

Management and prognosis of cancers in the accessory parotid gland

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Abstract

Objective: This study was performed to analyze the clinical management of accessory parotid gland (APG) cancer and possible risk factors for disease-related death.

Methods: Patients diagnosed with primary APG cancers in the largest medical center in Northeast China were enrolled from January 1990 to December 2016.

Results: All 43 patients underwent resection of the tumors and superficial parotid gland by a standard Blair incision. Seven (16.3%) patients also required selective neck dissection. The most common lesion was mucoepidermoid carcinoma. Temporary facial paralysis occurred in 11 (25.6%) patients, and permanent facial paralysis occurred in 3 (7.0%) patients because of surgical resection of the facial nerve, which was involved with the tumor. The 5- and 10-year disease-specific survival rates were 86.0% and 66.0%, respectively. The tumor stage, neck status, neck dissection, and tumor grade were significantly associated with disease-related death, but only the tumor grade was an independent risk factor.

Conclusion: Superficial parotidectomy is a reliable surgical procedure associated with a high survival rate and low morbidity in treating APG cancers. The tumor grade is the key prognostic factor.

Keywords

Accessory parotid gland, prognostic analysis, parotid gland, parotid cancer, parotidectomy, tumor grade

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Introduction

Tumors in the accessory parotid gland (APG) are uncommon. Among all parotid tumors, the incidence rate of APG tumors ranges from 1% to 8%, and among all APG tumors, the incidence rate of APG cancers ranges from 26% to 50%.^{1,2} Fewer than 200 APG tumors have been reported in the English-language literature to date, including about 60 malignant lesions.^{3–8} Because of the rarity of APG cancers, few studies have been performed to systematically analyze the management and prognosis of APG cancers. Therefore, the current study was performed to analyze the clinical management of APG cancer and possible risk factors for disease-related death.

Patients and methods

The China Medical University institutional research committee approved this study, and all participants provided written informed consent.

Patients diagnosed with primary APG cancers were identified in the Department of Oral Maxillofacial Surgery, Affiliated Stomatology Hospital of China Medical University from January 1990 to December 2016. All medical records were reviewed, and related information was extracted.

The disease stage was reclassified according to the Union for International Cancer Control (UICC) 2010 system. Disease-specific survival (DSS) was calculated using Kaplan–Meier analysis. The chi square test (univariate analysis) and Cox model (multivariate analysis) were used to determine the possible risk factors for disease-related death. All statistical analyses were performed using SPSS 13.0 (SPSS Inc., Chicago, IL, USA), and a *p* value of <0.05 was considered significant.

Results

In total, 43 patients (16 male, 27 female) were enrolled. Their mean age was 47 years (range, 25–71 years). All patients underwent preoperative ultrasound examination and computed tomography/magnetic resonance imaging. Twelve patients underwent fine needle aspiration, and malignant lesions were found in all of these patients.

All patients underwent resection of the tumors and superficial parotid gland by a standard Blair incision. Seven (16.3%) patients also required selective neck dissection (regions I–IV) because of clinically positive neck nodes. The most common lesion was mucoepidermoid carcinoma (18 patients, 41.9%), followed by acinic cell carcinoma (8 patients, 18.6%) (Table 1). Based on the World Health Organization 2005 classification, four types of parotid cancers were classified as high-grade. According to the UICC 2010 classification, 19 (44.2%) patients had stage T1 tumors, 14 (32.6%) had stage T2, 7 (16.3%) had stage T3, and 3 (7.0%) had stage T4. Four (9.3%) patients received postoperative radiotherapy. After the operation, primary wound healing without salivary fistula formation was achieved in all patients. Temporary facial paralysis occurred in 11

Table 1. Distribution of accessory parotid gland cancers

Type of lesion	n (%)
Mucoepidermoid carcinoma ^{&} (low-grade)	18 (41.9)
Acinic cell carcinoma ^{&}	8 (18.6)
Adenoid cystic carcinoma [#]	6 (11.6)
Basal cell adenocarcinoma ^{&}	4 (7.0)
Myoepithelial carcinoma ^{&}	3 (7.0)
Squamous cell carcinoma [#]	2 (4.7)
Undifferentiated cell carcinoma [#]	1 (2.3)
Adenocarcinoma [#]	1 (2.3)

[&]Low- or median-grade cancer. [#]High-grade cancer.

