Work-Up of Suspected Chest Metastases in H & N Cancer: Worth the Wait?

Robert M. Liebman, MD, Christopher Leto, MD, J. Kenneth Byrd, MD, Michael W. Groves, MD
Department of Otolaryngology-Head and Neck Surgery, Medical College of Georgia at Augusta University
Augusta, Georgia

Abstract

Outcome: Attendees can expect to (1) understand the proportion of patients presenting to Head and Neck tumor board at an academic institution in which chest metastases cannot be ruled out based on PET findings, (2) appreciate the proportion of patients in which metastatic disease is confirmed following workup of suspicious PET findings (3) appreciate any difference in time to primary treatment between patients who were worked up for suspected chest metastases versus those who were not.

Methods: This study was conducted as a retrospective chart review. Patients included were adults with pathologically confirmed head and neck malignancy who were presented at Head and Neck Tumor Board (TB) through December 2015 (N=496). Outcomes measured included (1) presence of a PET scan in the initial workup of head and neck cancer, (2) whether or not the PET scan could rule out chest metastases, (3) whether a tissue diagnosis of metastatic disease was sought after, (4) the date of patients' presentations at TB, (5) the date on which patients began their primary treatment, and (6) the amount of time (in days) between presentation and primary treatment.

Introduction

In the last decade PET/CT has become the preferred modality for TNM staging of head and neck malignancy because of its ability to detect metastases to loco-regional lymph nodes, distant metastases, and detection of second, primary malignancies. PET/CT studies are costly to both healthcare institutions and patients with respect to time and limited resources. Through documents obtained at the authors’ institutions, Medicare reimburses $1,348 for the PET study; not including the radiologist’s fee. Further, time to diagnosis of distant metastases has not been shown to have a beneficial effect on overall survival. One study reports that PET and conventional imaging were discordant in 43% of cases regarding TNM staging and the therapeutic plan was only altered in 13.7% of patients. Alternative methods of thoracic lymph node metastases detection that are potentially less costly and more accurate have been described. There is also dissent amongst medical professionals regarding the best parameters to use for determining positive metastases on PET scans, especially those in the chest. At our institution, much of the time patients are recommended PET/CT before definitive treatment is initiated yet they oftentimes yield negative or inconclusive results.

Methods and Materials

The names and medical records of the patients presented at the Medical College of Georgia’s Multidisciplinary Head and Neck Tumor Board between 1/1/2013 and 12/31/2015 were collected with the respective dates each patient was presented. These were compiled together in an encrypted Excel (Microsoft, Redmond, WA) spreadsheet. Redundant patients (discussions) were removed. Several patients were treated primarily at the Charlie Norwood VA Hospital; these patients were removed. Further, other patient records were inaccessible due to incorrect names or medical record numbers given on the TB logs.

Data collected were age at tumor board presentation, sex, diagnosis, TNM stage, and the presence of a PET/CT scan before primary treatment of their tumor. Patients who did not have PET/CT prior to treatment were then excluded. The thorax and lungs sections of the radiologists' reports of the PET/CT scans were read and graded as either No, Equivocal, or Yes depending on language used to assess for the presence of chest metastases. The dates of the PET/CT scans were recorded. It was noted if a patient had a workup with either pulmonology or CT surgery for a possible metastasis. The biopsy results were recorded for sampled lesions. Finally, modality of primary treatment (surgery, radiation with chemotherapy, chemo therapy, radiation, observation, or palliative and the date on which the patient began their primary treatment were recorded. Days between tumor board presentation and primary treatment initiation were calculated as well as days between peri-Treatment PET/CT and initiation of treatment. Unpaired t-tests (GraphPad, LaJolla, CA) were used to assess for statistical significance.

Conclusion

There was an observed greater time to both the time of PET/CT scan and time from Tumor Board presentation for the group of patients who underwent workup with either pulmonology or cardiothoracic surgery. However, this observed difference in time to treatment failed to reach level of statistical significance.

Discussion

There is not, at present, any data generated from this study regarding overall survival or disease progression between the group that had workup for metastases and thus delayed, though not significant, time to treated compared to patients not receiving workup; this represents one potential future area of study. It is felt by the authors that the failure to reach statistical significance for the extended time to treatment is a result of both small cohort size in those who underwent workup for possible chest metastases and a large standard of deviation in both groups. Reasons for this high degree of variability is likely multi-factorial. This study raises questions regarding the order of workup and treatment of head and neck malignancies given that such a large number of patients had PET/CTs that were not concerning for metastatic disease in the chest (70.9%) and only 6.6% of patients had scans that were suggestive of metastases. Unfortunately there were no meaningful prognostic factors from this study with respect to neoplasm location or stage that would guide physicians to more aggressively pursue metastases before treating the primary disease site.