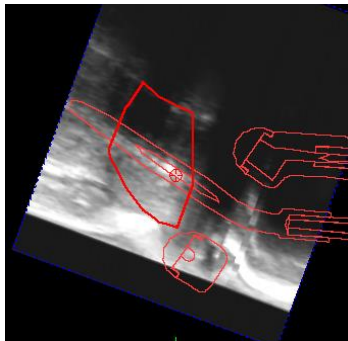
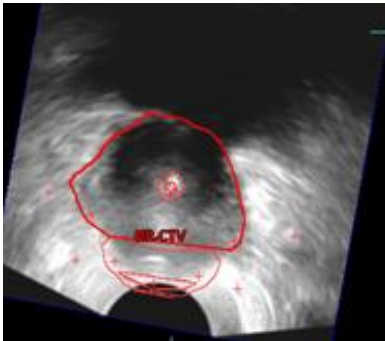
Success story summary

Innovative tools for Gynecological Image-Guided Adaptive Brachytherapy (IGABT)

While Magnet Resonance Imaging (MRI) based treatment planning is the gold standard for brachytherapy in gynecology, ultrasound (US) based techniques show a high potential to reduce the technical complexity of the treatment while still keeping the efficiency of the procedure to a high level. The IGABT project thus aims to evaluate the possibilities but also the limits of US imaging during applicator placement and contouring as well as to further improve the procedure wrt needle insertion. The project is executed in the framework of the COMET K1 center ACMIT in cooperation with Nucletron Operations B.V. (NL) and the Medical University Vienna (AT).

Success story

A prototype for a dedicated 3D-US system could be realized during the project. In addition with development of the required HW/SW-components, an appropriate clinical workflow has been outlined and applied for the study. Applicability of 3D-US imaging for target contouring and for treatment planning based could be successfully evaluated in the project. Another aspect of the project was to develop and evaluate new methods for effective and accurate implantation of interstitial needles for the brachytherapy treatment. For an efficient work-bench evaluation of new needle insertion methods, a test bed has been developed which is able to model the procedure with a sufficient degree of realism and details. Different combinations of insertion methods and supporting tools thus could be investigated ex vivo and optimized during the project.



Impact and effects

The IGABT project has demonstrated the possibilities, but also the limitations, of 3D-US for IGABT procedures. In a follow-up project in ACMIT funding period #2 (starting with April 2014) an adapted workflow based on the project results will be developed and evaluated clinically.

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