

Omental biopsy using Micromate™

Marco van Strijen, MD
Interventional Radiologist, St. Antonius Ziekenhuis, Nieuwegein, The Netherlands



Patient description

63-year-old male

Previous adenocarcinoma of the lung removed with left lobectomy in 2017. Stage IV lung carcinoma treated with immunotherapy.

Control PET-CT shows new omental lesion on the right.

Key Takeaway

Using Micromate™ under live imaging enabled the harvesting of multiple biopsy samples with submillimeter accuracy.

Case Rating

When compared to state-of-the-art freehand targeting | doi: 10.2214/AJR.09.3647. PMID: 20410392.



Radiation exposure (mSv)
7.95 mSv
38% less radiation

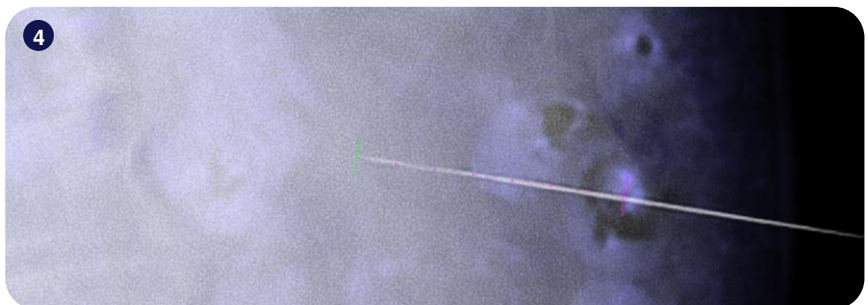
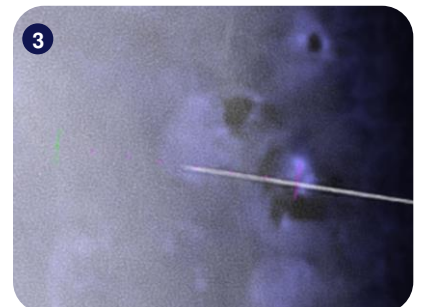
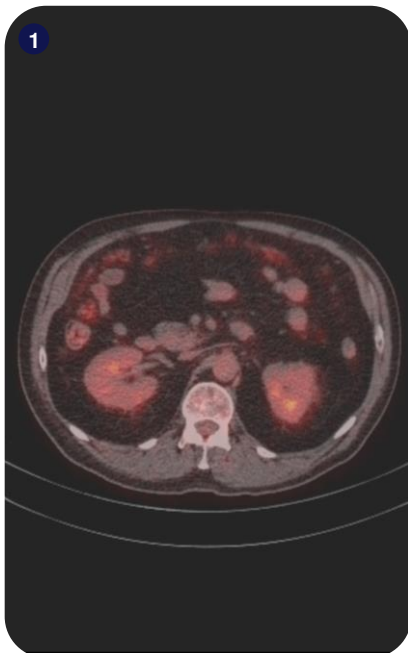


Procedure duration
22 min
33% faster

An intra-operative 3D scan of the patient in supine position was performed using a Philips Allura Xper FD20 angiography device. The suspicious lesion was segmented, and the surgical trajectory was planned using the Xper Guide planning software.

Micromate™ was then gross-positioned near the predefined entry-point and remotely controlled for alignment to the surgical plan under live fluoroscopic imaging. After the robotic alignment, an 18G biopsy needle was coaxially inserted three times through a 17G guiding needle for tissue harvesting.

Metastasis of the previously diagnosed large cell adenocarcinoma of the lung has been diagnosed and the patient was indicated to start chemotherapy. The procedure lasted 22 minutes and the patient had no complications. Post-operative accuracy measurements indicated a trajectory alignment accuracy of 0.0mm on the Entry Point View, an angular displacement of 0.43 degrees along the trajectory, and 0.00mm tip location accuracy in the Progress View.



1) Pre-operative PET scan; 2) Alignment of Micromate™ to the surgical plan under live imaging; 3-4) Insertion of the guidance needle (halfway and at the target location) and tissue harvesting.