CLINICAL STUDY

LONG-TERM CLINICAL EXPERIENCE IN PATIENTS FOLLOWING PAROTIDECTOMY

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SUMMARY

Introduction: Neoplasms of the salivary glands comprise 3-12% of head and neck tumors. Type of surgery to be performed varies according to the location, histopathology and facial nerve involvement, while the most commonly applied methods currently are superficial, total and radical parotidectomy. The aim of this study was to retrospectively evaluate the 434 cases that were operated on for parotid mass between January 2008 and December 2016 in a tertiary university hospital.

Results: Demographic data, histopathologic type, clinical findings and symptoms, type of surgery, early and late complications, recurrence were retrospectively reviewed and evaluated. Postoperative evaluations revealed a non-neoplastic mass in 40 (9.22%) patients , while 37 (8.52%) had malignant neoplastic mass, 344 (79.26%) patients had benign neoplastic mass. and 13 (2.99%) patients had hematolymphoid mass. Recurrence was found in 2 patients (0.048%) who underwent surgery and histopathological diagnosis in all patients with a recurrence was found to be pleomorphic adenoma.

Conclusion: Localization and histopathological features of the tumor are the primary factors determining the type of surgical treatment to be performed. Superficial parotidectomy is an adequate and efficient type of surgery in benign parotid masses and its rates of complication and recurrence are low when performed meticulously. Superficial, total or radical parotidectomy should be performed in malignant tumors and neck dissection and postoperative radiotherapy should be added when necessary.

Keywords: Parotidectomy; parotid tumor; fine needle aspiration biopsy of parotid tumors; complications of parotidectomy

PAROTİDEKTOMİ OPERASYONU YAPILAN HASTALARDA UZUN DÖNEM KLİNİK DENEYİMİMİZ

ÖZET

Giriş: Tükrük bezlerinin benign ve malign neoplazmları, baş boyun bölgesi tümörlerinin % 3-12'sini oluşturur. Yapılacak cerrahinin şekli tümörün yerleşim yerine, histopatolojisine ve fasiyal sinir tutulumuna göre değişmekle birlikte günümüzde en çok uygulanan yöntemler süperfisiyal, total ve radikal parotidektomidir. Bu tekniklerin yanında seçilmiş vakalarda parsiyel superfisiyal parotidektomi ya da enukleasyon uygulanabilmektedir. Bu çalışmada tek bir merkezde parotis kitlesi nedeniyle Ocak 2008 ile Aralık 2016 tarihleri arasında opere edilen ve postoperatif takibi yapılan 434 vakanın bulgularının retrospektif olarak değerlendirilmesi amaçlandı.

Bulgular: Demografik veriler, histopatolojik tanı, klinik bulgu ve semptomlar, cerrahi tipi, erken ve geç dönem komplikasyonlar retrospektif olarak tarandı ve değerlendirildi. Postoperatif incelemede 40 (%9,22) hastada nonneoplastik, 37 (%8.52) hastada malign neoplastik, 344 (%79,26) benign neoplastik, 13 (%2.99) hastada hematolenfoid kitle saptandı. Opere edilen hastaların 2 (%0,048) tanesinde rekürrens saptandı ve rekürrens gösteren tüm hastaların patolojisi pleomorfik adenom olarak gözlendi.

Sonuç: Tümörün yerleşimi ve patolojisi yapılacak cerrahi tedavinin özelliklerini belirleyen primer etkenlerdir. Benign parotis tümörlerinde süperfisiyel parotidektomi yeterli ve etkili bir cerrahi olduğu ayrıca komplikasyon ve nüks oranlarının düşük olduğu gözlenmiştir. Malign tümörlerde ise süperfisiyel, total veya radikal parotidektomi uygulanmalı, gerektiğinde boyun diseksiyonu ve postoperatif radyoterapi tedaviye eklenmelidir.

Anahtar Sözcükler: Parotidektomi; Parotis kitleleri; parotis kitlelerinde ince iğne aspirasyon biyopsisi; parotidektomi komplikasyonları

INTRODUCTION

Benign and malignant neoplasms of the salivary glands comprise 3-12% and 2-3% of head and neck tumors and all tumors of the body, respectively [1,2]. The majority of these tumors originate from the epithelium of the salivary channels and special epithelium of the acini. The percentage of parotid tumors among all salivary gland tumors is 80-85%.

