



Pediatric parotid tumors: Clinical review of 24 cases in a Chinese population[☆]

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ABSTRACT

Objective: To evaluate the incidence, types, and treatment outcomes of pediatric parotid tumors in Chinese population.

Methods: Pediatric salivary gland tumors treated at Stomatology Hospital, of Wuhan University, from 1990 to 2010, were analyzed retrospectively.

Results: One hundred and two patients 18 years old or younger were diagnosed as parotid mass, of which 24 (23.5%) were parotid tumors. Of these patients, 11 (45.8%) were benign and 13 (54.2%) malignant. Hemangioma was the most frequent non-epithelial tumor. The most common benign epithelial tumor was pleomorphic adenoma (63.6%), and the most common malignant epithelial tumor was mucoepidermoid carcinoma (38.5%), with both of them showing a female to male predominance. The most common treatment was parotidectomy (83.3%).

Conclusions: Although pediatric parotid masses are unusual, they can represent a variety of pathological diagnoses, including malignancy. The intralesional injection can treat parotid hemangiomas in pediatric population effectively. Parotidectomy remains the mainstay treatment for both pediatric parotid gland benign and malignancies of epithelial cell origin. Adjuvant radiotherapy should be used judiciously in pediatric patients due to the higher risk of post-irradiation complications.

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1. Introduction

Salivary gland tumors are rare in both adults and children, accounting for less than 3% of head and neck tumors. They are even rarer in childhood, with less than 5% of these tumors reported in the pediatric population [1]. As in adults, pediatric salivary gland tumors most frequently involve the parotid gland.

Because of the rarity of parotid tumors in the pediatric population and the array of different histopathologic types, the diagnosis and treatment for these tumors are challenging. To better define the incidence and treatment of pediatric parotid tumors, we reviewed all cases of these tumors and parotid surgery that occurred at Stomatology Hospital, Wuhan University, China from January 1990 to July 2010, to determine what factors are useful in the management of these lesions.

2. Patients and methods

From January 1990 to December 2010, a total of 102 patients 18 years old or less with parotid mass were treated at Stomatology Hospital, Wuhan University, China. Of these cases, 24 were parotid tumors.

The information on patient characteristics, clinical and histopathologic tumor characteristics and treatment modalities and their results was obtained from the medical records. Histopathologic specimens were re-evaluated with hematoxylin–eosin (H–E) slides and the epithelial tumors were reclassified according to the criteria suggested by the 2005 WHO histological classification [2]. Vascular tumors were further identified according to the classification developed by the International Society for the Study of Vascular Anomalies (ISSVA) [3].

3. Results

Of 102 patients 18 years old or younger with parotid mass, 24 (23.5%) were parotid tumors. There were 15 females and 9 males, giving a female:male ratio of 1.7:1. Mean age was 13 years old (ranging from 1 to 18 years), and 18 of 24 patients (75%) were over 10 years old at the time of their initial visit. Of the 24 parotid gland tumors, 11 (45.8%) were benign and 13 (54.2%) malignant (Table 1).

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Table 1
Gender and age distribution of 24 cases of pediatric parotid tumors.

Age	Benign				Malignant			
	M	F	Total	%	M	F	Total	%
0–10	2	3	5	45.5	0	1	1	7.7
11–18	3	3	6	54.5	4	8	12	92.3
Total	5	6	11	100	4	9	13	100

Note: M, male; F, female.

Mean age was 10.9 years old (ranging from 1 to 18 years) for benign tumors and 14.9 years old (ranging from 1 to 18 years) for malignant tumors. The female to male ratio was 1.2:1 for benign tumors and 2.3:1 for malignant tumors (Table 1).

3.1. Benign tumors

Diagnoses of benign parotid tumor included pleomorphic adenoma in 7 patients (63.6%), hemangioma in 3 (27.3%), and hemangioendothelioma in 1 (9.1%). Six of 7 patients (85.7%) with pleomorphic adenoma were over 10 years old at the time of their initial visit; however, all 4 patients with vascular lesions were not older than 1 years old (Table 2).

The most common presenting sign or symptom was a painless, slow growing mass in the parotid region (81.8%). Two vascular lesions grew rapidly when the patients were around 4 months old. However, no pain, numbness or facial nerve weakness occurred in all the 11 patients. The size varied from 1.5 to 4.0 cm.

Table 2
Summary of 11 cases of benign tumors.

