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Christian Linz, Urs D. A. Müller-Richter, Stefan Kircher, Constantin Lapa, Christina Bluemel

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Value of FDG PET/CT in Staging of Oral Cancer

Four Simultaneous Primary Malignancies

Christian Linz, MD, DDS, Urs D.A. Müller-Richter, MD, DDS,* Stefan Kircher, MD,† Constantin Lapa, MD,‡ and Christina Bluemel, MD‡*

Abstract: Patients with squamous cell cancer (SCC) of the head and neck are at increased risk for second primary malignancies (SPMs). We report on a 53-year-old patient with primary diagnosis of SCC in the anterior floor of the mouth. Panendoscopy suspected an SPM of the right vocal cord. FDG PET/CT, as a whole-body imaging method, confirmed this suspicion and raised concern for further SPM of both esophagus and colon. All malignancies were confirmed by biopsy. Subsequently, the patient underwent radiochemotherapy. In summary, FDG PET/CT revealed unexpected multiple SPMs, prevented unnecessary resection of the oral SCC, and enabled individualized therapeutic management.

From the *Department of Oral and Maxillofacial Plastic Surgery, University Hospital Würzburg; †Institute of Pathology, University Würzburg; and ‡Department of Nuclear Medicine, University Hospital Würzburg, Würzburg, Germany.

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Reprints: Christina Bluemel, MD, Department of Nuclear Medicine, University Hospital Würzburg, Oberdürrbacher Str. 6, 97080 Würzburg, Germany. E-mail: bluemel_c@klinik.uni-wuerzburg.de.

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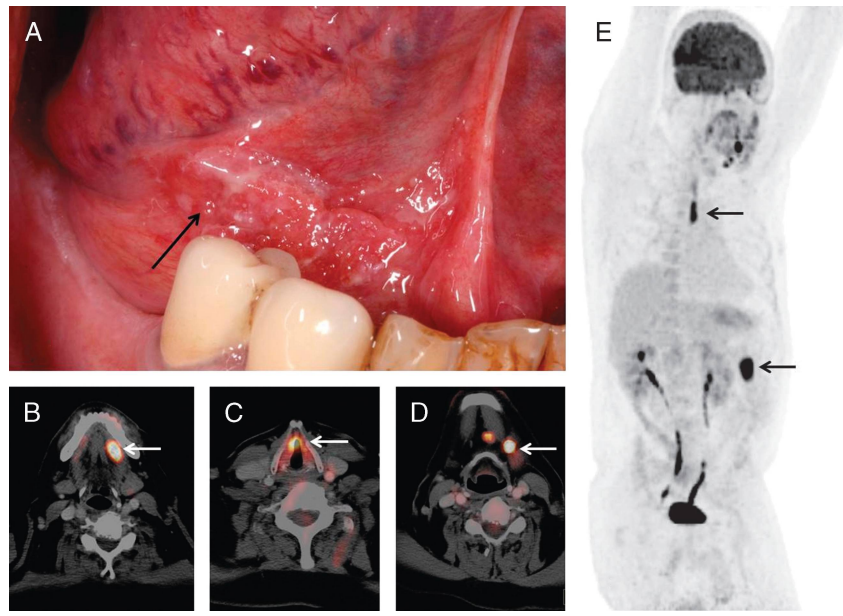

FIGURE 1. We report on a 53-year-old man who was referred with the suspicion of oral cavity cancer in the anterior floor of the mouth. The patient's history recorded tobacco and alcohol abuse as important risk factors for oral malignancies.[1] Physical examination and panendoscopy revealed a tumor of the anterior floor of mouth on both sides (**A**, arrow) and a suspicious lesion in the right vocal cord. Cervical ultrasound and MRI indicated submandibular lymph node metastases. Subsequently, ^{18}F-FDG PET/CT was performed for further staging and demonstrated intense correlating hypermetabolic foci in the anterior floor of the mouth and right vocal cord (**B** and **C**, arrows). In addition, FDG PET/CT revealed locoregional lymph node metastases in level 1 on the left side (**D**, arrow) and a hypermetabolic lesion in the esophagus (**E**, dotted arrow). A further suspicious focal tracer uptake was found in the colon (**E**, arrow).

