



Retrospective analysis of the results of parotid surgery performed by the same surgeon

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ABSTRACT

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Objective: The aim of this study was to examine retrospectively the clinical data of patients who were operated by the same surgeon due to parotid mass. **Material and Method:** The clinical data of 110 patients who had parotidectomy due to parotid mass between the years 2009 and 2014 were examined retrospectively. **Results:** 45 of the patients were female while 65 were male. The average age of female patients was 45, while the average age of male patients was 48.9. The most common lesion observed in female patients was pleomorphic adenoma (71,1%), while the second most common lesion was whartin tumor (4,4%) and benign cystic lesion (4,4%). The most common lesion in male patients was pleomorphic adenoma with a frequency of 38,5%, the second most common lesion was whartin tumor with a frequency of 27,7%. When the distribution of benign and malignant lesions was analyzed in terms of gender, it was found that 93,3% of the female patients had benign lesion while 6,7% had malignant lesion and 83,1% of the male patients had benign lesion while 16,9% had malignant lesion. Overall, 87,3% of the patients were found to have benign lesion while 12,7% were found to have malignant lesion. As a conclusion, while the most commonly observed lesion in our study was pleomorphic adenoma, followed by Warthin tumor, which was in parallel with the literature, it was remarkable that lipoma was seen in 4 patients and unlike the literature, the most common malignant tumor was squamous carcinoma and none of the patients under 40 years of age had malignant tumor and Warthin tumor. **Keywords:** Pleomorphic adenom, Warthin, Parotid, Parotidectomy

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1.Introduction

Salivary gland tumors make up 3-6% of all head-neck tumors. 80% of salivary gland tumors are seen in parotid (Cincik et al., 2004). Of these, 80% are benign, 70-75% are pleomorphic adenoma, 15-20% are Warthin tumor and 10-15% are other benign tumors. Salivary gland tumors are more common in women, and they are seen in between second to fourth decades most frequently (Suen and Hanna, 1998). In parotid masses, fine-needle aspiration biopsy (FNAB), ultrasonography, computerized tomography and magnetic resonance imaging methods are used with physical examination in order to get more detailed information and to make a treatment plan (Topak et al., 2013). In parotid gland tumors, surgical resection forms the basis of the treatment. The most conservative approach in benign tumors which involve the

superficial part of parotid is superficial parotidectomy; in tumors which involve the deep lobe, total parotidectomy is performed (Eisele et al, 2001; Quintinas et al., 2006).

2.Material And Method

In our study, the surgery data and pathological diagnoses of 110 patients, 45 women and 65 men, who were operated by the same surgeon in the Otorhinolaryngology Clinics of Samsun Training and Research Hospital and Ondokuz Mayıs University Faculty of Medicine between the years 2009 and 2014 were examined retrospectively. Our study received approval from the ethics committee of Samsun Training and Research Hospital. The treatment that the patients received, histopathological diagnosis, age, and tumor type were assessed. All the patients who had neo-plastic and non-neoplastic

pathologies were included in the study. Parotidectomy was performed as superficial parotidectomy by protecting facial nerve in pathologies which involved parotid superficial lobe, and as total parotidectomy by protecting facial nerve in pathologies which involved deep lobe or expanded to deep lobe from superficial lobe. In surgeries, intraoperative facial nerve monitorization was performed and nerve stimulator was used when facial nerves and branches had to be determined.

3.Results

When the age distributions of the patients were analyzed, it was found that women had an average age of $45 \pm 2,325$ (min 16-max 86) while men had an average age of 48.9 ± 2.128 (min 13-max 80). While 71,1 % (32 patients) of the women had pleomorphic adenoma, Warthin tumor and benign cystic lesion were seen in 4,4% (2 patients each) of the patients.

The most commonly seen lesion in men was pleomorphic adenoma which was seen in 38,5% (25) of the patients and Warthin tumor the second most frequently seen with a rate of 27.7% (18 patients). When all the patients were taken into consideration, the most commonly seen lesion was pleomorphic adenoma which was seen in 51,8% (57) of the patients, while Warthin tumor was the second most common which was seen in 18,2% (20) of the patients. These were followed by chronic lymphadenitis with a rate of 5,5% (6 patients) and lipoma and squamous cell carcinoma with a rate of 3,6% (4 patients each). When malign tumors were assessed, squamous cell carcinoma was found to be the most frequent one with a rate of 3,6% (4 patients), while the second most frequent one was lymphoma with a rate of 1,8% (2 patients).