(25.6%) patients, and permanent facial paralysis occurred in 3 (7.0%) patients because of surgical resection of the facial nerve, which was involved with the tumor.

Eight patients were lost to follow-up. Among the remaining 35 patients, the mean follow-up duration was 78 months (range, 13–214 months). Seven patients died of their disease. The 5- and 10-year DSS rates were 86.0% and 66.0%, respectively (Figure 1). In the risk factor analysis, the neck stage was unknown in 29 patients and regarded as N0. As shown in Table 2,

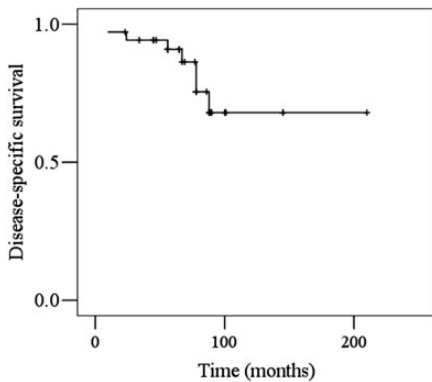


Figure 1. Disease-specific survival of the patients in the present study

Table 2. Risk factor analysis for disease-specific death in accessory parotid gland cancers

Variables	Univariate analysis	Multivariate analysis
Age (<47 vs. \geq 47 years)	0.415	
Sex (male vs. female)	0.401	
Tumor stage (T1–T2 vs. T3–T4)	<0.001	0.084
Node stage (N0 vs. N+)	<0.001	0.122
Neck dissection	<0.001	0.122
Radiotherapy	0.365	
Tumor grade (low–median vs. high)	<0.001	0.013
Facial nerve invasion	0.673	

the tumor stage, neck status, neck dissection, and tumor grade were significantly associated with disease-specific death, but in the multivariate analysis, only the tumor grade was an independent risk factor.

Discussion

Because of the rarity of APG carcinoma, no reliable literature has focused on its management. One of the main goals in treating cancer is to control the disease and achieve a good survival rate and prognosis. Unfortunately, no consensus has been reached regarding the surgical treatment of APG cancer.^{3–8} In a study by Newberry et al.,³ most patients underwent mass excision without disturbing the parotid gland. In studies by Lukšić et al.⁵ and Sun et al.,⁶ however, all patients underwent superficial or total parotidectomy. Although a relatively good prognosis was achieved in all of the above-mentioned studies, the sample sizes were quite small, and a convincing conclusion could not be made. The current study included 43 patients from the largest medical center in Northeast China. This is the largest series on APG cancer published to date; therefore, a relatively reliable conclusion was reached. All patients underwent superficial parotidectomy, and <20% of the patients required neck dissection because of clinically positive nodes. The 5- and 10-year DSS rates were 86.0% and 66.0%, respectively, and the prognosis was satisfactory. Therefore, superficial parotidectomy could be a reliable method for APG cancers. Neck dissection is suggested in patients with clinically positive metastatic nodes.

Another goal of cancer treatment is to minimize surgical complications. The reported overall complication rate varies from 9.4% to 55.5%,^{4,5,8} but all of these studies focused on benign and malignant APG tumors because of the presence of a

safe tumor boundary. More extensive resection is required when treating malignant APG tumors, and a higher complication rate is expected. Therefore, the rate of 25.6% in the current study is acceptable and indicates the reliability of superficial parotidectomy.

No previous authors have attempted to explore the risk factors for disease-specific death. Our univariate analysis showed that the tumor stage, neck dissection, tumor grade, and node stage were significantly associated with disease-specific death; similar findings have been obtained for parotid cancers⁹ and other head and neck cancers.¹⁰ However, only the tumor grade was an independent risk factor. High-grade parotid cancer, of which salivary duct carcinoma is representative, tends to have invasive growth and a high recurrence rate and is associated with a poor prognosis. Shi et al.⁹ reported that the 5-year DSS rate of parotid duct carcinoma was only 45%. Therefore, systemic treatments might be required in patients with high-grade parotid cancers.

In summary, malignant APG tumors are uncommon, but superficial parotidectomy is a reliable surgical procedure associated with high survival and low morbidity rates. The tumor grade is the key prognostic factor.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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