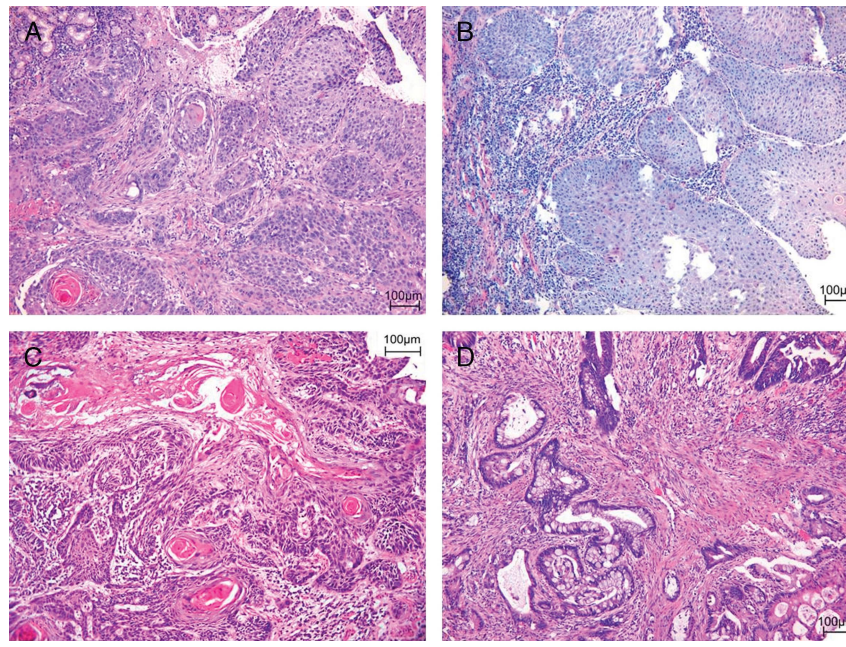

FIGURE 2. Subsequently, biopsies of all suspicious lesions (floor of the mouth, vocal cord, esophagus, colon) were performed. Histopathological workup using hematoxylin and eosin staining revealed squamous cell carcinoma (SCC) of the oral cavity (**A**), right vocal cord (**B**), and esophagus (**C**). In addition, an adenocarcinoma of the colon was confirmed (**D**). The risk for simultaneous (diagnosed at same time), synchronous (diagnosed within 6 months after index tumor), or metachronous (diagnosed more than 6 months after index tumor) malignancies in head and neck SCC is increased compared with the general population due to the risk factors smoking and alcohol consumption. These patients have a poor overall survival rate.[2] In head and neck cancer patients, the second primary malignancies (SPMs) usually occur in the aerodigestive tract.[3–5] If the index tumor is located in the oral cavity, patients often develop an SPM in the esophagus as in the presented case.[6] FDG PET/CT, a whole-body imaging method, facilitates detection of all tumor locations in 1 examination ("1-stop shop diagnostic"), predicts prognosis, and facilitates adequate therapeutic management.[7,8] In the present case, the patient received radiochemotherapy due to 4 simultaneous primary malignancies in contrast to originally planned surgery of the SCC in the anterior floor of the mouth. After radiochemotherapy of the oral SCC, the vocal cord, and esophagus carcinoma, hemicolectomy was performed for resection of the adenocarcinoma. During a 12-month follow-up, the patient shows a good general condition and reported a satisfactory quality of life. In summary, FDG PET/CT reveals unexpected tumor locations, facilitates individualized therapeutic management, and should therefore be considered in patients with oral cancer who are at higher risk for SPMs.