Table 1: Pathological Distribution Of All Patients

	GENDER				Total	
	FEMALE		MALE			
	Count	%GENDER	Count	%GENDER	Count	%GENDER
Pleomorphic adenoma	32	71,1%	25	38,5%	57	51,8%
whartin tumor	2	4,4%	18	27,7%	20	18,2%
monomorphyc adenoma	1	2,2%	2	3,1%	3	2,7%
lipoma	1	2,2%	3	4,6%	4	3,6%
benign cystic lesion	2	4,4%	0	0,0%	2	1,8%
chronic lymphadenitis	1	2,2%	5	7,7%	6	5,5%
mucoepidermoid carcinoma	0	0,0%	1	1,5%	1	0,9%
mucoepidermoid carcinoma	0	0,0%	1	1,5%	1	0,9%
acinic cell carcinoma	0	0,0%	1	1,5%	1	0,9%
ADENO CARCINOMA	0	0,0%	1	1,5%	1	0,9%
LYMPHOMA	1	2,2%	1	1,5%	2	1,8%
DUCTAL CARCINOMA	0	0,0%	1	1,5%	1	0,9%
CHRONIC SIALOADENIT	1	2,2%	0	0,0%	1	0,9%

When the benign-malign distribution was analyzed in terms of gender, benign lesions were seen in 93,3% (42) of the female patients, while malign lesions were seen in 6,7% (3) of the female patients and benign lesions were seen in 83,1% (54) of the male patients, while malign lesions were seen

in 16,9% (11) of the male patients. In total, while benign lesions were seen in 87,3% (96) of the patients, malign lesions were seen in 12,7% (14) of the patients. However, the difference between genders was not statistically significant ($p > 0,05$).

Table 2: Distribution Of Patient benign/malign

GENDER	FEMALE	BENIGN		MALIGN	
		Count	% within GENDER	Count	% within GENDER
		42	93,3%	3	6,7%
					45
					100,0%
	MALE	54	83,1%	11	16,9%
					65
					100,0%
Total		96	87,3%	14	87,3%
					110
					100,0%

In patients younger than 40, pleomorphic adenoma was found to be the most common lesion in 78,9% (15) of the female patients and 70% (14) of the male patients. As a whole, 74,4% (29) of the patients had a diagnosis of pleomorphic adenoma. Warthin tumor was not seen in younger than 40. Malign lesion was not found in any of the patients younger than 40.

In female patients older than 40, the most common lesion was pleomorphic adenoma with a rate of 65,4 % (17 patients) in female patients, while it was Warthin tumor with a rate of 40% (18 patients). In men, the second most common

lesion was pleomorphic adenoma with a rate of 24,4% (11 patients). Overall, 39,4% (28) of the patients were found to have pleomorphic adenoma while 28,2% (20) of the patients were found to have Warthin tumor.

Malign tumor was seen in 11,5% (3) of women older than 40, in 24,4% (11 patients) of men older than 40 and in 19,7 (14 patients) of the patients in total. Of the patients younger than 40, 35% (89,7) had superficial parotidectomy while

Table 3: Pathological Distribution of Patients younger 40 Years

		PATHOLOGICAL DIAGNOSIS						Total
		PLEOMORPHIC ADENOMA	BENIGN CYSTIC LESION	CHRONIC LYMPHADENITIS	PLEXIFORM SCHWANNOMA	LYMPHANGIOMA	BENIGN LYMPHOEPITHELIAL LESION	
GENDER	FEMALE	Count 15	2	0	1	1	0	19
	% within GENDER	78,9%	10,5%	,0%	5,3%	5,3%	,0%	100,0%
MALE	Count	14	0	5	0	0	1	20
	% within GENDER	70,0%	,0%	25,0%	,0%	,0%	5,0%	100,0%
Total	Count	29	2	5	1	1	1	39
	% within GENDER	74,4%	5,1%	12,8%	2,6%	2,6%	2,6%	100,0%

