PHILIPS

MR systems

Sonalleve MR-HIFU

Extend your options

Magnetic Resonance guided High Intensity Focused Ultrasound (HIFU) for bone pain palliation therapy

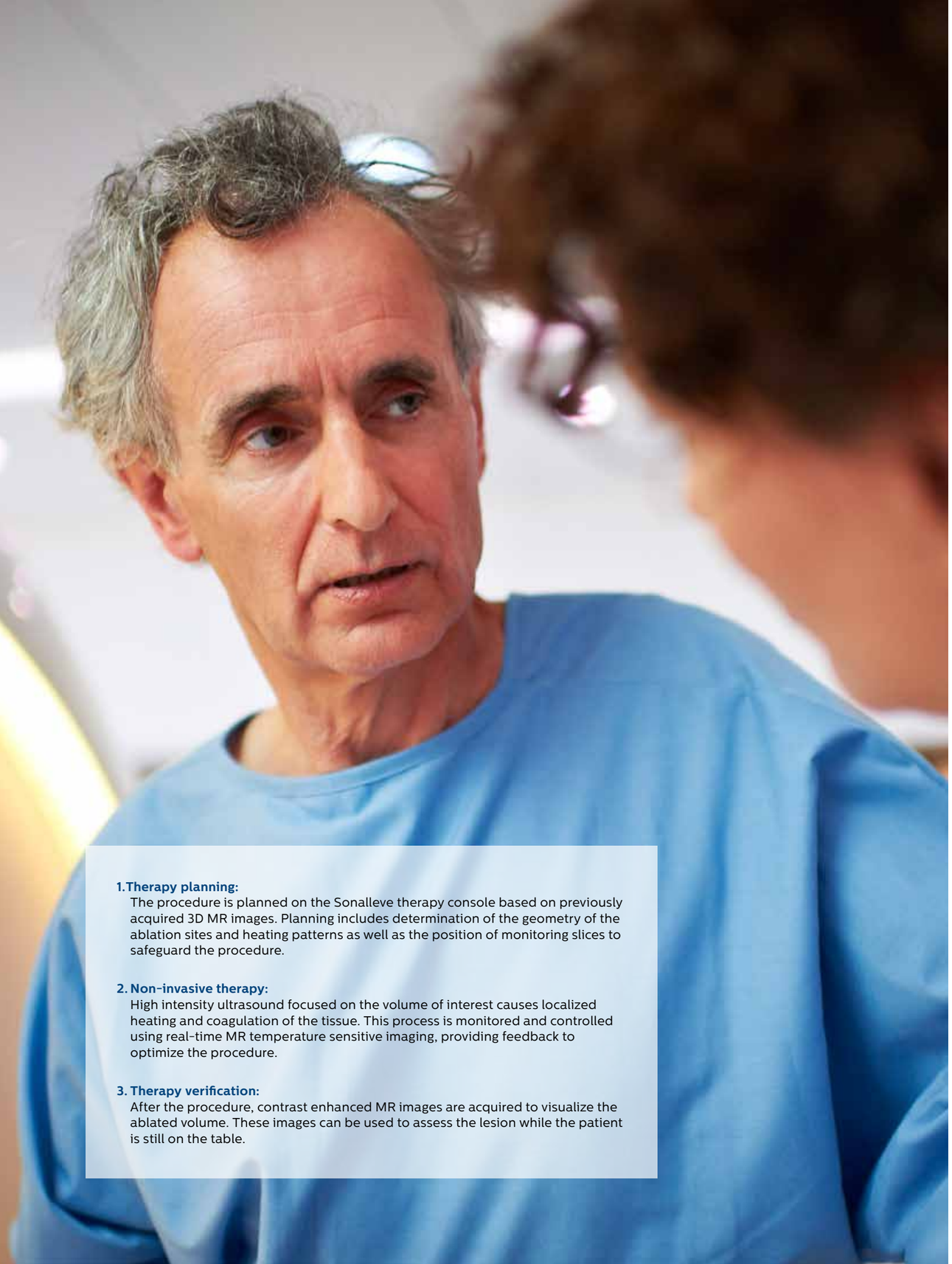
Key advantages

An innovative, non-invasive therapy

Procedure can be repeated if needed since no ionizing radiation is involved

Can result in fewer side effects than radiotherapy or morphine-based pain medication