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The most common benign tumor of the salivary gland is pleomorphic adenoma (70%), while the most frequently seen malignant tumor is mucoepidermoid carcinoma. Both tumors are seen most frequently in the parotid gland [3,4]. Benign parotid tumors demonstrate malignant transformation, although rare. Clinically, the most common complaint of the patients is swelling in the face/anterior the ear and rarely pain and facial paralysis. Magnetic Resonance Imaging (MRI), Computed Tomography (CT), Ultrasonography and Fine Needle Aspiration Biopsy (FNAB) can be used as auxiliary measures in the diagnosis and to determine the method of treatment. However, since all these auxiliary diagnostic measures have false positivity and false negativity to

some extent, primary treatment is recommended to be surgery in parotid tumors [5,6]. The first parotidectomy operation was performed in 1823 by Berard. Preservation of facial nerve for the first time was described by Carwardine in 1907 and Sistrunk reported 112 cases of parotidectomy with preservation of facial nerve.

Type of surgery to be performed varies according to the location, histopathology and facial nerve involvement, while the most commonly applied methods currently are superficial, total and radical parotidectomy [5]. In addition to these techniques, partial superficial parotidectomy or extracapsular dissection can be performed in selected cases [6,7]. Parotidectomy operation may result in early complications such as hematoma, salivary fistula, delayed wound healing and facial paresis and late complications such as Frey's syndrome, facial paralysis and recurrence, although rarely [8,9]. The aim of this study was to retrospectively evaluate the patients who were operated on for parotid mass between January 2008 and December 2016 and who were followed up postoperatively in a tertiary university hospital. The data obtained as a result of the retrospective analysis were discussed in the light of the literature findings. Although parotidectomy operations have been performed for many years at this clinic, time interval of this study is determined as nine years. Because in the last nine years some informations are more reliable owing to close follow up pre/post operatively.

MATERIAL and METHODS

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional Review Board and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Among 478 patients who had presented for a parotid mass and underwent surgery at the ENT Clinic of the Medical School of Ege University between January 2008 and December 2016, 413 whose records were retrievable were included in the study. Two patients underwent surgery for recurrent pleomorphic adenomas, 19 were operated twice for bilateral tumors and a total of 434 operations were performed. The data were obtained from the medical records of the patients, hospital discharge system and operation notes. Parameters evaluated were age, gender, clinical findings and symptoms, postoperative histopathological findings, type of surgery and postoperative complications. House-Brackmann (HB) grading system was used for facial functions. The findings of the patients at follow-up appointments were recorded and for the patients who missed the appointments, information was obtained by contacting the patients or relatives afterwards. It was found that generally superficial parotidectomy with preservation of the facial nerve for masses involving the superficial lobe and total parotidectomy with preservation of the facial nerve for masses involving the deep lobe or masses that have extension from the superficial lobe to the deep lobe was performed. On the other hand, radical parotidectomy was performed in malignant tumors that caused facial paralysis with extension to the surrounding soft tissues. In patients with malignant tumors, neck dissection was added to parotidectomy in N (+) cases according to preoperative evaluation . Intraoperative facial nerve monitoring was performed in all cases and a nerve stimulator was used in the detection of the facial nerve and its branches, when necessary. Patients were followed-up for complications in the early postoperative period. Patients with a malignant tumor were referred to the radiation oncology clinic when they were determined to have surgical margin positivity, nerve invasion and presence of metastatic lymph nodes in the neck according to the histopathological findings. Descriptive statistics of the data such as mean, standard deviation, ratio and frequency were used, paired samples t test were used for the analysis of parametric variables. Statistical analysis was made using computer software (SPSS version 22.0, SPSS Inc. Chicago, IL, USA). $p < 0.05$ was considered as statistically significant.

Surgical Procedure

The standard surgical approach was started with modified Blair incision following local anesthetic infiltration. The sternocleidomastoid muscle, digastric muscle and tragal pointer were exposed following flap elevation. Facial trunk was exposed after continuation of the dissection between the digastric muscle and tragal point. Facial monitorization and stimulator was used in all and selected cases when necessary, respectively. In cases with benign tumors, facial nerve branches were dissected after the truncus of the facial nerve was exposed. The mass was excised en bloc together with the superficial lobe in benign tumors and total parotidectomy was performed in cases with malignant tumors. Facial nerve was sacrificed when the tumor invaded the facial nerve. Neck dissection was added to the surgical procedure in the presence of metastatic lymph nodes in the neck in malignant cases and the incision was designed accordingly. A drain (Minivac (R)) was placed following tumor excision and hemostasis in the surgical field. Subsequently, the subcutaneous tissue and skin

incision was closed subcutaneously using 4.0 vicryl and 4.0 prolene suture material, respectively considering the anatomical structures. All patients received oral 2 gr amoxicillin-clavulanate daily in 2 divided doses for one week in the postoperative period.