Table 4: Pathological Distribution of Patients older 40 Years

	GENDER		GENDER		Total	
	FEMALE		MALE		Count	%GENDER
	Count	%GENDER	Count	%GENDER		
PLEOMORPHIC ADENOMA	17	65,4%	11	24,4%	28	39,4%
WHARTIN TUMOR	2	7,7%	18	40,0%	20	28,2%
MONOMORPHIC ADENOMA	1	3,8%	2	4,4%	3	4,2%
LIPOMA	1	3,8%	3	6,7%	4	5,6%
CHRONIC LYMPHADENITIS	1	3,8%	0	,0%	1	1,4%
MUCOEPIDERMOID CARCINOMA	0	,0%	1	2,2%	1	1,4%
ADENOID CYSTIC CARCINOMA	0	,0%	1	2,2%	1	1,4%
ACINIC CELL CARCINOMA	0	,0%	1	2,2%	1	1,4%
ADENO CARCINOMA	0	,0%	1	2,2%	1	1,4%
LYMPHOMA	1	3,8%	1	2,2%	2	2,8%
DUCTAL CARCINOMA	0	,0%	1	2,2%	1	1,4%
CHRONIC SIALOADENIT	1	3,8%	0	,0%	1	1,4%
SQUAMOUS CELL CARCINOMA	1	3,8%	3	6,7%	4	5,6%
BASAL CELL CARCINOMA	0	,0%	1	2,2%	1	1,4%
UNDIFFERENTIATED CARCINOMA	1	3,8%	0	,0%	1	1,4%
METASTATIC TUMOR	0	,0%	1	2,2%	1	1,4%
TOTAL	26	100,0%	45	100,0%	71	100,0%

total parotidectomy was performed on 4 patients (103%). Of the patients older than 40, superficial parotidectomy was performed on 62 (87,3%) patients while total parotidectomy was performed on 9 (12,7%) patients. Overall, superficial parotidectomy was performed on 97 (88,2%) patients while total parotidectomy was performed on 13 (11,8%) patients.

4. Discussion

Sixty to eighty five percent of the salivary gland tumors result from parotid gland. It should be considered that a mass found here may be neoplastic (Taş et al., 2009). In a study of 937 cases, 52,5% of the patients were female while 47,5% of the patients were male; in another study, 42% were female and 58% of the patients were male (Upton et al., 2007). In our study, 40% of the patients were women, while 60% were men.

Parotid gland is the biggest of the salivary glands with the most pathologies. The most common benign in parotid glands are benign tumor pleomorphic adenoma (Lin et al., 2008). While pleomorphic adenoma made up 62,4% of parotid benign tumors according to Pinkstone and Cole, Özeri et al. found this rate as 90%, Gök et al. found this rate as 78,8% and Yılmaz et al. found this rate as 61% (Özeri et al., 1990; Pinkstone and Cole, 1999; Yılmaz et al., 2000; Gök et al., 2001). In our study, the most frequent benign tumor in parotid gland was pleomorphic adenoma. In our study, pleomorphic adenoma was seen with a rate of 51,8%. This rate was 71,1% in female patients and 38,5 in male patients.

Warthin tumor is the second most common benign tumor of the parotid gland. They make up 6-10% of all the parotid tumors. In their study, Gök et al. reported the frequency of Warthin tumor in parotid gland as 9%, while Yılmaz et al.'s study reported this frequency as 11,8%. (Yılmaz et al., 2000; Gök et al., 2001) There are also studies which report the frequency as higher (23%) when compared with other studies in literature (Lin et al., 2008). In our study, the second

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Warthin tumor. Warthin tumor was found with a rate of 18,2% in our study. The second most common tumors in women was Warthin tumor and benign cystic lesion with a rate of 4,4%. In men, Warthin tumor was the second most frequent lesion with a high rate of 27,7%. In patients younger than 40, Warthin tumor was not found. In patients older than 40, Warthin tumor was the most frequent second lesion with a rate of 28,2%. In male patients older than 40, Warthin tumor was seen with a rate of 40% as the most common lesion.

The most common malign tumor of the parotid was mucoepidermoid carcinoma. In their study, while Lima et al. stated the frequency of mucoepidermoid carcinoma as 31,7% Yılmaz et al. reported this rate as 29,7%. (Yılmaz et al., 2000; Lima et al., 2005) Özbay et al. reported most common malign tumor in the parotid glands was adenoid cystic tumor (Özbay et al., 2016). In our study, just one patient with mucoepidermoid carcinoma and one patient adenoid cystic tumor were found. Unlike literature, the most common lesion in our study was squamous cell carcinoma and the second most frequent one was lymphoma.

In salivary gland tumors, treatment is shaped according to the size of the tumor, its local expansion, histopathology, lymph node involvement and stage of the illness. In benign tumors of the parotid, since the tumor is located at the parotid tail most of the time, superficial parotidectomy is the most used technique. In cases where tumor involves deep lobe, total parotidectomy is the preferred treatment modality (Aydın et al., 2008). 88,2% of our patients underwent superficial parotidectomy due to their superficially located tumor and 11,8% of the patients underwent total parotidectomy due to deep located tumor.

As a conclusion, while pleomorphic adenoma was the most frequent lesion and Warthin tumor was the second most frequent lesion, the facts that 4 patients had lipoma, the most frequent malign tumor was squamous cell carcinoma and none of the patients under 40 having malign tumor or Warthin tumor were found to be remarkable

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