Clinicopathologic Review of Mucoepidermoid Carcinoma in the Head and Neck Treated at a Tertiary Care Hospital

Serena A. Byrd BS, Matthew E. Spector MD, Jonathan B. McHugh MD, Thomas E Carey PhD, Carol R. Bradford MD

Department of Otolaryngology – Head and Neck Surgery, Department of Pathology, University of Michigan Health System

INTRODUCTION

Mucoepidermoid carcinoma (MEC) is the most common malignancy of the major salivary glands.1 MEC is comprised of three different histological cell types in varying proportions: mucinous cells, undifferentiated small cells (intermediate cells), and epidermoid (squamoid) cells. Low-grade tumors typically have more mucin-containing cells while high-grade lesions tend to have a more epithelial cell component (Figure 1).

The clinicopathologic behavior of MEC is highly variable, ranging from slow-growing indolent tumors to locally aggressive and highly metastatic carcinomas. Conventional clinicopathologic parameters such as age, sex, anatomic subsite, clinical T stage, nodal status, overall clinical stage, and histological grade have been shown to have predictive value in survival. The most consistent predictor of outcome is histological tumor grade.2-4

The objectives of this study were to describe the epidemiology of head and neck MEC treated at a tertiary hospital, as well as to describe the clinicopathologic predictors of recurrence and survival in this patient population.

METHODS

Study Population

The records of all patients with a primary head and neck MEC between 1985-2010 were identified through the University of Michigan’s Pathology Department database and retrospectively reviewed. All patients underwent treatment with surgery alone, surgery and radiation (RT), or surgery, radiation and chemotherapy (CRT) at the University of Michigan.

Histology and Classification

Patients were staged using clinical and radiographic findings according to the AJCC classification system. Histological grading was based on the Armed Forces Institute of Pathology (AFIP) grading system.5

Analysis

Variables of interest included age, sex, anatomic subsite, tumor grade (low, intermediate, high), nodal status, and marginal status. The outcomes of interest were time to recurrence (TR), overall survival (OS) and disease-specific survival (DSS). Survival estimates were computed using the Kaplan-Meier method. All statistics were analyzed on SPSS for Windows version 11.01 (SPSS Inc., Chicago, IL) with consultation from the University of Michigan Center for Statistical Consultation and Research.

RESULTS

The baseline characteristics of this 101 patient cohort are shown in Table 1. Overall survival was 79% and disease-specific survival was 95%, with a median follow-up time of 66 and 43 months respectively. Univariate analysis showed that histological grade was a significant predictor of time to recurrence (p = 0.001) and overall survival (p = 0.04), but was not a significant predictor of disease-specific survival (p = 0.09) (Figure 2). Positive nodal status was a significant predictor of disease-specific survival (p = 0.004), but there was no statistically significant difference seen in overall survival (p = 0.056) (Figure 3). There was insufficient data to conclude whether positive nodal status was predictive of time to recurrence. There was no statistically significant difference in time to recurrence, disease-specific survival, or overall survival based on sex, age, anatomic subsite, and marginal status.

CONCLUSIONS

Our study into the epidemiology of MEC is consistent with previous studies. Advanced histological grade and positive nodal status continue to be the strongest independent predictors of overall survival and disease-specific survival, respectively. Further understanding of the tumor biology of MEC may account for variable clinicopathologic features. These studies are currently underway.

REFERENCES