

Fifteen Years Experiences in Tumors of Parotid Glands and the Analysis of 204 Cases

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ABSTRACT

Salivary gland tumors are uncommon, corresponding to approximately 3% of neoplasm of the head and neck region. The parotid gland is the most common site of major salivary gland tumors. This retrospective study was conducted to define the relationship of between existences of the parotid tumors with gender of patients as well as review of literature. Data were collected from the records of total 204 patient files (101 male and 103 female) with including history of having parotid tumor (benign and malignant), that admitted in ENT Department of Imam Khomeini and Apadana Private Hospitals between September 1993 and March 2008. The analyzed characteristics include gender and age of patient, anatomical location and type the parotid tumors. Of the 204 patients who underwent parotidectomy, 176 (86.3%), 23 (11.3 %) had benign tumors in male and female. 15 in male (7.5%) and 8 in female (4.02%) had malignant tumors, and 5 had chronic inflammatory disease (2.4%). The overall frequency of the benign and malignant tumors in Southwest region of Iran is the highest, which was similar to international findings.

Key words: Parotid Tumor, age, sex, pathology, Ahvaz.

INTRODUCTION

The salivary glands are located around the mouth. They produce saliva, which moistens food to help with chewing and swallowing. There are three pairs of major salivary glands. The largest are the parotid glands which are located in each cheek over the jaw in front of the ears. The glands are effectively palpated bilaterally^{1,13}. The facial nerve and its branches pass through the parotid gland. Salivary gland tumors are uncommon, corresponding to approximately 3% of neoplasm of the head and neck region^{2, 12, 13}. The parotid gland is the most common site of major salivary gland tumors, and the palate is the most common site of minor salivary gland tumors^{2, 3}.

The rule of 80 in parotid consisted: 80% of parotid tumors are benign, 80% of parotid tumors are pleomorphic adenomas, 80% of parotid pleomorphic adenomas occur in the superficial lobe, 80% of untreated pleomorphic adenomas remain benign²⁻⁴. Parotidectomy is a common surgical procedure for parotid tumor. Proper management of these tumors requires an accurate diagnosis by the pathologist, correct interpretation by the surgeon, knowledge of the surgical anatomy of parotid gland with a clear understanding of the factors leading to recurrence and complications⁴. The frequency of parotid tumor and its relation with gender and age of patients as original article and some case report study has been reported from many countries. But no such study has been reported from Iran.

The aim of this study was to retrospectively analyze of parotid tumors, regarding age, gender, tumor location, tumor size, and histological type of these lesions in southwestern region of Iran and compared with available literatures as well.

MATERIALS AND METHODS

A total 204 patient's data collected from the records of the ENT Department of Imam Khomeini and Apadana Hospitals. The information about patients with parotid tumor recorded during the 15 years period between September 1993 and March 2008, were retrieved, reviewed and analyzed. This study was approved by the Institutional Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (AJUMS). Information about age, gender, tumor location, and tumor size was obtained from each clinical record. All the patients were subjected to a Fine Needle Aspiration Cytology. The histopathological analysis of all cases was meticulously reviewed by expert pathologist. All operations were either performed or supervised by the first author. Superficial parotidectomy was performed if a benign tumor was located in the superficial lobe, and total parotidectomy was performed if it was in the deep lobe. All patients underwent preoperative image (computed tomography (CT) or magnetic resonance imaging [MRI]) to assess the extent of the tumors. Frozen section (FS) was performed when malignant tumors were suspected before or during surgery.

Statistical analysis

The data were analyzed statistically by SPSS 16.0. Association between the type and location parotid tumor and sex variable of patient has done using Chi-square test. A p-value less than 0.05 were accepted statistically significant.

RESULTS

Pleomorphic adenoma was the most common benign parotid tumor (81.37%) followed by Lipoma (Figure 1B, 1D). Mucoepidermoid carcinoma (5.88%) was the most common malignant tumor (Figure 1A) followed by Adenoid cystic carcinoma (Table 1). Out of total 204 patients, 176(86.27%) had benign tumors 23 (11.27%) had malignant tumors, and 5 (2.46%) had chronic inflammatory disease (Table 2). The higher prevalence of benign parotid gland tumors was presented in females (45.58%) than males (40.68%) (Table 2). The highest incidence of benign of parotid gland tumors was in the 3rd decade of age and in malignant tumors was 4th decade (Table 2). The most common surgery performed was superficial parotidectomy on 139 (68.13%) cases (Figure 1C) followed by Total parotidectomy on 49 (24.01%) patients (Table 3). The most observed sign in the time of admission was parotid mass.

