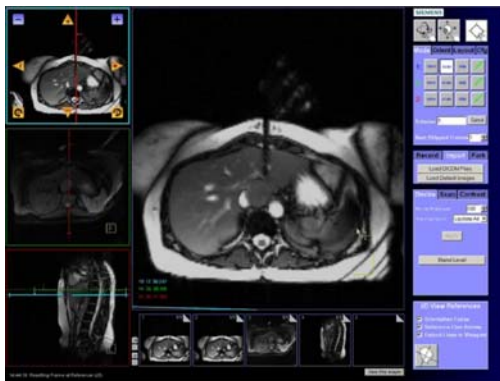


Schnell, interaktiv und intuitiv: Benutzer-Schnittstellen für die interventionelle MRT

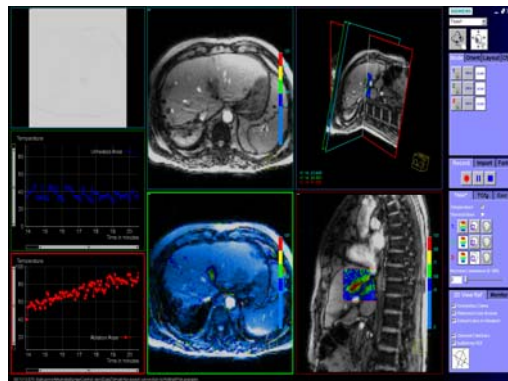
Today, most minimally invasive procedures are done under computed tomography (CT) or ultrasound guidance. However, MR guidance has recently experienced significant growth due to technological advances in the field of MR and in the design of MR-compatible devices. Even though MR guidance is more expensive, patient access is more difficult and specially designed devices have to be used, MR imaging is an ideal tool for monitoring and guiding interventional procedures such as biopsies, drainages, and ablations. It provides an excellent soft tissue contrast, multiplanar capabilities and sensitivity to thermal effects without ionizing radiation.

However, current MRI systems are mostly focused on diagnostic imaging and the patient is moved in and out of the scanner for imaging and intervention, respectively. Thus, large parts of the MRI workflow have to be customized in order to make intra-procedural MRI guidance and monitoring of minimally invasive therapies feasible in a clinical setting.

Widespread clinical use of MR-guided procedures requires fast and interactive sequences as well as intuitive system interfaces. The talk will first describe the clinical context in which interventional procedures usually take place as this understanding is essential for designing user interfaces which make the procedures more efficient and effective. Following, an overview of pulse sequences currently used in interventional MRI and new interesting developments will be given. Hand in hand with fast and interactive pulse sequences comes the real-time display of the acquired images. On the basis of MR-guided thermal ablations an example for an interactive and intuitive platform will be presented.



Safe and efficient needle positioning.



Monitoring and guiding of thermal procedures [2].

Interactive Front End (IFE) [3] as an example for an interventional platform supporting fully MR-guided procedures

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