ABSTRACT

Purpose
Myoepithelial carcinomas (MEC) are rare salivary gland carcinomas with infiltrative growth patterns. They present with various cellular phenotypes, making proper identification challenging. Due to their rarity (less than 70 reported cases), there have been no prospective, randomized controlled trials investigating optimal treatment regimens. Therapeutic guidelines, largely formulated through case series, include complete surgical excision with wide margins (1 to 2 cm), radiation therapy, and neoadjuvant chemotherapy. The role of radiation and chemotherapy is not well established, but nonsurgical therapy is generally recommended for advanced disease or other patients with poor performance status.

We report the largest population-based study investigating the multifactorial influence of primary site, stage, size, and grade on overall survival (OS) and disease-specific outcomes (DSS) in patients with MEC. As there has been growing evidence implicating the importance of tumor size in MEC outcomes, this study also aims to identify the size threshold for which the addition of radiation therapy impacts survival.

METHODS AND MATERIALS

A population-based retrospective search for patients diagnosed with MEC of the head and neck was performed using the case-listing session protocol of the National Cancer Institute’s Surveillance Epidemiology and End Results (SEER) 18 database.

All patients diagnosed with MEC from 1973 to 2011 were identified using histology ICD-0-3 codes 8562/3 (epithelial-myoepithelial carcinoma) and 8982/3 (malignant myoepithelioma). The following primary data were extracted from the database: age at diagnosis, sex, race, histologic subtype (ICD), tumor extent and tumor size from both extent of disease (EOD) and collaborative stage (CS) coding methods, tumor grade, tumor stage, treatment with surgery and/or radiation, cause of death, and survival months. Well- and moderately-differentiated lesions were considered low grade (grades I/II), while poorly differentiated and undifferentiated ones were grouped as high grade (grades III/IV).

Primary outcome was defined as time (months) from diagnosis to death from any cause for OS, and from diagnosis to death directly attributable to the cancer-related diagnosis for DSS. Descriptive statistics were calculated for all variables. Kaplan Meier curves were designed to visualize OS and DSS rates; differences between groups were tested using the log-rank test.

RESULTS

The SEER database revealed 513 patients with primary site and neck MEC, of whom 54% (n=277) were females, and 77.8% (n=399) were white. The mean age at diagnosis was 62.4 years. Tumors were located mostly in the parotid gland (66%).

Univariate Analysis: Factors Predicting Survival

Kaplan-Meier curves revealed that the 5-year OS and DSS for all MECs was 70% and 86%, respectively. Age, grade, stage at presentation, surgical resection, and tumor size were significant determinants of DSS, while radiation therapy approached significance.

Multivariate Analysis: Survival Factors

For patients with tumors ≤5 cm (n=225), received adjuvant chemotherapy was not well established, but non-surgical therapy is generally recommended for advanced disease or other patients with poor performance status.

Only primary site (p=0.074) and stage (p=0.056) were independent predictors of OS, with surgical resection (p=0.068) and radiation therapy (p=0.069) approached significance.

For tumors >5 cm (n=41), radiation therapy (p=0.014) was an independent predictor of survival in either cohort. It was not found to be a predictor when tumors were separated into ‘low’ and ‘high’ grades.

As no significant differences were found between T1/2 and T3/4 lesions, cases were differentiated by tumor size <5 cm and >5 cm. Multivariate analysis was performed. For tumors ≤5 cm (n=389), age (p=0.001), and stage at presentation (p=0.013) were independent predictors of OS, with surgical resection approaching significance (p=0.069). Only stage at presentation (p=0.010) was an independent determinant of DSS. For tumors >5 cm (n=41), primary site (p=0.010), grade (p=0.026), and radiation therapy (p=0.014) were independent predictors of survival. For DSS, grade (p=0.051) and radiation therapy (p=0.085) approached significance.

CONCLUSIONS

Here we report the largest study to date confirming that increased tumor size and higher grade predict worse overall and disease-specific survival. When tumors are larger than 5 cm, radiation therapy positively affects overall survival while approaching significance in its effect on disease specific survival. This data suggests that for tumors >5 cm, radiation therapy should be considered as an adjuvant therapy in order to improve survival and outcomes.

REFERENCES

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