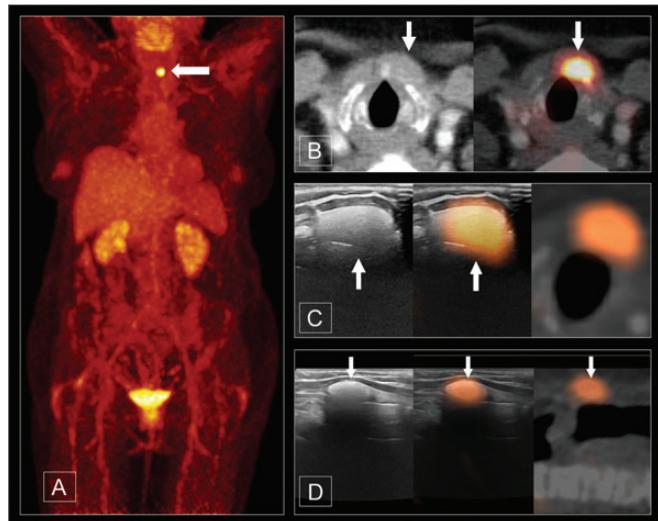


*Image of the Month****Avoidance of False-Positive Findings on  $^{18}\text{F}$ -FDG-PET/CT Using PET/Ultrasound Fusion: Displaced Laryngeal Silicone Implant Versus Recurrent Cancer*****Figure 1.****Figure 2.**

A 71-year-old female was diagnosed with non-small-cell lung cancer (NSCLC) with infiltration of the left lateral mediastinum. The squamous cell carcinoma was resected with microscopic residuals (R1 resection). One year after surgery, an  $^{18}\text{F}$ -FDG PET/CT was performed to assess for tumor recurrence as this is used for routine check-up in high-risk patients in our institution. A hypermetabolic focus adjacent to the cricoid cartilage was found (Fig. 1A; maximum intensity projection: standardized uptake value [SUV] 13.3), exhibiting a moderate thickening at soft-tissue density values on CT (Fig. 1B). Initially, the finding was suspected to be malignant.

An additional real-time navigated PET/US fusion examination was then performed using an electromagnetic navigation system (Volume Navigation, General Electrics, Milwaukee, WI, USA). Real-time fusion of the PET dataset and US images was obtained and demonstrated a well-defined, diffuse hyperechoic structure in transversal (Fig. 1C, left) and sagittal (Fig. 1D, left) orientation, correlating well with the hypermetabolic focus (Fig. 1C and D, mid images). The US appearance was atypical for tumor tissue, usually being hypoechoic with irregular margins. A review of the patient's medical history revealed that an irreversible vocal cord paralysis had occurred after resection of the NSCLC. A silicone elastomer implant (Fig. 2; Vox<sup>®</sup> Implants, Bard, Warwick, RI, USA) had been injected to augment the left vocal cord and reduce the glottic gap.

Thus, the benign, artificial appearance of the PET/US fusion images was compatible with migration and displacement of the silicone implants, therefore inducing a foreign body reaction. Accordingly, the presence of malignant tissue as a cause of the hypermetabolic focus seen on PET/CT could be ruled out. The patient underwent surveillance. In this case, US alone could have identified the artificial aspect of the lesion if performed by an experienced physician familiar with ultrasound and nuclear medicine as well, allocating the hypermetabolic focus to ultrasound findings in his mind. The method of PET/US, however, provides clear and comprehensible images, useful for physicians who do not use nuclear medicine techniques and ultrasound on a daily basis. Furthermore, PET/US images can be archived and reviewed at later times, too.

Martin Freesmeyer, Thomas Winkens and Robert Drescher  
Clinic of Nuclear Medicine, Jena University Hospital, Jena, Germany  
doi:10.1093/jjco/hyt177

**Acknowledgement**

Dr. Ernesta Palombo-Kinne is gratefully acknowledged for language assistance with the manuscript.