Abstract

The aim of this study was to evaluate the ability of pretreatment 90-min 18F-fluorodeoxyglucose positron emission tomography/computed tomography (^{18}F-FDG PET/CT) to predict the extranodular spread of lymph node metastases in oral squamous cell carcinoma. We retrospectively reviewed the cases of 56 patients who underwent pretreatment ^{18}F-FDG PET/CT and surgery with neck dissection. Maximum standardized uptake value, metabolic tumor volume, and total lesion glycolysis were measured for the 56 primary sites and maximum standardized uptake value was measured for 115 lymph node levels. Extranodular spread was present at 9 lymph node levels in 7 patients. Significant differences were found in metabolic tumor volume and total lesion glycolysis of the primary site, and in lymph node maximum standardized uptake value, between patients with and without extranodular spread ($p<0.05$). Combining primary site total lesion glycolysis and lymph node maximum standardized uptake volume at their respective optimal cutoffs, the sensitivity, specificity, and accuracy for predicting extranodular spread were 89%, 92%, and 92%, respectively. Pretreatment ^{18}F-FDG PET/CT is useful for predicting extranodular spread in patients with oral squamous cell carcinoma. The combined use of primary site total lesion glycolysis and lymph node maximum standardized uptake value showed greater

predictive value than either predictor singly.