Table 1: The histology of parotid mass

Histology	Numbers (%)
Pleomorphic adenoma	166 (81.37%)
Lipoma	4 (1.96%)
Warthin tumor	3 (1.47%)
Oncocytoma	3 (1.47%)
mucoepidermoid carcinoma	12(5.88%)
Adenoid cystic carcinoma	6 (2.94%)
Lymphoma	2 (0.98%)
Squamous cell carcinoma	2 (0.98%)
Adenocarcinoma	1(0.49%)
Inflammatory disease	5 (2.45%)

Table 2: comparison of benign and malignant parotid tumor

Conditions	benign	Malignant
Number of Patients, No. (%)	176 (86.27%)	23 (11.27%)
Male/Female, No. (%)	83 (40.68%)/93(45.58%)	15 (7.35%)/8 (3.92%)
Age (years), Mean± SD (Range)	34.4 ± 11.21(21-78)	44.5 ± 12.05(24-86)
Superficial /Deep, No. (%)	141(69.11%)/35 (17.15%)	11(5.39%)/12 (5.88%)

Table 3: The operative procedures performed for patients

Operative procedures	Numbers (%)
Enucleation	12 (5.88%)
superficial parotidectomy	139 (68.13%)
Total parotidectomy	49 (24.01%)
Radical parotidectomy	3 (1.98%)

Table 4: clinical features of parotid tumors at presentation

Feature	No.	%
Parotid mass	185	90.68
Fixity to skin or deep	18	8.82
Pain	14	6.86
Facial nerve palsy	6	2.94
Lymphadenopathy	8	3.92
Skin ulceration	4	1.96



Fig. 1: A, a case of 49-year old female with Mucoepidermoid carcinoma, B, Computed tomography of a case of Lipoma; C, superficial parotidectomy and D, a case of 52-year old female with lipoma

DISCUSSION

In this retrospective study, we reviewed the records of 204 parotid gland tumors, revealing a frequency of benign (86.27%) compared to malignant tumors (11.27%) and chronic inflammatory disease (2.46%). We observed a higher prevalence of benign parotid gland tumors

in females (45.58%) than in males (40.68%). This finding was in agreement with Ito *et al.* (5) who observed the predominance of tumors in the female and Vargas *et al.* (6) evaluated the tumors prevalence in females (60%) than in males (40%).

In contrast, Frade Gonzalez *et al.*⁷ observed that a tumor was predominated in the male group (58.75%). We also observed in the literature a predominance of benign tumors from 60% to 80% compared with malignant tumors 20% to 40%, which was fairly close to our findings^{5,6}.

Approximately 10% of parotid masses are nonneoplastic, whereas the remaining 90% are neoplastic in our study. The most common presentation is a painless, asymptomatic mass. More than 90% of patients complain of a mass existing in their cheek. Pain was the most likely showed symptoms in perineural invasion, which greatly increases the suggestion of malignancy. Of our patients, 2.94% present with facial nerve paralysis, which almost never accompanies benign lesions and indicates a grave prognosis. Superficial parotidectomy is the operation of choice. Facial nerve can be saved in Superficial and deep parotidectomy for benign tumor in deep lobe and early malignant tumor. Radical parotidectomies followed by radiotherapy and in selected cases neck dissection are the recommended methods for advanced malignant parotid tumors.

Pleomorphic adenoma was the most common tumor (81.37%) following by mucoepidermoid carcinoma (5.88%) of all parotid glands in our study. All epidemiological researches who analyzed the prevalence of salivary and parotid glands tumors confirm this finding and showed a frequent type (29% to 80%) as pleomorphic adenoma (7,8,9) while in other studies the most predominant type was mucoepidermoid (30%) that in the present study was the second most common type (5.88%)^{10, 11}.

The highest incidence of benign parotid gland tumors was in the 3rd decade of age and in malignant tumors was 4th decade. In contrast, other studies reported a predominance of parotid gland tumors in case of benign type was in the 4th to 7th decade of age^{5,6,7,12}. The most common surgery

performed was superficial followed by total parotidectomy.

CONCLUSIONS

A clear understanding of the clinical manifestation and history of parotid gland tumors is essential for their proper management. Differential diagnosis of parotid masses should include not only primary parotid tumors but also metastatic tumors should diagnose and isolate from initial skin diseases. Patient's age and general

health status may help to select appropriate treatment. In our opinion, enucleation or local dissection of the pleomorphic adenoma cannot be a sufficient surgical treatment in cases of pleomorphic adenomas.

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