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Original Article

# Pediatric parotid gland tumors: Evaluation of 33 cases

Orhan Tunc, Burhanettin Gonuldas, Muzaffer Kanlikama

Department of Otolaryngology, Faculty of Medicine, Gaziantep University, Gaziantep, Turkey

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**Abstract**

**Aim:** Diagnosis and treatment of parotid gland tumors is a problem for clinicians and pathologists because these tumors are rare in children. We aimed to contribute to the literature by retrospectively evaluating 33 patients that we operated for a parotid tumor in our clinic.

**Materials and Methods:** Thirty-three pediatric patients operated from parotid gland tumor in the otolaryngology department between 2000-2019 were included in the study. All patients in the study were under the age of 18. Clinicopathologic data of pediatric parotid gland tumors were reviewed including age, sex, results of histopathologic tumor examination and surgical procedures.

**Results:** Patient group consists of 25 (76%) males and 8 females (24%). The age range of the patients is between 1-18 and the average age is 10,6. Benign tumors were observed in 28 patients (85%) and malignant tumors in 5 patients (15%). The most common benign parotid gland tumor was Pleomorphic Adenoma. Among malignant tumors, adenoid cystic carcinoma was observed in 2 patients, mucoepidermoid carcinoma in 2 patients, and acinic cell tumor in 1 patient.

**Conclusions:** Parotid gland tumors are rare in the pediatric age group, so it is difficult to manage. It should be aimed to apply the appropriate treatment in which every patient has the least risk of complications. Studies with much more patients about pediatric parotid tumors need to be done to further contribute to the literature.

**Keywords:** Mucoepidermoid carcinoma; parotid gland; pleomorfic adenoma

## INTRODUCTION

Salivary gland tumors (SGTs) are rare in both children and adults, accounting for less than 3% of head and neck tumors. As in adults, pediatric salivary gland tumors most often occur in the parotid gland (1). Approximately 85% of SGT occur in the parotid gland. Such malignancies are even rarer in the pediatric age group and making a clinical analysis of survival results difficult (2). Pediatric salivary gland tumors are often seen in the second decade. In children, malignant salivary gland tumors are more than benign tumors (3). In children, the most common malignant salivary gland tumor has been reported as Mucoepidermoid Carcinoma (MEC) and the most common benign salivary gland tumor as a Pleomorphic Adenoma (PA) (4). Diagnosis and treatment of parotid gland tumors are a problem for clinicians and pathologists because these tumors are rare in children (5,6).

## MATERIALS and METHODS

The study was approved by Gaziantep University ethics committee (Approval number: 2020/143). Thirty-three pediatric patients operated from parotid gland tumor in the otolaryngology department between 2000-2019 were included in the study. All patients in the study were under the age of 18. Clinicopathologic data of pediatric parotid tumors were reviewed including sex, age, results of histopathologic examination and surgical procedures. A total or superficial parotidectomy was performed as surgical procedures. The follow-up period of patients after surgery is over a year.

## RESULTS

Patient group consists of 25 (76%) male and 8 female (24%) (male to female ratio 3,1:1) (Table 1). The age range of the patients is between 1-18 and the average age is 10,6.

**Table 1. Malignant and benign parotid gland tumors of male and female**

| | Male (n) | Female (n) | Total (n) |
|---|---|---|---|
| Benign Tumor (n) | 21 | 7 | 28 |
| Malignant Tumor (n) | 4 | 1 | 5 |
| Total (n) | 25 | 8 | 33 |

Benign tumors were observed in 28 patients (85%) and malignant tumors in 5 patients (15%) (Table 1). The most common benign parotid gland tumor was PA

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**Corresponding Author:** Orhan Tunc, Department of Otolaryngology, Faculty of Medicine, Gaziantep University, Gaziantep, Turkey
**E-mail:** orhantip@hotmail.com

(n=15). Lymphangioma was observed in 10 patients. Among malignant tumors, adenoid cystic carcinoma was observed in 2 patients, MEC in 2 patients, and acinic cell tumor in 1 patient (Table 2).