RESULTS

Mean age of the patients was 52.28 years with a range of 10 and 89 years. Among the patients, 223 (53.9%) were males and 190 (46.1%) were females. The most common complaint at presentation was swelling anterior to the ear. Pain and facial paralysis was seen rarely. At presentation, 383 patients (92.7%) complained of swelling and 14 (3.4%) had pain and facial paralysis, while parotid mass was found incidentally in 16 (3.9%) patients. Postoperative evaluations revealed a non-neoplastic mass in 40 (9.22%) patients , while 37 (8.52%) had malignant neoplastic mass, 344 (79.26%) patients had benign neoplastic mass and 13 (2.99%) patients had hematolymphoid mass. Among the benign masses, 181 (41.70%) were found to be pleomorphic adenomas, 136 (31.33%) Whartin tumors, 13 (3%) basal cell adenomas, 5 (1.15%) lipomas, 4 (0.92%) myoepitheliomas, 2 (0.46%) cystadenomas, 1 (0.23%) oncocytoma and 2 (0.46%) recurrence of pleomorphic adenoma (Table 1). Among the non-neoplastic lesions, intraglandular reactive lymph nodes were seen in 16 (3.36%) patients, lymphoepithelial cysts in 10 (2.3%) patients, ductus cysts in 3 patients (0.68%), granulomatous lymphadenitis in 3 patients (0.68%), chronic sialadenitis in 3 patients (0.68%), sialolithiasis in 2 (0.46%) patients, chronic inflammatory tissue in 2 (0.46%) patients, and retention cyst was seen in 1(0.23%) patients, respectively. Malignant tumors included mucoepidermoid carcinoma in 8 (1.84%) patients, acinic cell carcinoma in 8 (1.84%) patients, secondary malignant tumor in 5 (1.37%) patients, epithelial-myoepithelial carcinoma in 4 (0.92%) patients, adenoid cystic carcinoma in 3 (0.68%) patients, squamous cell carcinoma in 3 (0.68%) patients, adenocarcinoma in 2 (0.46%) patients, lymphoepithelial carcinoma, plasma cell dyscrasia, pleomorphic adenoma ex carcinoma and mucoepidermoid carcinoma arising from pleomorphic adenoma in 1 (0.23%) patient, respectively (Table 2). The histopathological diagnosis of the hematolymphoid masses were MALT lymphoma in 8 (1.84%) patients, follicular lymphoma in 3 (0.68%) patients, classical Hodgkin lymphoma in 2 (0.46%) patient, respectively. (%, percentage among all cases)

Among the 181 cases with a pleomorphic adenoma diagnosed postoperatively by histopathological examination, 122 (67.40%) had had the same diagnosis preoperatively by fine needle aspiration biopsy, while 18 (9.95%) had benign cytology and 41 (22.65%) had nondiagnostic cytology. Cytologic diagnosis of the cases that were histopathologically diagnosed postoperatively as Whartin tumor (n:136) was Whartin tumor in 93 (68.38%), benign cytology in 16 (11.76%) and nondiagnostic cytology in 27 (19.86%) patients.

Mean age of the patients who were detected to have malignant and benign lesions was 57.92 years and 52.43 years, respectively. Mean age of patients with non neoplastic lesions was 44.05 years. The lowest and highest age in patients with malignant lesions was 23 years and 89 years and their histopathological diagnoses were mucoepidermod carcinoma and poorly differentiated squamous cell carcinoma, respectively. An elective neck dissection was performed in 5 (1.15%) patients with a malignant neoplastic mass. All those five patients underwent postoperative radiotherapy since metastatic lymph nodes were detected at postoperative histopathological evaluation. A history of cigarette smoking was detected in 117 (95.9%) out of 136 patients with Whartin tumor and 42 (24.1%) out of 181 (52.62%) patients with pleomorphic adenoma. The rate of cigarette smoking was statistically significantly higher in patients with Whartin tumors ($p < 0.05$). Mean follow-up period of patients who underwent surgery was 70.8 months.

