

Positron Emission Tomography in the Management of Head and Neck Cancer of Unknown Primary

Objective: Unknown primary squamous cell carcinomas (SCC) of the head and neck are treated with radiation, frequently in combination with chemotherapy and/or neck dissection. Precise localization of the primary tumor will allow more focused radiation treatment to site of cancer and potentially result in reduced morbidity. Although the use of positron emission tomography (PET) for detection of occult primary cancer appears promising, there is still controversy regarding its value as a diagnostic tool in patients with an unknown primary. In this study, we reviewed our experience with PET in patients with an unknown primary and evaluated whether the use of PET scan changed our management of these patients.

Methods: We performed a retrospective chart review of patients with biopsy-proven squamous cell carcinoma of the head and neck with an unknown primary who were presented in our multidisciplinary clinic from 2000 to 2008. These patients underwent a workup including CT scan of the neck and chest, PET scan, and most patients underwent quadruple endoscopy with site directed biopsies of the nasopharynx, tonsil, base of tongue, and pyriform sinus. The rationale, timing, and results of the PET scan were documented. We identified any change in management of these patients based on results from the PET scan.

Results: Thirty six patients with an unknown primary SCC of the head and neck were identified. Eight patients were excluded: three patients did not have a PET scan, four patients had already received some chemoradiation, and one patient had a concurrent lung primary SCC that could have metastasized to the neck. In the remaining 28 patients PET identified two possible occult primaries. These two patients were taken back to the OR for further investigation guided by the PET result. One patient had asymmetric tonsillar uptake with no SUV given. A tonsillectomy at the time of neck dissection was negative. The other patient had a left oropharyngeal uptake of 4.3 but direct laryngoscopy did not reveal any lesions and no biopsy was taken. Three patients with metastatic disease were correctly identified by both PET and CT scan. Two of these were confirmed by biopsy. The third patient had such extensive metastasis that biopsies were deemed unnecessary. A fourth patient had metastatic squamous cell carcinoma to the cranial nerves without a neck mass. There was mild enhancement on MRI and no increased uptake on PET scan.

Conclusions: PET scan did not provide any additional information over that obtained using CT scan and quadruple endoscopy and biopsy in our series of 28 patients with an unknown primary. The only change in management occurred in two patients who were subjected to additional procedures with no change in definitive therapy. We conclude that there is no benefit in the routine use of PET in patients with an unknown primary squamous cell carcinoma of the head and neck, especially in centers with experienced head and neck surgeons and neuroradiologists.

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