**Table 2. Histopathology of parotid gland tumors**

| Tumors | Male (n) | Female (n) | Total (n) |
|---|---|---|---|
| **Benign Tumors** | | | |
| Pleomorphic Adenoma | 8 | 7 | 15 |
| Lymphangioma | 10 | - | 10 |
| Hemangioma | 1 | - | 1 |
| Warthin Tumor | 1 | - | 1 |
| Schwannoma | 1 | - | 1 |
| **Malign Tumors** | | | |
| Mucoepidermoid Carcinoma | 2 | - | 2 |
| Acinic Cell Carcinoma | 1 | 1 | 2 |
| Adenoid Cystic Carcinoma | 1 | - | 1 |
| **Total (n)** | 25 | 8 | 33 |

All patients underwent formal parotidectomy using a cervicomastoid preauricular incision. Seven patients underwent total parotidectomy, 26 patients underwent superficial parotidectomy. Facial nerves and branches were preserved in the entire patient. Three patients with malignant tumors in the parotid gland underwent neck dissection due to neck lymphadenopathy, but metastases were not detected in these lymphadenopathies. Recurrence was detected in 6 patients with a diagnosis of lymphangioma, 4 of these patients underwent revision surgery. Postoperative radiotherapy was applied to a patient who underwent total parotidectomy due to adenoid cystic carcinoma.

Postoperative wound infection was seen in one patient. Grade 3 transient facial paralysis was observed in three patients, permanent facial paralysis did not occur in any patient.

## DISCUSSION

Salivary gland tumors are rare in childhood. It is estimated that <5% of all SGTs are in chilhood. The frequency of both benign and malignant tumors increases in children over ten years (4). Twenty-two (66%) children in our patient group were over 10 years old. The parotid gland is the most frequent salivary gland affected by carcinoma during childhood and adolescence. ( 6,7).

The majority of pediatric parotid gland tumors in our study benign (%85). In a study by Lee et al., the rate of the benign parotid gland tumor was reported as 81% (4). Similarly, the rate of the benign parotid gland tumor was reported to be 85% in a study by Stevens et al. (5). PA has been reported as the most common benign parotid gland tumor (4,8). In our study, PA was seen as the most common benign parotid gland tumor. MEC is the most common parotid gland malignant neoplasm (3,4,9). In our study, there were patients with a limited number of malignant tumors. These were adenoid cystic carcinoma in 2 patients, MEC in 2 patients, and acinic cell tumor in 1 patient. Acinic cell carcinoma is the second most common parotid malignancy in childhood, after MEC. (10). Distant metastasis occurs in 2,5% of malignant parotid gland tumors (2). In our study, no metastasis was detected in any patient with malignant parotid gland tumor.

The current literature advocates limiting radiotherapy due to the side effects of radiotherapy in children with malignant salivary gland tumors. Radiotherapy can lead to facial growth abnormalities and secondary malignancy in children. However, postoperative radiotherapy is known to be effective in children with high grade parotid gland mucoepidermoid carcinoma (11). We applied radiotherapy to a patient with adenoid cystic carcinoma because of perineural invasion.

Parotid lymphangiomas are rarely seen in childhood and often detected in infancy. Of all the salivary glands, the parotid gland is the most common salivary gland where lymphangiomas are seen. Lymphangiomas of the parotid gland enlarge with time slowly (12). In our study, recurrence was observed in 6 of 10 patients that we operated due to lymphangioma in the parotid region.

Parotid gland hemangiomas are present as asymptomatic soft tissue swelling that causes a bluish color of the upper skin. There is no standard treatment approach for pediatric hemangiomas located in the head and neck, especially those located in the parotid gland. In many clinics, propranolol is used as first-line treatment for all babies with parotid gland hemangioma. (13,14).

## CONCLUSION

Parotid gland tumors are rare in the pediatric age group, so it is difficult to manage. It should be aimed to apply the appropriate treatment in which every patient has the least risk of complications. Further studies regarding pediatric parotid tumors need to be conducted with a higher number of patients to further contribute to the literature.

*Conflict of interest : The authors declare that they have no competing interest.*

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