Among the early postoperative complications, facial paresis , hematoma , delayed healing due to wound site infection and salivary fistula were seen in 38 (8.76%), 20 (4.61%), 15 (3.46%) and 4 (0.92%) operations, respectively.

Among the postoperative late complications, no facial paralysis was found in any patient with a benign mass. Facial nerve was sacrificed in 5 patients. All of these 5 patients with a malignant neoplastic mass underwent radical parotidectomy and facial nerve was sacrificed starting from the main trunk. 3 out of 5 patients had House-Brackmann grade-6 facial paralysis preoperatively due to the malignancy. Two of these patients had no facial paralysis before surgery and their fine needle aspiration biopsy were reported as nondiagnostic cytology. The frozen section (FS) of mass were performed during the surgery for these 2 patients. The FS were reported as mucoepidermoid carcinoma and melanoma metastasis, respectively. They underwent radical parotidectomy and end-to-side hypoglossal-facial anastomosis. These two patients

had House-Brackmann grade-4 6 months after surgery. The other 3 patients had grade-6 facial paralysis postoperatively. Among the late complications, Frey Syndrome was found to be developed following 19 operations (4.37%). Recurrence was found in 2 patients (0.048%) who underwent surgery and histopathological diagnosis in all patients with a recurrence was found to be pleomorphic adenoma. Distribution of types of surgery are presented in Table 3.

Table 1: Distribution of benign tumors

BENIGN TUMORS	**78.2% (percentage of all mases, %)**.
Pleomorphic adenoma	181(52.62%)
Whartin tumour	136(31.33%)
Basal cell adenoma	13(3%)
Lipoma	5(1.15%)
Myoepithelioma	4(0.92%)
Cystadenoma	2(0.46%)
Recurrent pleomorphic adenoma	2(0.46%)
Oncocytoma	1 (0.23%)

Table 2: Distribution of malign tumors

MALIGNANT TUMORS	37 (8.52%) (%, percentage among all masses)
Mucoepidermoid Carcinoma	8(1.84%)
Acinic cell carcinoma	8(1.84%)
Secondary Malignant Tumor	5(1.37%)
Epithelial-myoepithelial carcinoma	4(0.92%)
Adenoid cystic carcinoma	3(0.68%)
Squamous cell carcinoma	3(0.68%)
Adenocarcinoma	2(0.46%)
Lymphoepithelial carcinoma	1(0.23%)
Plasma cell dyscrasia	1(0.23%)
Pleomorphic adenoma ex carcinoma	1(0.23%)
Mucoepidermoid carcinoma arising from pleomorphic adenoma	1(0.23%)

Table 3: Distribution of types of surgery

Type of Surgery	Number of patients(percentage,%)
Superficial Parotidectomy	404 (93.09%)
Radical Parotidectomy	5(1.15%)
Total Parotidectomy	25(5.76%)

DISCUSSION

The origin of 85% of all salivary gland tumors is the parotid gland [3]. The most common benign and malignant tumor of the parotid gland is pleomorphic adenoma (70%) and mucoepidermoid carcinoma, respectively [3,4]. Compatible with the literature findings, the most frequently seen benign tumor in this study was also pleomorphic adenoma and 52.62% and 39.53% of benign parotid tumors were found to be pleomorphic adenoma and Whartin tumor, respectively.

In General, there is no gender predominance in parotid tumors. [5,6,7]. In this present study, 53.9% and 46.1% of the cases with a parotid mass were males and females respectively. Among the cases with a malignant mass, 20 (40%) were males and 30 (60%) were females.

Malignant parotid masses are usually seen in older cases compared to benign tumors. Mean age in the total series was 52.28 years in this present study. Mean age in cases with malignant and benign tumors was 57.92 years and 52.43 years, respectively.

The most common complaint of patients with a parotid tumor is a swelling noticed in front of the ear. The patients rarely have pain and facial paralysis. Pain develops in inflammatory conditions in benign lesions and in case of nerve invasion in malignant lesions. Progression (dimensional increase) in a preauricular mass may demonstrate malignant degeneration of a benign tumor [4]. In this present study, the complaint in all patients with a benign mass that was diagnosed at postoperative histopathological examination was preauricular swelling.