Sonalleve MR-HIFU from Philips is an exciting, innovative therapy platform that offers important advantages to clinicians and patients, while supporting healthcare institutions in expanding their therapy portfolio. It combines the advantages of a High Intensity Focused Ultrasound (HIFU) system with the superb imaging of MRI systems to enable non-invasive palliative pain treatment of bone metastases. In contrast to strong medication and radiotherapy, Philips Sonalleve MR-HIFU is quick and can result in fewer side effects, giving you more therapy options to choose from. MR-HIFU can help in alleviating the suffering of cancer patients.



1. Therapy planning:
The procedure is planned on the Sonalleve therapy console based on previously acquired 3D MR images. Planning includes determination of the geometry of the ablation sites and heating patterns as well as the position of monitoring slices to safeguard the procedure.

2. Non-invasive therapy:
High intensity ultrasound focused on the volume of interest causes localized heating and coagulation of the tissue. This process is monitored and controlled using real-time MR temperature sensitive imaging, providing feedback to optimize the procedure.

3. Therapy verification:
After the procedure, contrast enhanced MR images are acquired to visualize the ablated volume. These images can be used to assess the lesion while the patient is still on the table.

An innovative non-invasive therapy

In the later stages of their disease, many cancer patients develop bone metastases, which can cause severe and debilitating pain and become unbearable for many patients. Conventional treatment with strong medication or radiotherapy can result in unpleasant side effects. Philips Sonalleve MR-HIFU provides a new option to alleviate this pain.

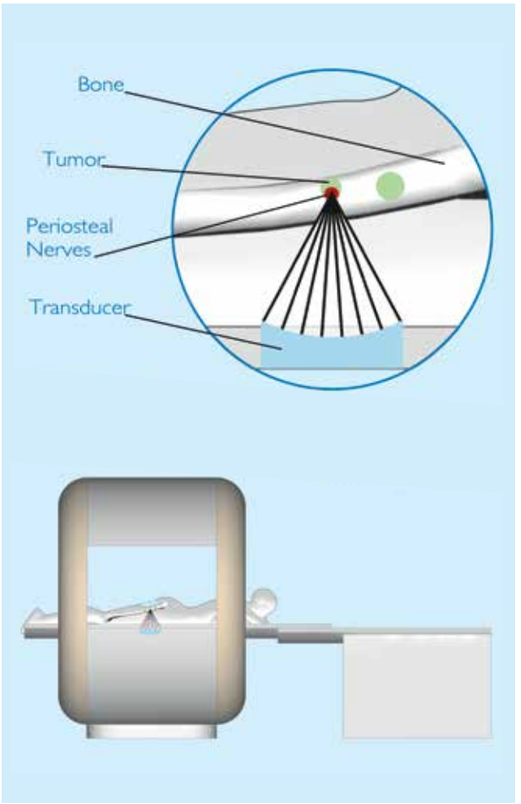
This innovative, non-invasive therapy doesn't cure the patient, but it can decrease pain. The procedure is potentially effective for some patients who haven't experienced the desired pain relief with radiation therapy, as demonstrated in ongoing clinical trials. In contrast to radiotherapy, no ionizing radiation is used and the therapy can be repeated if necessary.

Philips Sonalleve MR-HIFU on your Philips MRI scanner extends your field of applications into non-invasive interventions. You can offer cancer patients a non-surgical solution to their medical condition to improve their quality of life. Many of these patients would have suffered from debilitating pain before this non-invasive procedure became available.

