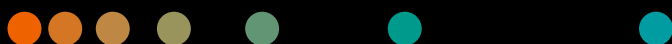
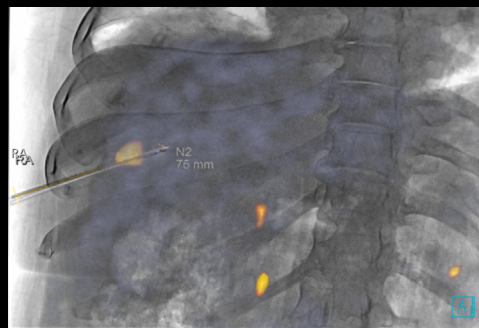


Study protocol

Radiofrequency ablation for hepatic metastatic lesion with poor visibility

Oncology



Case description

Patient history

64-year-old male with history of colon cancer

Diagnosis

A PET-CT scan was performed as part of follow-up and staging, revealing an ill-defined focal area of increased FDG uptake in segment VI of the right hepatic lobe, measuring 1.3×2.2 cm. A triphasic CT scan and abdominal ultrasound were subsequently conducted to assess the feasibility of image-guided radiofrequency ablation.

Treatment

Radiofrequency ablation (RFA) is an alternative therapy for hepatocellular carcinoma and liver metastases when resection cannot be performed or, in the case of hepatocellular carcinoma, when transplant cannot

be performed in a timely enough manner to avoid being removed from the transplant list. RFA has the advantage of being a relatively low-risk minimally invasive procedure used in the treatment of focal liver tumors. The main challenge in this case is that the lesion is not visible on ultrasound or CT, making it difficult to accurately target with the radiofrequency ablation needle. However, the lesion is clearly identifiable on PET-CT. Using the *syngo* Fusion package, the 5 s DynaCT Body reconstruction volume can be registered and fused with the patient's prior PET-CT scan. In a first step, the *syngo* DynaCT volume is aligned with the CT volume of the PET-CT scan by applying a fixed-points technique (anatomical landmarks). By the same frame of

Courtesy of

Prof. Sameh Fathy, MD,
Interventional Radiology,
Alexandria University, Egypt

Supported by

syngo 3D/3D Fusion
syngo DynaCT

System and software

ARTIS icono ceiling VE23 with
syngo Application Software VE2

reference, this registration also applies to the PET. In this new fused volume, in which the focal lesion is clearly visualized, the needle path could be precisely planned for the intervention. myNeedle Companion software allows easy planning and guidance for percutaneous needle procedures.

General comments

syngo Fusion package allows co-registration of modalities to gain the maximum benefit for better accuracy and outcomes. myNeedle Companion clearly displays the length and angulation of the needle path and automatically positions the C-arm to allow a bull's-eye view. The laser crosshair, integrated into the detector housing, projects the entry point as well as the angle of the needle onto the patient's skin.

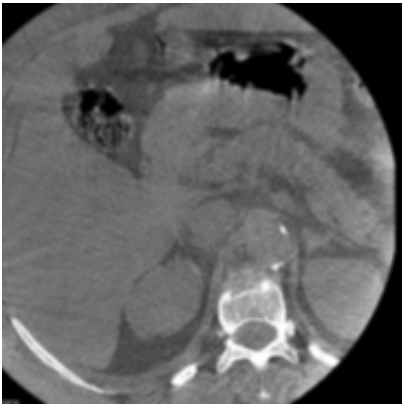
“myNeedle Companion software streamlines planning and guidance for percutaneous needle procedures, providing a unified and user-friendly workflow.”

Protocol

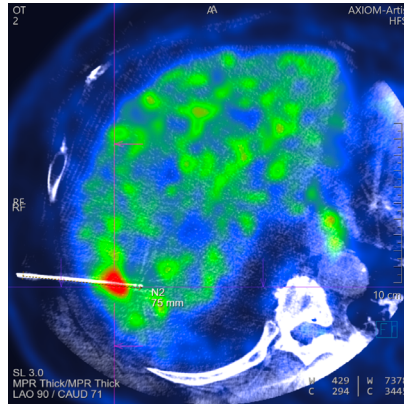
Acquisition protocol	5sDCT Body
Injection protocol	N/A
Reconstruction	
Name	DCT Body Nat Fill Full
VOI size	Full
Slice matrix	512 x 512
Kernel type	HU
Image characteristics	Normal
Reconstruction mode	Native
Viewing preset	DynaCT Body

Clinical images

Fig. 1

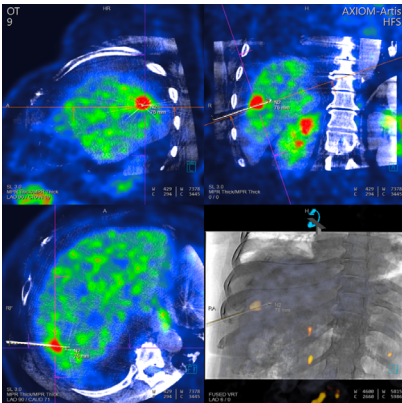


Axial DynaCT MPR slice; lesion not visible



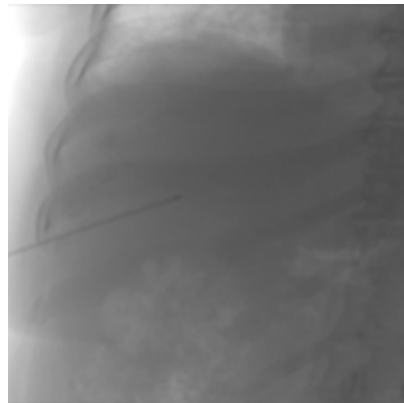
Fusion with PET-CT; lesion clearly visible. Planned needle trajectory and positioned ablation needle shown.

Fig. 2



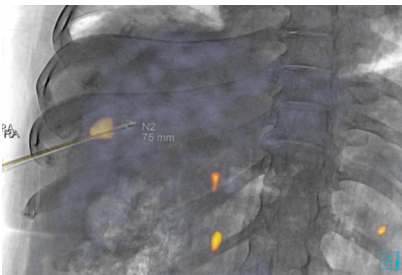
Visualization of needle planning using myNeedle Companion, including ablation needle in position.

Fig. 3



Real-time fluoroscopy image to show needle

Fig. 4



Fluoroscopy image fused with reconstructed PET-CT volume shows radiofrequency needle positioned in target area for ablation

The statements by customers of Siemens Healthineers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital or laboratory and many variables exist (e.g., hospital size, sample mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

The information presented in the study protocol is for illustration only and is not intended to be relied upon by the reader for instruction as to the practice of medicine. Any healthcare practitioner reading this information is reminded that they must use their own learning, training, and expertise in dealing with their individual patients.

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Siemens Healthineers Headquarters

Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim, Germany
Phone: +49 9191 18-0
siemens-healthineers.com