History and physical examination, radiologic imaging and fine needle aspiration biopsy have an important place in clinical diagnosis. Localization was possible in 88.7% and 94.2% of the tumors origination from the superficial parotid gland by CT and MRI, respectively in a study by Vaiman et al. In a study in 103 patients by Zaghi S et al, histopathological correlation of the MRI findings was accurate in 74.8% of the cases. In addition, the specificity and sensitivity of MRI was reported to be 95.1% and 43.9%, respectively in pleomorphic adenomas [10]. Gudmundsson JK et al reported a sensitivity and specificity rate of 73% and 97%, respectively by fine needle aspiration biopsy in malignant tumors. Overall accuracy in all parotid tumors was found to be 95% [11]. Mallon DH et al, in their study reported the sensitivity and specificity rate of fine needle aspiration biopsy in malignant lesions as 52% and 92%, respectively. The sensitivity and specificity of the same tool was reported to be 85% and 76%, respectively in benign lesions [12]. Preoperative MRI and fine needle aspiration biopsy are important in planning the type of surgery in parotidectomy. Preoperative MRI was performed in all patients in this present study, and fine needle aspiration biopsy was performed. Among the 181 cases with a pleomorphic adenoma diagnosed postoperatively by histopathological examination, 122 (67.40%) had had the same diagnosis preoperatively by fine needle aspiration biopsy, while 18 (9.95%) had benign cytology and 41 (22.65%) had nondiagnostic cytology. Cytologic diagnosis of the cases that were histopathologically diagnosed postoperatively as Whartin tumor (n:136) was Whartin tumor in 93 (68.38%), benign cytology in 16 (11.76%) and nondiagnostic cytology in 27 (19.86%) patients.

The recurrence rate for pleomorphic adenoma and Warthin tumor after partial parotidectomy was reported to be 1-9% and 1-12%, respectively. Two (0.46%) patients had recurrence of pleomorphic adenoma during follow-up. No recurrence was detected in any of the patients who were treated for a Whartin tumor. A lower rate of recurrence in this present study compared to the literature findings was considered to be associated with the type of surgery that no extracapsular dissection was performed even in benign lesions and masses were excised with an adequate safety margin including the surrounding parotid tissue.

Malign transformation in pleomorphic adenoma cases was reported to be 3-4% [13]. In pleomorphic adenoma cases, the rate of malignant transformation increases in proportion to the time of development of the mass [14]. In this present study, pleomorphic adenoma ex carcinoma and mucoepidermoid carcinoma arising from pleomorphic adenoma was detected in one (0.23%) case each. Malignant transformation is rarely seen in benign parotid masses. In this regard, surgical treatment is recommended even for benign masses determined by fine needle aspiration biopsy and magnetic resonance imaging in parotid masses.

Superficial parotidectomy in superficial benign tumors is an effective and adequate surgical treatment since the recurrence rates are low. Prior to 1950's, enucleation was performed primarily in parotid tumors and the incidence of recurrence of pleomorphic adenomas used to be 20-45% following surgical treatment [15]. Pleomorphic adenomas are pseudocapsular tumors with a multi-focal potential.

For this reason, the rate of recurrence after enucleation is high and enucleation is not recommended [16]. Thus, in benign lesions such as pleomorphic adenoma and Whartin tumor, total excision of the mass by superficial parotidectomy or partial superficial parotidectomy with a safety margin around the lesion is recommended. If the benign masses are localized at a specific location of the parotid gland, it is possible to safely excise the mass by partial superficial parotidectomy provided that the branches of the facial nerve at the localization of the mass are exposed and preserved. The recommended linear margin of normal parotid gland tissue included at the periphery of a benign parotid tumor is a subject of great variability when performing a partial superficial parotidectomy. Plaza et al. defined a linear margin of 1 to 2 cm of normal parotid gland tissue around the mass in the partial superficial parotidectomy subjects [17]. As a matter of course, if the mass is closer than 1 or 2 cm to the branches of the facial nerve, extracapsular dissection should be performed at that localization of the mass.

