Mammary analogue secretory carcinoma (MASC) of the salivary gland: NCDB defining characteristics

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Introduction

Background: Mammary analogue secretory carcinoma (MASC) is a relatively new histological classification of salivary gland tumor. Previously reported[1] SEER-18 data of 55 patients revealed slight male predominance (56%), mean age 49 years, and majority parotid origin (76%), AJCC stage 1 (45%), and well/moderately differentiated (45%). Larger cohorts of patient have yet to be studied so many questions remain regarding demographics and outcomes for these tumors, including in comparison to non-MASC malignant salivary tumors.

Methods

National Cancer Database (NCDB) data was accessed from diagnoses over 2004-2017 using histological diagnosis of MASC (n=118) vs non-MASC (n=33956) salivary tumors. Clinical information abstracted included: age, sex, race, income, education, year of diagnosis, primary site, grade, stage, size, nodal status, tumor extension, lympho-vascular invasion, surgical treatment and approach, margin status, radiation therapy, and mortality.

Results

NCDB data MASC vs non-MASC malignant salivary tumors revealed: mean age 52 vs 63, male gender 51% vs 58%, parotid primary site 84% vs 81%, well/moderately differentiated 45% vs 34%, poorly differentiated 1% vs 27%, lympho-vascular invasion present 6% vs 16%, negative nodal disease 60% vs 40%, AJCC pathologic stage 1 35% vs 20%, AJCC pathologic stage 4 8% vs 22.8%, no distant metastasis 98% vs 91%, invasive tumor confined to gland 53% vs 34%, negative surgical margins 81% vs 53%, beam radiation 31% vs 55%, and comparable 30- and 90- day mortality between both groups.

	Histological Type			
	MASC (N=118)	Non-MASC (N=33956)	Total (N=34074)	P-value
AJCC Pathologic Stage Group, n (%)				0.0001
pStage I	40 (35.4%)	6348 (19.5%)	6388 (19.5%)	
pStage II	22 (19.5%)	4909 (15.1%)	4931 (15.1%)	
pStage III	17 (15.0%)	4692 (14.4%)	4709 (14.4%)	
pStage IV	0 (0.0%)	309 (0.9%)	309 (0.9%)	
pStage IVA	7 (6.2%)	5760 (17.7%)	5767 (17.6%)	
pStage IVB	0 (0.0%)	604 (1.9%)	604 (1.8%)	
pStage IVC	2 (1.8%)	761 (2.3%)	763 (2.3%)	
Not applicable/Unknown	25 (22.1%)	9193 (28.2%)	9218 (28.2%)	

	Histological Type			
	MASC (N=118)	Non-MASC (N=33956)	Total (N=34074)	P-value
Age at Diagnosis				<.0001
N	118	33956	34074	
Mean (SD)	52.4 (17.74)	63.4 (16.47)	63.4 (16.49)	
Median	54.0	65.0	65.0	
Range	21.0, 86.0	18.0, 90.0	18.0, 90.0	
Sex, n (%)				0.1434
Male	60 (50.8%)	19531 (57.5%)	19591 (57.5%)	
Female	58 (49.2%)	14425 (42.5%)	14483 (42.5%)	

	Histological Type			
	MASC (N=118)	Non-MASC (N=33956)	Total (N=34074)	P-value
Grade, n (%)				<.0001
Well differentiated, differentiated, NOS	33 (28.0%)	5435 (16.0%)	5468 (16.0%)	
Moderately differentiated, moderately well differentiated, intermediate differentiation	20 (16.9%)	6165 (18.2%)	6185 (18.2%)	
Poorly differentiated	1 (0.8%)	8996 (26.5%)	8997 (26.4%)	
Undifferentiated, anaplastic	2 (1.7%)	2153 (6.3%)	2155 (6.3%)	
Cell type not determined, not stated not applicable, unknown primaries, high grade dysplasia	62 (52.5%)	11207 (33.0%)	11269 (33.1%)	

Discussion

MASC is a recently recognized histological type of salivary gland tumor. In comparison to non-MASC salivary tumors, they are more likely to affect younger patients, the parotid gland, be well/moderately differentiated, have less lympho-vascular invasion, less nodal disease, less aggressive staging, more likely to have negative surgical margins, and less likely to require radiation.

Conclusions

Overall, these findings suggest that MASC salivary tumors are less aggressive than non-MASC malignant salivary tumors. Our data are consistent with prior reports and add additional variables not previously studied.

[1] Anderson, J. L., Haidar, Y. M., Armstrong, W. B., & Tjoa, T. (2019). Analysis of Clinical Features of Mammary Analog Secretory Carcinoma Using the Surveillance, Epidemiology, and End Results Database. *JAMA otolaryngology-- head & neck surgery*, *145*(1), 91–93.