Case no.	Sex	Age (years)	Side	Histological type	Size (cm)	Symptom duration (months)	Initial treatment	Tumor recurrence/interval (months)	Follow-up time
1	M	8	R	Pleomorphic adenoma	2.0	18	Superficial parotidectomy	No	LFU, 3.5 months
2	M	17	R	Pleomorphic adenoma	3.1	0.5	Conservative parotidectomy	No	LFU, 6 months
3	F	18	R	Pleomorphic adenoma	3.2	12	Superficial parotidectomy	No	NED, 7.3 years
4	F	13	R	Pleomorphic adenoma	1.0	0.2	Superficial parotidectomy	No	NED, 5.9 years
5	F	15	L	Pleomorphic adenoma	1.5	10	Superficial parotidectomy	No	LFU, 1.5 years
6	F	18	L	Pleomorphic adenoma	3.0	48	Conservative parotidectomy	No	NED, 7.1 years
7	M	16	L	Pleomorphic adenoma	4.0	96	Superficial parotidectomy	No	NED, 2.4 years
8	F	1	L	Hemangioma	4.0	3	Sclerotherapy	No	NED, 7.8 years
9	F	1	L	Hemangioma	4.0	5	Sclerotherapy	Yes, 7 months	NED, 9 years
10	M	1	R	Hemangioma	2.5	0.3	Sclerotherapy	No	LFU, 1.2 years
11	F	1	R	Hemangioendothelioma	2.5	5	Conservative parotidectomy	No	LFU, 7 months

Note: M, male; F, female; L, left; R, right; NED, no evidence of disease; LFU, lost to follow-up.

Table 3
Summary of 13 cases of malignant tumors.

Case no.	Sex	Age (years)	Side	Histological type	Size (cm)	Symptom duration (months)	Treatment (at our hospital)	Tumor recurrence/interval (months)	Follow-up, time
1	F	17	R	Mucoepidermoid carcinoma	1.0	11	Superficial parotidectomy	No	LFU, 8 months
2*	F	14	R	Mucoepidermoid carcinoma	2.2	0.5	Total parotidectomy	No	AWD, 1.6 years
3	F	15	R	Mucoepidermoid carcinoma	2.5	2	Superficial parotidectomy	No	NED, 5.1 years
4	M	15	L	Mucoepidermoid carcinoma	8.0	2	Radical parotidectomy	Yes, 8 months	AWD, 1.4 years
5*	F	18	L	Mucoepidermoid carcinoma	4.1	24	Total parotidectomy	Yes, 1.4 years	DOD, 2.5 years
6	F	17	L	Adenoid cystic carcinoma	2.5	4	Superficial parotidectomy	No	LFU, 4.3 years
7	F	16	R	Adenoid cystic carcinoma	2.2	120	Total parotidectomy	No	NED, 4.2 years
8	F	18	L	Lymphoepithelial carcinoma	7.0	42	Radical parotidectomy	Yes, 7 months	DOD, 2.7 years
9	F	17	L	Lymphoepithelial carcinoma	3.0	48	Superficial parotidectomy	No	LFU, 1.2 years
10	M	15	L	Cystadenocarcinoma	3.2	12	Superficial parotidectomy	Yes, 2.5 years	NED, 4.1 years
11	M	14	R	Cystadenocarcinoma	3.0	60	Superficial parotidectomy	No	NED, 2.5 years
12	M	17	R	Carcinoma ex pleomorphic adenoma	2.2	12	Total parotidectomy	No	LFU, 5 months
13	F	1	R	Lymphoma	4.8	8	Biopsy		DOD, 1.4 years

Note: M, male; F, female; L, left; R, right; NED, no evidence of disease; LFU, lost to follow-up; DOD, death due to disease; AWD, alive with disease.

* Previous partial parotidectomy is performed at another institution.

None of the patients received previous treatment in another institution. Initial treatment in pleomorphic adenoma patients included superficial parotidectomy in 5 (71.4%) and conservative parotidectomy in 2 (28.6%) with preservation of the facial nerve. One patient with hemangioendothelioma was treated with conservative parotidectomy with preservation of the facial nerve and 3 patients of hemangioma were administered with sclerotherapy. Of 8 patients who had their initial surgery at our hospital, early surgical complications included temporary facial nerve weakness in 1 patient (12.5%). Long-term surgical complications included Frey syndrome in 1 patient (12.5%), and facial numbness in 3 (37.5%). No facial nerve paralysis was found in all the 11 patients.

For this group of 11 patients, one patient with hemangioma showed local recurrence 7 months after sclerotherapy and was treated successfully with second sclerotherapy. No patient had recurrence after surgical therapy. Follow-up information was summarized in Table 2.

3.2. Malignant tumors

Among malignant tumors, mucoepidermoid carcinoma was the most common, representing 38.5% of the cases, followed by adenoid cystic carcinoma (15.4%), lymphoepithelial carcinoma (15.4%), cystadenocarcinoma (15.4%), carcinoma ex pleomorphic adenoma (7.7%) and lymphoma (7.7%) (Table 3).

Treatment in these patients included superficial parotidectomy in 6 patients (46.2%), total parotidectomy in 4 (30.8%), radical

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