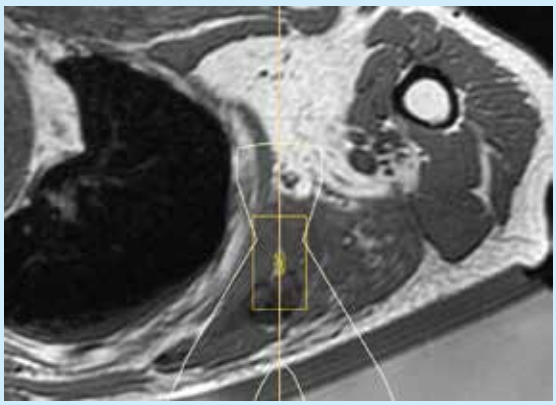
The HIFU system and coil elements are integrated in the Sonalleve patient table. During the therapy, ultrasound waves are focused onto the target volume. Real-time monitoring via temperature-sensitive MR imaging is used to obtain uniform temperature distribution.

"Our results are preliminary, but very promising in providing a safe, non-invasive therapy for palliation of pain on an out-patient basis. MR-HIFU can very precisely visualize and treat without the requirement of a catheter or probe through the skin."

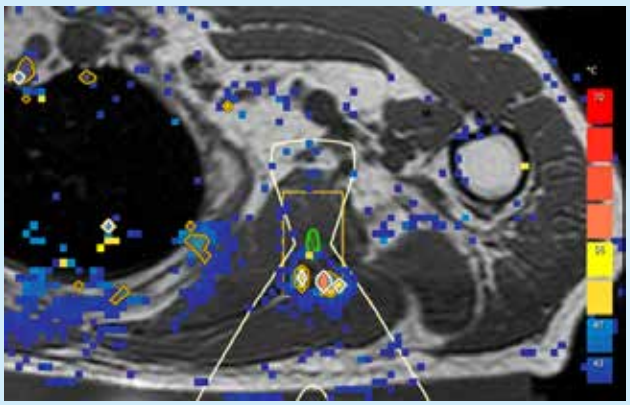
Prof. Hervé Trillaud, head of Diagnostic Imaging and Therapeutics at the Saint André Hospital, Bordeaux, France



Case 1 Scapula lesion

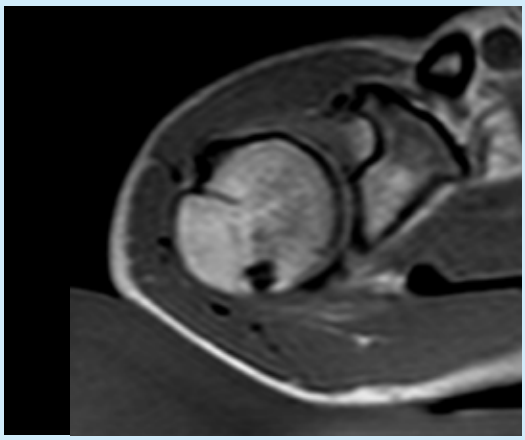


T1 weighted planning image, long metastasis in scapula

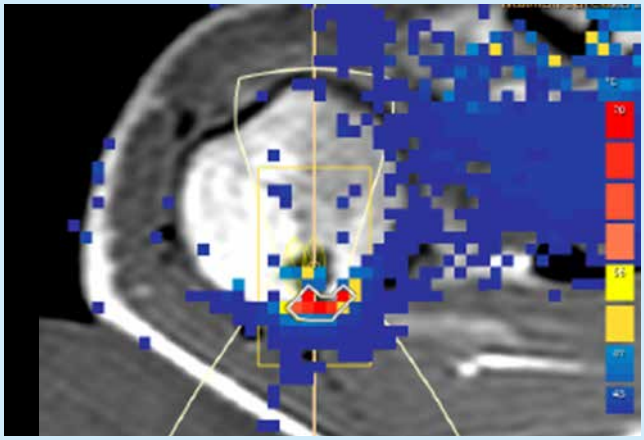


Temperature map overlay on T1 weighted planning image, showing heating of bone surface

Case 2 Humerus metastasis



T1 weighted planning image showing lesion in humerus head



Temperature map overlay on T1 weighted planning image, showing heating of bone surface

Results from case studies are not predictive of results in other cases. Results in other cases may vary.
Clinical images courtesy: Royal Marsden Hospital, Sutton, Surrey U.K. and Ospedale di Foligno, Foligno, Italy
The Philips Sonalleve MR-HIFU therapy system or some of it's applications are not for sale in certain countries. To determine availability in your area, please contact your local Philips representative.

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