The approach to the facial nerve is debatable in malignant tumors. The facial nerve should be preserved in patients in whom no facial nerve involvement was diagnosed preoperatively or intraoperatively. The nerve should be sacrificed in case of invasion of the trunk of the facial nerve. However, parotidectomy should be performed by sacrificing the involved branches when involvement is detected in some branches of the nerve without invasion of the main nerve trunk [18]. In this present study, facial nerve was totally sacrificed at the main trunk in 5 patients with involvement of the facial nerve. Two out of these 5 patients underwent end-to-side hypoglossal-facial anastomosis after tumor resection and had House-Brackmann grade-4 facial paralysis in the late period. Histopathological diagnosis in those patients was mucoepidermoid carcinoma 3 patients, secondary malignant tumor in 1 patient and adenoid cystic carcinoma in 1 patient.

Cigarette smoking and presence of bilateral tumors were found to be more frequent in the literature in patients with Whartin tumors . The rate of cigarette smoking among patients with a Whartin tumor varies from 96.3% to 97.5%, while the respective rate varies from 24.5% to 59% in patients with pleomorphic adenomas [19,20,21]. A history of cigarette smoking was detected in 117 (95.9%) out of 136 (31.33%) patients with Whartin tumor and 42 (24.1%) out of 181 (52.62%) patients with pleomorphic adenoma. The tumors were found to be bilateral in 14 (10.29%) out of the 136 cases and 5 (2.76%) out of 181 cases that underwent operation for Whartin tumors and pleomorphic adenomas, respectively.

Neck dissection is another subject of debate in malignant tumors of the parotid gland. There is consensus on elective neck dissection simultaneously with primary surgery in the presence of clinically palpable lymph nodes. On the other hand, elective neck dissection has been recommended even in the absence of any palpable lymph nodes in high-grade malignant tumors due to the risk of occult metastasis; however, it has not been recommended in low-grade tumors [22,23]. Elective neck dissection simultaneously with the primary surgery was performed in 5 patients among the ones with malignant tumors in this present study. Radiotherapy was added to the treatment due to the detection of metastatic lymph nodes by postoperative histopathological evaluation. In addition, postoperative radiotherapy was applied to 3 patients who were diagnosed to have adenoid cystic carcinoma with nerve invasion in the postoperative histopathology evaluation.

The incidence of paralysis in the facial nerve after parotidectomy has been reported to be variable (20- 40%) it has been correlated with older age since ischemic pathologies are seen more frequently in the elderly population [24,25]. The incidence of transient facial paralysis varies between 12% and 40%, while permanent facial paralysis is seen in 0% and 6%, according to the literature [26,27,28,29,30]. During follow-up, facial paresis in all patients was found to be completely resolved in postoperative month 6. No postoperative facial paralysis was observed in this present study among the patients who underwent superficial parotidectomy for a benign lesion. Whereas, facial main trunk was sacrificed in 5 patients who underwent radical parotidectomy with a malignant mass. The rates of facial paresis and paralysis was lower in this present study compared to the literature. The reason was considered to be the use of facial nerve monitorization during the operations at this clinic.

The incidence of Frey Syndrome has been reported to be variable, between 6% and 96% in the literature, following parotidectomy. The incidence is variable since Frey syndrome is diagnosed objectively or subjectively by different authors. Frey Syndrome develops within a few months after the operation. [31,32] Frey syndrome was evaluated subjectively in this present study and an incidence of 4.37% was detected. Attention to the flap elevation is important to decrease the rate of Frey Syndrome.

Local recurrence,soft tissue invasion and frequency of distant metastasis necessitate adjuvant

radiotherapy in malignant parotid tumors. Radiotherapy is considered in recurrent tumors following surgery, in high grade tumors, presence of metastasis and perineural invasion and positive surgical margins. On the other hand, it is applied in cases with a low grade tumor and suspicious or inadequate surgical margins. In this present series, 11 patients underwent adjuvant radiotherapy. Radiotherapy was selected due to presence of metastatic lymph nodes in 5 patients following neck dissection.

CONCLUSION

Primary treatment in parotid gland masses is surgery. Localization and histopathological features of the tumor are the primary factors determining the type of surgical treatment to be performed. Malignant transformation may be seen in benign parotid tumors during follow-up. The efficacy of enucleation is limited since the rate of recurrence is significantly increased following this type of treatment, as we know. That's why, we didn't perform enucleation in our series. Superficial parotidectomy is an adequate and efficient type of surgery in benign parotid masses and its rates of complication and recurrence are low when performed meticulously. In addition, extracapsular dissection may be performed in appropriate cases. Superficial, total or radical parotidectomy should be performed in malignant tumors and neck dissection and postoperative radiotherapy should be added to the therapy when necessary.

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