Contrast-enhanced (18) F-FDG-PET/CT for the assessment of necrotic lymph node metastases

Stephan K Haerle, Klaus Strobel, Nader Ahmad, Alex Soltermann, Daniel T Schmid & Sandro Stöckli

BACKGROUND.: Cystic lymph node metastasis (CLNM) is commonly found in human papillomavirus (HPV)-associated tonsillar squamous cell carcinoma (SCC). The aim of this study was to compare the accuracy in detecting cystic lymph node metastasis from tonsillar SCC between contrast-enhanced CT, (18)F- fluorodeoxyglucose-positron emission tomography (FDG-PET), non-enhanced (18)F-FDG-PET/CT, and contrast-enhanced (18)F-FDG-PET/CT.

METHODS.: Thirty-four patients with a tonsillar SCC undergoing a pretreatment contrast-enhanced (18)F-FDG-PET/CT followed by a neck dissection as a standard of reference were included. The contrast-enhanced CT part, the (18)F-FDG-PET part, the non-enhanced (18)F-FDG-PET/CT part, and the contrast-enhanced (18)F-FDG-PET/CT were assessed separately for correct N classification and the differentiation of N0 versus N+. RESULTS.: Contrast-enhanced (18)F-FDG-PET/CT, non-enhanced (18)F-FDG-PET/CT, and contrast-enhanced CT are equally accurate for correct neck staging. Regarding pN0 versus pN+, contrast-enhanced CT and contrast-enhanced (18)F-FDG-PET/CT are superior to non-enhanced (18)F-FDG-PET/CT (p = .017).

CONCLUSION.: Contrast-enhanced CT and contrast-enhanced (18)F-FDG-PET/CT perform equally and better than non-enhanced (18)F-FDG-PET/CT in detecting CLNM in tonsillar SCC. Therefore, in patients scheduled for (18)F-FDG-PET/CT, we strongly suggest performing a contrast-enhanced (18)F-FDG-PET/CT, which is not routine in most centers. © 2010 Wiley Periodicals, Inc. Head Neck, 2010.